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Old English stress – from constituency to dependency

0 Introduction

Old English (OE) stress has been a major bone of contention for generations of scholars and for over two centuries now. The often-cited account is that of Sievers (1885, 1893a, b), summarised by Cable (1942), Campbell (1959), among many others. Sievers' analysis is basically an inventory of OE stress patters, with little attempt at explaining why certain stress patters are possible. This is an account best characterised as 'observed but unexplained', a categorisation of stress patterns, based in part on Sievers's own observations of the inferred structure of OE poetry (the so-called 'four position-principle', see e.g. McCully 1996). Recent and not so recent work in the field includes both phonological and morphological analyses. The phonological attempts include those of Halle & Keyser (1971), Lass (1983, 1985), Suzuki (1985), Kaminashi (1989), Okazaki (1989), McCully & Hogg (1990), Tanaka (1990, 1991), Hutcheson (1991), McCully (1992), Dresher & Lahiri (1991), Halle, O'Neil & Vergnaud (1993), Idsardi (1994), etc. The morphological approach to the issue if found in the non-linear accounts of Suphi (1985, 1988), Colman (1994), Minkova & Stockwell (1994), Hutton (1998), for example. In a nutshell, the majority of these analyses argue that primary stress is morphologically determined and has nothing to do with syllable weight. McCully & Hogg's (1990) attempt, in particular, is couched in the framework of lexicalist metrical phonology, handled in terms of layered lexicon with cyclically applying rules on morphologically designated constituents, phonologically and/or morphologically defined extrametricality, etc. The recent Optimality theoretic analyses (Moon 1996, Bermúdez-Otero 1996, McCully 1999a, b) allow for simultaneous application of phonological and morphological constraints. In Kim's (2001) analysis primary stress is morphologically grounded, while secondary stress is sensitive to phonological information, crucially to syllable weight. The issue of OE stress hinges crucially on the following assumptions: is it solely morphologically determined, or is it phonologically grounded, or is it a mixture of the two?

Those accounts that draw on time-honoured phonological notions such as onset, nucleus, coda, and higher-level nodes like rhyme, syllable and (super)foot are classified as a constituency approach to phonological phenomena (every node is dominated by a higher one on the ladder of dominance). A theory couched in terms arborescence will necessarily seek and find explanation for phonological phenomena such as 'lenition word-finally and in preconsonantal position' or 'fortition word-initially' in exactly those positions that are labelled as coda or onset. A theory that relies on dependency will seek to explain phenomena in terms of a radically simplified theory of the skeleton, which consists of a string of CV units with only two lateral relations holding between the CV units: licensing and government. There is no hierarchical dominance (A dominates B), only lateral dependence (B depends on A for the retention of its melodic complexity, etc.). These are the hallmarks of a lateral approach to phonology. The lateral interaction between such CV units will be used to explain a host of seemingly disparate phenomena ranging from 'closed syllable shortening', 'open syllable lengthening', 'vowel-zero alternation' to positional restrictions on consonant clusters. Doing justice to any of these approaches is well beyond the scope of this article, but whatever it is that decides between the two must be sought in the mapping between empirical evidence and theoretical constructs such as 'occurring before an unpronounced vowel' (lateral approach) vs. 'occurring word-finally' (dependency approach) and the degree of naturalness achieved by such a mapping: an approach capable of unifying a number of seemingly unrelated environments is preferable to one that can do the same at the cost of some cumbersomeness.
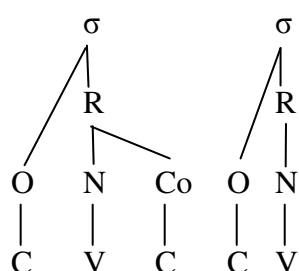
The analysis of OE stress begins with an introduction to a lateral approach to phonological phenomena (Section 1). The major threads in the description of OE stress will be discussed in Section 2. Next a dependency approach to OE secondary stress assignment and high vowel deletion will be attempted (Section 3).

1 Constituency vs. dependency

In a constituency approach, formal phonological primitives such as onset, nucleus and coda are dominated by a higher-level node, the rhyme and, still further, by syllable, foot, super-foot, phonological word, etc. Evidence for these higher-level constituents can be gathered from a number of languages played out on a number of well-known processes such as poetical rhyme

scheme (resting on the distinction between stressed/unstressed feet, as in English, or the heavy-light distinction, as in Latin, Greek or Hungarian, see e.g. Gordon 2006: 207–23)[1] or closed syllable shortening (involving the rhyme as a relevant constituent), ludlings (e.g. Laycock 1972, Bagemihl 1989), reduplication, affixation (all drawing on the syllable as an appropriate constituent). In a constituency approach the primitives of phonological representation are grouped into arboreal structures, as the one shown in (1).

(1) Arboreal grouping of the primitives of phonological representation[2]

```
        σ              σ
       /\             /|
      /  R           / R
     /   /\         /  |
    O   N  Co      O   N
    |   |  |       |   |
    C   V  C       C   V
```

This representation shows the traditional grouping of onsets, nuclei, etc. into hierarchically organised levels: the status of a consonant as a coda consonant, as opposed to an onset consonant, is defined by arborescence: rhymal appendix vs. right-adjoined syllable appendix. The syllable, however, has proved to be dispensable in the long run. Since Liberman & Prince (1977) analyses dealing with stress assignment have been conducted without reference to the syllable node. The English Stress Rule (ESR), for example, evaluates rhymal weight (gauged in moras, or in timing slots occurring at the

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1 The heavy-light distinction can be played out on various levels of phonological organisation, sometimes in the opposite direction: a showcase is Latin and Greek, for example, where word-stress depends on the heavy-light opposition, but the process of stress assignment begins on the right side of the word (this is typically known as the Romance stress pattern). In poetry, however, the same heavy-light distinction is utilised but now the process is initiated from the left edge of the word (cf. Allen 1978, Chapter 6) and is responsible for creating iambs, trochees, dactyls, etc. Hungarian, on the other hand, is insensitive to the heavy-light distinction as far as word-stress is concerned (words are always front stressed), but in the construction of a poetic line, the same principle is utilised as in Latin and Greek.

2 In such an arboreal representation the following short-hand notation is used for the supra-melodic and melodic levels: σ 'syllable', O 'onset', R 'rhyme', N 'nucleus', Co 'coda' and C 'any consonant', V 'any vowel'.

intersection of melodic and syllabic representations) at the right edge of the domain. Crucially, and disregarding technical issues such as extrametricality, if the rhyme is heavy the nucleus will be stressed, otherwise stress falls on the preceding syllable, irrespective of syllable weight. Onsets universally seem not to have a say in the placement of stress. So, while the syllable node is unsubstantiated as far as stress in concerned, the onset as a primitive loses its status vis-à-vis the other consonantal primitive, the coda consonant. Onsets, by virtue of their position, are always followed by a vowel. The syllable essentially serves as an anchor point for the onset. It was only a short step away from claiming that the other consonantal primitive (the 'coda') is just an 'onset' followed by an unpronounced vowel. Dissatisfaction over the syllable as a constituent has brought about a host of analyses that espouse a strictly non-hierarchical and non-branching representation of the skeleton whose structure is thus reduced to strictly alternating consonantal and vocalic positions (see e.g. Lowenstamm 1996, Scheer 1999, 2004, Szigetvári 1999, 2001, to name a few attempts). The skeleton is thus built up of CV units. The relationships between such CV units are those of licensing and government. The burden of explanation has thus shifted from arborescence to laterality and the two forces operating between CV units (for recent reviews of the lateral theory see e.g. Cyran 2006, and Nevins 2007).
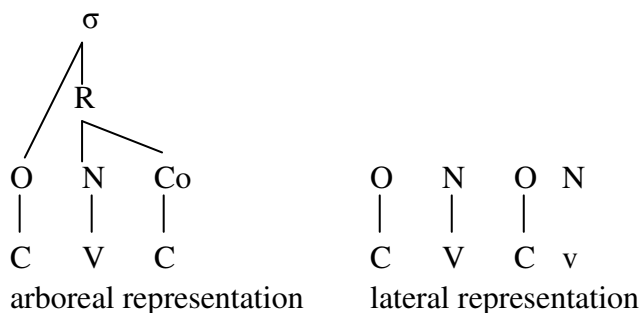
A number of equivalences between an arboreal and a lateral representation should be highlighted. The lateral definition of the 'coda' is 'a consonant occurring before an unpronounced vowel'. As this theory builds on CV units, a short vowel will by necessity attach to a single such unit. A long vowel, therefore, will enclose an unpronounced consonant and, conversely, a (partial) geminate will be composed of two CV units of which the first unit's vowel will be melodically empty.[3] Sample representations are provided in (2).
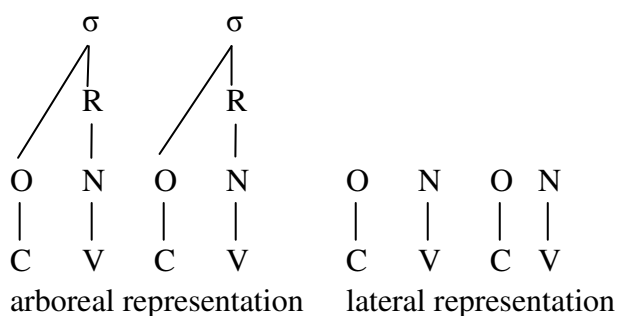
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3 Lower-case letters are used throughout this article for unpronounced skeletal positions. So, v 'unpronounced vowel' (e.g. at the end a word ending in a consonant, or in traditional 'word-medial coda consonant'), c 'unpronounced consonant' (enclosed in a long vowel or diphthong). Upper-case letters are preserved for pronounced vowel and consonants. The absence of melody in (2) is represented as the absence of association lines between the skeleton (which now hosts onsets and nuclei only) and the melodic bundles represented as C/Vs.
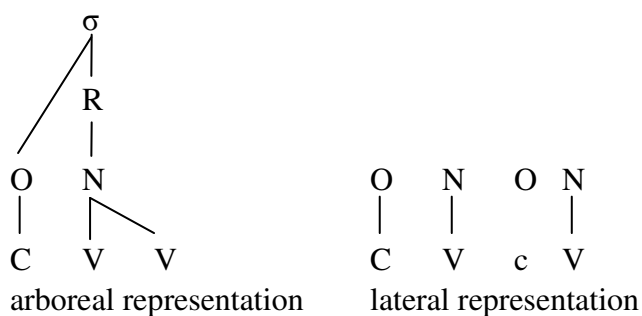
(2) Arborescence vs. laterality

(a) coda consonant

```
        σ
       /|
      / R
     /  |\
    /   | \
   O    N  Co        O    N    O    N
   |    |  |         |    |    |
   C    V  C         C    V    C  v
arboreal representation    lateral representation
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(b) intervocalic consonant

```
      σ           σ
     /|          /|
    / R         / R
   /  |        /  |
  O   N   O   N    O   N    O   N
  |   |   |   |    |   |    |   |
  C   V   C   V    C   V    C   V
arboreal representation    lateral representation
```

(c) long vowels/diphthongs

```
        σ
       /|
      / R
     /  |
    /   |
   O    N          O    N    O    N
   |    |\         |    |         |
   C    V V        C    V    c    V
arboreal representation    lateral representation
```

After the coda constituent has been done away with as a constituent, the only remaining representational primitives are onset and nucleus. However, since coda is now simply an onset followed by an unpronounced vowel (V), the formal distinction between O vs. Co can no longer be maintained: O is a

consonant followed by a vowel (pronounced or not). In other words, the skeleton is now composed of strictly alternating consonants and vowels (any one of them can be unpronounced). With the downfall of the syllable, the now defunct concept of O vs. N should also be dispensed with. A representational middle ground between the theory-laden O/N and melodic bundles is bare skeletal slots, or abstract timing units, devoid of any phonetic content. Since the temporal sequencing and interpretation of melodic material no longer depends on its incorporation into an arboreal structure but rather on the concept of consonantalness and vocalicness, and the association of melodic bundles to such positions, a simplification can be introduced: skeletal positions will be merged with syllabic constituents, i.e. a nucleus will be represented as V and an onset/coda (i.e. a consonantal slot) as C. This merger is not merely notational (see Szigetvári (1999: 87ff.) for a discussion). The unification of the skeleton has been achieved: a consonant is always followed by a vowel (either V or v). This unification has brought on a proliferation of empty positions (both vocalic and consonantal: recall the representation of long vowels and consonant clusters) but this all is not to the detriment of the lateral theory. With its means of stopping the proliferation of empty categories, this theory is more constrained than any traditional theory of the syllable in which constituents are allowed to branch freely (e.g. *prompt* in the traditional syllable-based account, will have as many as three consonants in coda position and theoretically there is nothing that could stop this constituent from branching indefinitely). A full-model of phonotactics is beyond the scope of the article. The two forces that are part and parcel of this theory must be introduced here: *government* and *licensing*.

   Before this is attempted, a slight diversion is necessary to tackle one of the consequences of autsegmentalism. The representations in (2) show the widespread idea that phonological representations contain elements (bundles of melodic features, represented below by the Greek letters α and β) that are linked by association lines to anchor points (generally shown as x, or, following the simplification adopted here, as V) to mark their temporal simultaneity. If these anchor points *per se* are devoid of any melodic content (phonetic property), there are a number of configurations for melody–skeleton associations (shown in (3) for a vowel).

(3) Possible melody–skeleton associations

(a) V　　　　(b) V　　V　　(c) V　　　　(d)　　　　(e) V

α　　　　　　　α　　　α　　β　　　　α
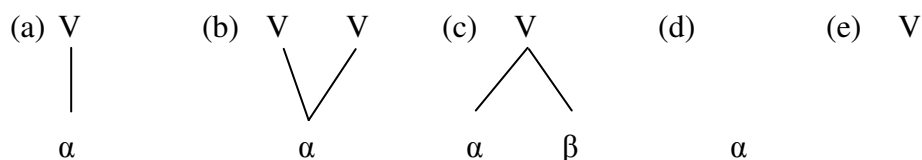
These representations show the biunique (3a), one-to-many (3b) and many-to-one (3c) relationships, representing a short vowel, a long vowel, and possibly a short diphthong (a contour segment), respectively. These straightforward possibilities are complemented by a melody lacking an association line (floating melody), shown in (3d). The fifth possibility (3e) shows a melodically empty position (a vowel in this case). If empty skeletal slots like the one in (3e) are allowed to proliferate freely, the phonetic reality ('surface representation') and the skeleton as a theory-internal means of representing the structure of phonetic manifestations become totally divorced. One plausible instantiation of positing an unpronounced vowel between two consonants is offered by syncope/epenthesis phenomena in English. For the alternation between /ʃɪvərɪŋ/ ~ /ʃɪvrɪŋ/ *shivering* it does not seem far-fetched to claim that the two C's (/v/ and /r/) straddle an empty v (/ə/). A theory that does not recognise empty categories will have to posit two underlying representations for /ʃɪvərɪŋ/ ~ /ʃɪvrɪŋ/, one in which /v/ is an onset and one in which it is a coda. A theory that allows for empty categories is able to posit a common representation for the alternation above, one in which /v/ is always onset: in one case it is followed by a pronounced vowel, in the other it is followed by an unpronounced vowel. Both vowels are melodically empty: metaphorically speaking, pronounced vocalic emptiness (i.e. a V to which no melody is attached) in English manifests as a mid central lax vowel, i.e. a schwa. There is no need to have two representations for *shivering*. This is where the two postulated forces in a lateral phonological theory are in the forefront.

　Government can be conceived of as a policing force that regulates the pronunciation of empty vowels and this is a powerful enough constraint to stop the proliferation of empty categories. Vowel-zero alternations of this kind occur in C__CV environments only. This observation is encoded as a stipulated relation termed *government*: empty nuclei remain unpronounced when they are governed, i.e. when they are followed by exactly one consonant

and a pronounced vowel, hence /mɑːvlɪŋ/ *marvelling* vs. */mɑːvl̩/ vs. /mɑːvəl/ (~ /mɑːvl̩/) *marvel*. The following pronounced vowel is regarded to be responsible for the non-pronunciation of the empty vowel in *marvel* (cf. Kaye 1990, Charette 1991, Harris 1994, Szigetvári 1999, Scheer 2004, for some of the many formulations). Government is strictly constrained: it is directional, applying from right to left, and local: it can only affect the immediately adjacent nucleus to the left. Hence the v_1 in (4) cannot ever alternate with zero: this empty vowel does not undergo syncopation because government (symbolised here by a dashed arrow) cannot go past v_2.

(4) No vowel zero alternation before a consonant cluster
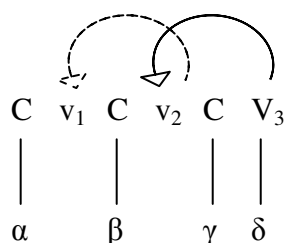
The non-empty V_3 governs the empty vowel (v_2) to its left and thus it remains unpronounced. This unpronounced vowel cannot govern v_1 which is thus predicted to surface as a pronounced, yet melodically empty vowel (in English, as a schwa). The melodically full vowel, V_3, is also unable to govern v_1 as it is not immediately adjacent to it. To illustrate the behaviour of vocalic government, observe some of the possible alternations for *(cau)tionary* (Wells 2008): /ʃənəri/ ~ /ʃnəri/ ~ /ʃənri/ (~ */ʃnri/ with non-syllabic /n/ and /r/). This, of course, cannot be the only means of silencing an empty vowel. If it were, English would not have word-final clusters as in *lump, flint, sound, prompt,* etc. These issues are irrelevant here.

   Another force is a lateral theory of phonology is *licensing*. Government and licensing are not counteracting forces, they are complementary: the effects of one are not counteracted by the other. In other words, a vowel silenced by government cannot be salvaged by licensing. Licensing is a supportive force (for a full explication of this idea see Scheer 2004). It has been observed that consonants show a propensity for lenition in intervocalic, pre-consonantal and word-final positions, whereas they are generally more stable in word-initial

and post-consonantal positions followed by a pronounced vowel. Such consonants are said to be licensed, but not governed. Licensing, however, is also postulated to operate between the two members of a long vowel (or diphthong), shown in (5).

(5) Licensing in long vowels/diphthongs

(a) C V_1 c V_2 (b) C V_1 c V_2
            α   α   β
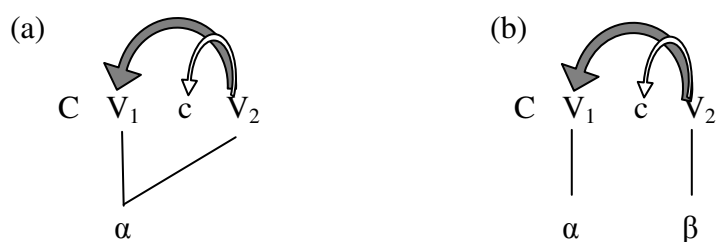
Restrictions on licensing (shown with a black thick arrow) apply here as well: it proceeds from right to left and binds together the two vowels in a single unit (conventionally called a long vowel, as in (5a), or a diphthong, shown in (5b)). Such vowels are assumed to behave as a unit in phonological processes (they may attract stress, undergo monopthongisation, etc.), as opposed to a sequence of two V's between which there is no licensing (as in hiatus).[4] Note also the unpronounced consonant (shown as C) wedged between the two vowels. This consonant is melodically empty and is hit by government (shown with the thin empty arrow), and provides for the smooth transition between the two parts of the long vowel/diphthong. The full explication of the governing and/or licensing potential of V's and C's is beyond the scope of this article (see Scheer 2004 for a detailed account): in short, if V's are postulated to be naturally 'loud' (i.e. pronounced, even if there is no melody attaching to them), and consonants as 'silent' (i.e. unpronounced, unless some melody is lexically associated to a C position), then the effects of government and licensing can be clearly formulated: a governed v is silent (mute, un-pronounced), a governed C becomes louder (it may typically undergo intervocalic voicing, spirantisation, gliding and may even be totally lost, allowing for a long vowel/diphthong to be created, as in (5) above). A licensed

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4   Note that while monophthongisation is possible, for example, in *gourd* /ɡʊəd/ ~ /ɡɔːd/, it is impossible in *dual* /djʊəl/ (~ */djɔːl/), cf. Wells 2008. This receives an explanation in terms of the presence vs. absence of V-to-V licensing for the two structures, respectively.

empty vowel is prosodically supported in the skeleton (and thus allows for melody to spread from the licensing vowel, as seen in (5a), allowing for a long V to be created) or it may be licensed to support its own melody (as witnessed in the case of a diphthong in (5b)).

It was remarked earlier that licensing and government can only originate in a pronounced (not necessarily melodically specified) vowel. If the licensing/governing potentials of Vs are gauged against each other, the following possibilities emerge:

(6) Internuclear relationships

		V	v	V	v
a)	V	licensing	government	government	licensing
b)	v	licensing	government	government	licensing

In (6) the possible vocalic relationships are mapped out (in line with the assumptions of the lateral theory, the relationships work from right-to-left and the two forces cannot apply simultaneously to the same target vowel).[5] (6a) shows that what counts here is prosodic licensing/government coming from a pronounced vowel, not melodic licensing. That is, a melodically empty but pronounced vowel (V) has prosodic potential, i.e. it can support another vowel's melody or, conversely, induce melodic changes in a consonant or a vowel, as witnessed by lenition and syncope.[6] (6a) shows **V-to-V licensing**,

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5 The question of why licensing and government cannot apply simultaneously to a vowel, whereas they *can* target an intervocalic consonant in tandem, remains a mystery at this point (see also Scheer 2004: 175), but probably has something to do with the fact that consonantal and vocalic material is not positioned on the same tier (cf. Balogné 2005). The same mirror image could be responsible for the absence of simultaneous C-to-C licensing/government.

6 The relationship between the melody of a vocalic slot and its pronunciation, as well as whether a melodically empty vowel, as claimed here, is really devoid any melodic information cannot be tackled here. This last question boils down to whether a 'schwa' is melodically empty after all. This ties in with other assumptions of the lateral theory, most notably that of what (if anything at all) is licensed (i.e. allowed) to remain unpronounced in languages that allow for consonant-final words. This hinges on the assumption that a melodically empty vowel is pronounced unless a higher principle intervenes ('word-final licensing of empty nuclei'). However, if one assumes that only melody (and not the absence thereof) can be pronounced, then perhaps a word-final empty vowel is silent because it has no melody whatsoever. In other words, a schwa may be melodically specified after all. Scheer (2004: 661f.) has four nuclear objects: full nuclei, schwa, final empty nuclei and internal empty nuclei. Schwa (a vowel that can alternate with zero) is not

assumed to operate in long vowels/diphthongs, but also considered to be responsible for open syllable lengthening (Scheer 2004, Chapter 9); **V-to-v government** (keeping a check on the proliferation of empty nuclear positions, and seen at work in syncopation, for example); **V-to-V government** (this relationship can plausibly be claimed to be responsible for silencing vowels that are specified as having floating melody, i.e. there is no lexically established association line between melody and skeletal position, as shown in (3d)) and **V-to-v licensing**. V-to-v licensing is probably impossible: if one assumes that in a VcV sequence the first vowel is emptied of its melodic content (and thus V > v), this emptied slot can now be reached by licensing from the following V, making this vcV sequence immediately identical to V-to-V licensing (in other words, a long vowel is born this way, with melody acquired from the licensing vowel). In other words, V-to-v and V-to-V licensing are in complementary distribution, the two realisations, as it were, depending on the presence/absence of licensing between the two vowels. In contrast, (6b) shows the non-existent vocalic potential of a silenced V.

It was remarked earlier that simultaneous application of licensing/government to a vocalic target is impossible. The reason for this can be viewed as a consequence of the fact that vocalic positions are situated on the same plane, and categories of one kind can only dispense one sort of potential on a category of the same kind. If this can ultimately be shown to be true, then there is a binary choice for any pronounced vowel: it can either govern or license the preceding vocalic position. It still remains to be shown, on the one hand, how an intervening consonant can influence the way a vowel licenses/governs the vowel to its left and, on the other, how a targeted vowel

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on a par with empty nuclei (objects that never alternate with a pronounced vowel). Schwa may, after all, be analysed as a V with floating melody (however it is represented), similarly to 'empty' vowels in some Slavonic languages in which the quality of the alternating vowel is unpredictable (typically /e/ ~ /o/, depending on the dialectal realisation of the two types of Old Slavonic yers). In other words, these 'schwas' must be melodically specified. To rephrase this, government entails severing the association line between melody and skeletal position. This type of association (line) is brought into existence post-lexically (metaphorically speaking, lexical melody strives to be pronounced via association to a skeletal slot). A lexically present association line (as the one characterising a non-alternating vowel; a full vowel in Scheer's terminology) cannot be altered post-lexically, here by government. If this is correct, then an empty vowel is simply not pronounced because there is nothing to pronounce. These issues wait further research.

can interfere with the two dispensed forces. A full vowel with lexically associated melodic material to the left of a pronounced vowel is viewed to be immune to syncopation (a clear sign of the absence of government): in such a case, government can only strike down on the intervocalic consonant. Licensing, on the other hand, is not a destructive force and can target the vocalic slot, both melodically empty and specified, to its left.

In what follows it will be argued that secondary stress assignment in OE can be explained with licensing operating over the head of a (melodically empty or specified) consonantal position, played out on both melodically empty and specified vowels. It will be shown that licensing is a force that props up the prominence of a CVCV template in OE. A decisive piece of evidence for the choice of licensing (over government) of a pronounced vowel in relation to the vowel to its left in OE comes from the following data: whereas there is *no* syncope in words like *fremede* (< **fremidæ*) 'I did' ~ ***fremde*, words like *hīerede* (< **hǽaridæ*) 'I heard' regularly show it: *hīerde*. Long vowels cannot be syncopated either: *rēafōde* 'I stripped' ~ ***rēafde* vs. *hēafode* 'head' ~ *hēafde*. It seems that *freme-* (in *fremede*) and *-ō-* (in *rēafōde*) behave identically. Campbell's (1959, §574 (4)) description is worth quoting: "Originally trisyllabic [words] with a long root syllable syncopated an originally short middle syllable before inflectional endings […]. Those with a short root syllable did not normally syncopate […]". This aspect of OE phonology calls for an explanation.

The various V-to-C configurations in terms of licensing and government, as well as the possibility of a planar analysis of licensing/government vis-à-vis melody, are irrelevant at this point (see, for example, Balogné 2005, Chapter 6).

2 The syllable and what it explains

2.1 Introduction

The question of syllable weight and its role in stress assignment in Old English (OE) has been a widely debated issue. Another issue is that of metrical ictus, as witnessed in OE poetry where the number of positions per half-line (overwhelmingly: four) is strictly regulated and implies that 'position-keeping' in an OE half-line depended on stress and, controversially, on syllable weight,

and, even more so, on the equivalence of two syllables to a single heavy one. This last aspect has provoked considerable debate because it suggests that OE stress is quantitative in nature (similarly to Latin or Greek), a feature that is highly controversial in the stress system of the Germanic languages. The question of stress in OE then crucially hinges on whether a syllable had to be heavy to be stressed.

2.2 Major observations about OE stress

Traditional accounts suggest that the Germanic languages had evolved an accentuation system whereby the primary stress of a word always fell on its first syllable. Systematic exceptions to this are verbal monosyllabic prefixes (*onsácan* 'deny' vs. *ǽfterspỳrian* 'inquire') and a number of prefixes that are always unstressed (e.g. *be-* and *ge-*). The majority of prefixes thus have a stressed and an unstressed variant, depending on the lexical category of the word to which they attach. A number of well-known doublets follow (the first member of the pair is a verb, the other a noun): *onsácan* 'deny' ~ *ándsàca* 'apostate', *otspúrnan* 'stumble' ~ *ǽtspỳrning* 'offence', etc., the qualitative difference in the first vowel for each pair is seen as a function of absence/presence of stress.

  Disregarding this systematic exception (to be tackled in Section 2.4), primary stress is found on the first syllable of all lexemes: on lexical monosyllables, *hū́s* 'house', *cū́* 'cow', *bā́n* 'bone', *hḗr* 'here', etc. This fact reveals little about the relationship between stress and syllable weight, apart from the rather trivial fact that vowels in lexical words were stressed in this language. Generally speaking, inflectional suffixes could not be stressed; consider the typical paradigm of an *a*-stem noun: *bā́nes*, *bā́ne*, *bā́nas*, *bā́na*, *bā́num* 'bone' (the examples show the gen. sg., dat. sg., nom./acc. pl., gen. pl. and dat. pl. forms, respectively). The fact that these suffixes are unstressed is supported, first of all, by their diachronic development. They all show a vocalic quality systematically different from that found for the same historic vowel in a position unambiguously associated with stress, e.g. in a monosyllabic lexical word: *bā́ne < *báinai*, *bā́na < *báinôm*,[7] etc. (cf. the development of stressed *ai > ā*, as in *báinam > bā́n*). In addition to this, the vowels found in the

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7   The vowel in gen. pl. in this class of nouns is traditionally postulated as having circumflex accent in Germanic.

various inflectional suffixes are also distinguished from their stressed counterparts by their absence to bear metrical ictus in OE poetry (as developed by Sievers 1893a, b, 1895, and modified by Bliss 1967, among many other attempts).
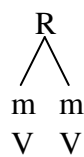
Heavy inflectional syllables, even under the usual characterisation of heaviness, do not attract stress: **scacénde* 'shaking' (cf. the normal *scácende*), **æþelíng* 'noble' (cf. the normal *ǽþeling*). The fact that stress must have been on the stem syllable is shown by the quality of these vowels: West Germanic unstressed **a* (except before nasals, and if followed by a back vowel, as in *scacan* 'shake') and **ǣ* (< **ai*) are found in the earliest texts as <æ> and later reduced to a vowel spelt <e> in recorded OE: e.g. **bainas > *bainæs > bānæs > bānes*; **bainai > *bānai > *bānǣ > *bainæ > bānæ > bāne*.[8] This reduction, however, never affects words like *scacende* (**scecende*)[9] or *æþeling* (**eþeling*), a solid enough proof for the supposition that these vowels could be characterised with a feature that diametrically oppose them to the etymologically identical vowels in non-initial positions. This feature can conceivably only be stress. This is, too, a clear enough indication that syllable weight did not impinge on primary stress assignment. Based on cross-linguistic evidence, the facts about syllable weight that everyone is agreed on are these:
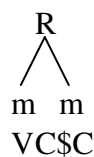
(7) Syllable weight

(a) light   (b) heavy   (c) heavy

```
    R                    R                      R
    |                   / \                    / \
    m                  m   m                  m   m
    V                  V   V                  VC$C
```

With 'm' standing for mora, a unit of measurement for syllable weight,[10] the constellations in (7b-c) show those syllables that would traditionally be labelled heavy: bimoraic sequences (with (7b) showing a long vowel/diphthong and (7c) a short vowel followed by a coda) are contrasted with mono-moraic sequences (seen in (7a)). It is only in some languages (e.g. modern English or Latin) that the above configurations have empirical justification: heavy syllables attract stress, whereas light syllables do not.[11] What is more, the sequence VC\$ counts as heavy in some languages only (in Ancient Greek and Khalka Mongolian, for example, it is light).

Continuing with our characterisation of the possible relationship between stress and syllable weight, it comes as no surprise that in OE non-word initial light syllables could not be stressed either: e.g. ***winé* 'friend' (< *wini*), ***sunú* 'son' (< *sunu*). To be precise, the comparison of the two etymologically identical vowels in *wini*, for example, shows that the second one underwent melodic changes not recorded for the first vowel: melodic decomposition of the vowel, yielding OE *wine*. The only plausible explanation for the differing behaviour of the two vowels is stress: assuming that the first vowel was stressed and the second unstressed.

At this point another observation is in order: in traditional accounts of OE phonology, it is assumed that by recorded OE times in inflectional suffixes the traditional etymological length of vowels had collapsed, leaving behind only short vowels, a correlate of absence of stress. One example has already been given: **bainai > *bānai > *bānǣ > *bainæ > bāne* 'bone, dat. sg.' (an *a*-stem masculine noun). Further examples include the various forms of weak verbs of Class II: e.g. *timbrian* 'build, infinitive' < **timbrīan* < **timbrējan* < **timbrōjan*; *timbrod* 'pt. pl.' < **timbrōd*; *timbrode* '1sg. pt. indic.' <

---

10 Note that strictly speaking moras only encode rhymal weight (shown above), not syllable weight, given that onsets do not contribute to the functional distinction between heavy and light syllables.

11 This is formally encoded in the English Stress Rule for modern English (cf. Hayes 1985). The rule crucially respects syllable structure at the right edge of its domain of application, the parameter being that of heaviness, complemented with a constraint on morphologically encoded extrametricality. This captures the difference in place of stress in the classical example *párent* vs. *paréntal*. In this respect, modern English patterns with Latin and is unlike OE, to be demonstrated below (see also Scheer & Szigetvári 2005). The syllable as a theory-internal construct has also been invoked to explain processes other than stress assignment: these include tonal phenomena, closed syllable shortening, poetic conventions (e.g. iambic vs. trochaic lines in a poetic tradition), etc.

*timbrōdæ < *timbrōda < *timbrōdōm*).[12] It is assumed thus that the final vowel of *wine* 'friend, nom. sg.' (< *wini < *winiz*) and *wine* (< *winǣ < *winai*) had merged by recorded OE times. A summary is found in (8), where syllable weight follows the traditional classification: a long vowel or diphthong followed by a tautosyllabic consonant ($C_0\bar{V}C$) is classified as super-heavy, whereas a short vowel followed by a tautosyllabic consonant ($C_0\breve{V}C$) is heavy.

(8) Summary of the heavy/light distinction in syllables vis-à-vis stress[13]

	Stressed	Unstressed	
Heavy syllable	bānum	pre-OE	OE
		æþe*ling* timbr*ī**an* win*ǣ*	æþeling timbrian wine
Super heavy syllable[14]	bān, frēond, lēoht, fēng	tim*brōd*	timbrod
Light syllable	æþeling	wi*ni* su*nu*	wine sunu

In OE polysyllabic words final syllables are unstressed, regardless of how many consonants they end in, including those syllables containing (ety-mologically) long vowels followed by a consonant cluster. As can be seen, syllable weight provides no evidence for a primary stress assignment al-gorithm. In other words, there is no correlation between syllable weight and stressedness: a light syllable can be stressed, and a heavy syllable can be unstressed. Alternatively, on a more pessimistic tone, if there had ever existed a correlation between syllable weight and stress, every trace of it was

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12 For the details see Campbell (1959, §331(5) and §754f.)

13 Glosses: *bānum* 'bone, dat. pl.', *æþeling* 'noble, nom. sg.', *timbrian* 'to build, inf.', *wine* 'friend, nom. sg.', *bān* 'bone, nom. sg.', *frēond* 'friend, nom. sg.', *lēoht* 'light, nom. sg..', *fēng* 'caught, 1-3sg. past. indic.', *sunu* 'son, nom. sg.'.

14 It seems that OE did not have closed syllable shortening, both stressed and unstressed super-heavy syllables must be postulated for the various stages of the language. In recorded OE the loss of distinctive length in inflectional suffixes is the result of lack of stress, rather than closed syllable shortening. On any account there is no evidence that in classical OE times stressed long vowels were regularly shortened before consonant clusters, and no evidence whatsoever that this type of shortening regularly affected long vowels followed by a singleton consonant in the mainstream dialects of English.

eliminated by OE times (one visible trace of this scenario being that ety-mologically heavy inflectional/derivational syllables had ceased to be stressed at some point, leaving the stem vowels as lone primary stress bearers), and there are no hints either that this regularity was ever operative in pre-OE, or Germanic times for that matter (cf. Streitberg 1943: §34–37).

It seems that syllable weight has no relevance in OE primary stress assignment. Stress provides no means for ascertaining whether monosyllabic lexical items like *scip* 'ship', *wer* 'man', *cyng* 'king', *brycg* 'bridge', *bedd* 'bed', *frēond* 'friend' show a heavy or a light syllable. Apart from the descriptively adequate statement that the *minimal size* of an OE *stressed* lexical monosyllable is $C_0VC\#$, there is nothing revealing about the relationship between the two phonological notions: two unrelated events cross at the point of a lexical monosyllable. So, although on universalist grounds the configuration in (9) below shows a heavy syllable, there is nothing to cor-roborate this within OE phonology viewed from the point of stress assignment. Minkova & Stockwell (1994: 38), on convergent lines, argue that a con-figuration shown in (9) probably shows a light syllable (substantiating this claim by the fact that all word-final syllables of polysyllabic words are unstressed, irrespective of their weight), but this ushers the notion of syllable weight through the back door. Syllable weight, i.e. a quantitative approach to stress, seems to play no role in OE.

(9) An OE $C_0VC(C)\#$ syllable of indeterminable weight

Another problematic area concerns the traditional notion of *resolution*, i.e. the equivalence of a light syllable followed by another syllable to a single heavy syllable (i.e. L X, where X ranges over a light or a heavy syllable, with the notion of weight as traditionally understood) needed for poetical scansion. The traditional view has it that in OE poetry only a heavy syllable (or one equivalent to it, i.e. a resolved syllable) can be stressed. This is problematic

because this allows quantity back into the description of OE stress for which no phonological motivation was found. It will be shown that this seeming controversy can be solved by admitting a new approach into the discussion of phonology, the notion of an OE template (expressed in terms of CV units), one that allows stress to be viewed independently of quantity and at the same time to express the sensitivity of certain OE processes (e.g. high vowel deletion) to what traditionally can be viewed as sensitivity to syllable quantity. In other words, stress is orthogonal to syllable weight.

At this preliminary stage, let us concede that OE poetry and its insistence on treating only heavy (and resolved) syllables as stressed is the result of a yet another coincidence: that of the appearance of stress and a templatic constraint.[15] Admitting resolution into our theory, we arrive at another entity labelled 'heavy' (shown in (10)).

(10) Resolved syllables

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 X
 |\ 
 | \ 
 |  \ 
V  C  V C(C)
```
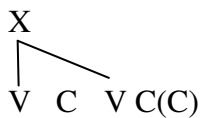
The constituent shown as 'X' cannot be R, or σ. It could potentially qualify for a super-syllable or a foot of some sort, but its status remains mysterious. Up to now, it seems there is little positive evidence for a syllable-based account of OE stress (see Dresher & Lahiri (1991) for the notion of the trochaic

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15 Note that the actual problem of OE poetry and its use in ascertaining the quantity of syllables eligible for stress revolves around *resolved* syllables (e.g. *scipu* 'ship, nom./acc. pl.', *wine* 'friend, nom./acc./dat. sg.'), NOT *heavy* syllables per se because, as we have seen, the minimal OE word *is* heavy, under standard assumptions: e.g. *wer*. As a consequence of the minimal word constraint, any other type of syllable (e.g. *fēond*, *bān*, *bonda*) must be anything but light. This is another misconception about OE phonology. If *wer* is as heavy as *scipu*, as claimed on the basis of OE poetry, then the issue does not revolve around stress (which is independent of syllable weight) but the size of words to which certain processes are sensitive (e.g. the size of slots in an OE half-line). As can be seen, *scipu* and *wer* are equally long (they comprise two CV units). It is only a coincidence that both of them are stressed on their first syllables. The sensitivity to the size of such words (two CV units), however, is indicative of a fundamental property of OE, of a process that counts window-size portions of the skeleton. This is typical of a templatic language.

Germanic foot, and Minkova & Stockwell's (1994) criticism of this new constituent dominating a resolved foot).

Before we proceed, it is time to summarise and expand on the facts of OE stress. The place of primary stress, granting a number of systematic exceptions, seems to present no difficulties: it is always on the first syllable of the word, irrespective of syllable weight. Secondary stress as traditionally understood (cf. for example, Campbell 1959, §§87–92, Suphi 1985: 109ff., etc.), and as found to feature in OE poetry as a secondary rise position (albeit typically a non-alliterative ictus in poetry), can be found on:[16]

(i) *primary (true) compounds*, i.e. on the second element of semantically transparent compounds whose second elements retain independent semantic force: e.g. *góldwlànc* 'proud with gold', *Ángelcỳnn* 'English people', etc. The stress on the second part of such compounds is really a demoted primary stress. In McCully & Hogg's (1990: 323) conception of the term, the Word Rule (which, similarly to the modern English Word Rule, scans pairs of feet erected by the Stress Rule) assigns left-strong prominence to any two foot-nodes (unlike the modern English Word Rule, which works in a mirror image fashion and assigns right-strong prominence): for any pair of foot-level nodes, N_1 and N_2, N_1 is strong, i.e. primary stressed, with N_2 undergoing demotion to secondary stress, yielding the observed prominence relations, as in *góldwlànc* (< *góld wlánc*).[17] In other words, an OE (non-prefixed) bi-pedal word will be front-stressed.

(ii) *obscured compounds* like *wísdom* 'wisdom' have second elements that lost their original semantic force (*wīs* 'wise' + *dōm* 'doom, judgement'), but regain secondary stress if followed by an inflectional suffix: *wísdòmes* 'wisdom'. The question of whether *wísdomes* also regains the original length of the second vowel will be briefly discussed in Section 3 (the question of vocalic length is not clearly disambiguated vis-à-vis the

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16 This classification is that given by McCully & Hogg (1990: 316).

17 This distribution of stress is identical to modern English compounds that have so-called word stress: e.g. *hándymàn* (as opposed to compounds that have phrasal stress: e.g. *wèek énd*). The more lexical (non-derived) a compound is, the more likely it is to be stressed like *hándyman* (and ultimately to lose stress on its second component and reduce to a schwa, as in *orchard* < *órtyàrd* 'wort-yard').

retention/reappearance of secondary (or half) stress in Campbell 1959 (§88); in McCully & Hogg (1990: 316) this word is given as *wísdòmes*, i.e. with a secondary stressed short vowel).

(iii) on the evidence of the metrical system, the following also appear to acquire secondary stress: heavy derivational suffixes (e.g. *-ing*, *-ness*, *-end*, etc.) and also some inflectional ones: *-ende* (present participle), *-enne* (inflected infinitive), the medial *-i-* (infinitive) and *-o-* (past tense) of the Class II of weak verbs, etc.: e.g. *súnd cúnnìan* 'waves exploring' (Beowulf 1426b), *féo fíngòde* 'with fees I settled' (Beowulf 470b),[18] etc.

McCully & Hogg (1990: 317), following the classical descriptions by Campbell (1959), remark that in (ii) and (iii) above the secondary stress has to be preceded by either a heavy syllable or its equivalent, a resolved syllable (i.e. a sequence of two light syllables).[19] Thus, on the basis of Sievers' metrical patterns, *síngènde*/*ǽþelìnges* and *wésende* do not behave identically: the

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18 The literal translations are those given by Porter (2006).

19 This state of affairs is spurious on two grounds. On the one hand, McCully & Hogg (1990) seem to misinterpret Campbell's (1959, §91) description on the condition *-dom* type ((ii) above) and *-enne* type ((iii) above) of suffixes to be preceded by a heavy syllable or its resolved equivalent. Campbell (§91) does not include the *-dom* type suffixes in the group of those suffixes that have to be preceded by a long syllable or its equivalent. On the other hand, the *-dom* type of suffixes cannot ever be preceded by a light syllable. Historically the *-dom* type of suffixes derive from independent (lexical) words (*dōm* 'doom, judgement') and as such could only be concatenated to an already existing word, which accidentally always comprises a heavy syllable. The quantitative requirement is thus satisfied by default. What counts is the presence of a vowel after the *-dom* type of suffixes (cf. *wísdom* vs. *wísdòmes*). We are thus left with suffixes in (iii) as the only candidates whose ability to receive stress depends on the weight of the preceding syllable. In addition to this, the condition which states that suffixes in (iii) must either be preceded by a heavy syllable or two light resolved syllables is also spurious. Unfortunately, in Class II of weak verbs there are no clear examples of bisyllabic verbs whose second syllable is heavy. A verb like *aswéfecian* 'eradicate', following the above discussion, must be stressed as *aswéfecìan*. One cannot but wonder what the stress of an imaginary verb like *aswefencian* would have been. There is nothing in principle that speaks against *aswéfencìan*. If this is so, one cannot but still wonder why the formulation is as it is: *-i-* has secondary stress after a heavy syllable or a resolved sequence of two light syllables. The second syllable (after the verbal prefix) of the imaginary *aswefencian* is heavy. If this is so, the quantity-based approach to secondary stress is suspect on another count. What decides on the secondary stress of *-i-*, in case of a preceding resolvable syllable, is whether it is preceded by two vowels or not (the presence of a coda consonant in such a resolved sequence is irrelevant). In addition, a following pronounced vowel is also necessary for secondary stress.

former will have two lift positions (a primary and a secondary stressed syllable), the latter only one (primary) stressed syllable. After we have excluded the suffixes in (ii) as relevant for a formulation of stress based on the (combined) weight of the preceding syllable(s), we are left with the following set of generalisations:

(A) the set of suffixes in (ii) above are always preceded by a heavy syllable, but are only stressed if followed by an inflectional ending (which, incidentally, always contains a vowel) and

(B) the set of suffixes in (iii) above are stressed only if they are preceded by a heavy syllable (or its resolved equivalent) *and* if followed by a vowel. If only one of these conditions is met, there is no secondary stress (see (11) below; 'n/a' indicates that no further vowel-full inflectional suffix can be added; '——' shows that the suffix in question always ends in a vowel, it is impossible to cut if off, as it were).

(11) Secondary stress (possible combinations)[20]

Secondary stress

✗	✔
wísdom	wísdòmes, ?wísdõmes
wésende	n/a
——	drífènde
——	síngènne
úfemest	úfemèstan
héafudes	n/a

The table above summarises our previous findings: the really controversial issue in OE phonology is the assignment of secondary stress. It appears after heavy syllables (or resolved equivalents) *and* if followed by a vowel. Primary compounds like *góldwlànc* are outside this dimension as they represent

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20 Glosses as they appear row by row: 'wisdom', 'wisdom, gen. sg.', 'being, pres. part.', 'driving, pres. part.', 'singing, infl. inf.', 'uppermost', 'uppermost, masc. acc. sg.', 'head, gen. sg.'

demoted primary stressed syllables, which also happen to be heavy (this is a straightforward consequence of the fact that an OE word must minimally be comprised of a heavy syllable).

A cautionary note on suffixation is necessary at this point, only to the extent of a short morphological detour. Assuming that early Indo-European was an analytic language characterised by the minimal word constraint, early suffixation can be crudely construed of as compounding. At a later stage, a division of labour set in between the various types and functions of compounding to the effect that inflectional and derivational suffixation could now be distinguished. The change from analytic to synthetic morphology in the various Indo-European languages can plausibly be viewed as a change in the morphological structure of original word *plus* word concatenations. The more obscured the structure became, the more difficult it was to differentiate between (what is now called) stem and suffixes. With no attempt at a fully-fledged account and the expense of giving an anachronistic analysis, *goldwlanc* 'proud with gold', *wīsdom* 'wisdom', *cyning* 'king', *berende* 'bearing' *singenne* 'sing' all have the same structure at a distant point in the diachrony of the language: *gold#wlanc*, *wīs#dom*, *cyn#ing*, *ber#ende* and *sing#enne*. In other words, all of these suffixes were originally added to a minimal Indo-European word. The difference between a primary compound (*góldwlànc*) and an obscured compound (*wísdom*) in terms of stress could be handled by recourse to the difference between compounding and Level 2 suffixation for example, whereas the difference between *wísdom* and *cýning* by Level 2 (inflectional suffixes) and Level 1 (or derivational) affixation. Even within derivational suffixes there must have existed a difference in semantic compositionality: *wīsdom* contained a morphologically transparent derivational suffix (*-dom*), whereas *cyning* was already semantically opaque at this stage (it was probably already lexicalised and mono-morphemic, i.e. it was not derived using productive suffixation). Kim (2001: 44) uses the term 'historical suffix' for the *dom*-type affixes and 'lexical suffixes' for a lexicalised patronymic suffix like *-ing*. The distinction is grounded in the degree of semantic compositionality and (possibly) the level where morphological suffixation takes place. Phonologically, however, they show identical behaviour with respect to secondary stress.

All inflectional suffixes (e.g. *-ende* and *-enne*) were already semantically opaque at this stage of OE and served grammatical functions only. The pho-

nology of secondary stress proves that words formed with derivational and inflectional suffixes behaved identically. Irrespective of the way their morphological composition is represented, phonology treats *cyning* and *berende* in the same way (there is no secondary stress on their second syllable). In other words, the traditional classification of *primary compounds* vs. *obscured compounds*, as well as *derivational* vs. *inflectional suffixes* can be reformulated in terms of a compound–mono-morphemic word cline. If one exempts primary compounds as relevant on the basis that here two words get concatenated that meet the minimal word requirement in their own right (cf. *góldwlànc*), phonology treats the rest of the vocabulary in 'flat' manner. Contra McCully (1999b: 31), who claims that it is impossible to integrate OE stress assignment into a single level, it is claimed here that stress is calculated after morphology has run its course. Phonology in itself offers little insight into how the lexicon is constructed in terms of derivational or inflectional cycles. The case of compounds is more complex from a morphological point of view (they can also undergo inflectional suffixation, for example), but from a phonological point of view they can be decomposed into two independently stressed words followed by demotion of the second primary stress in line. If phonology can reveal anything about the organisation of the OE lexicon, this only happens with compounds, the rest of the non-compound words (whether mono-morphemic, derived or inflected) treated without recourse to internal structure: e.g. *hǽrìngas* 'herring, non./acc. pl.', *cýnedòmes* 'kingdom, gen. sg.' and *síngènde* 'singing', all handled in the same way by phonology (as shown by the appearance of secondary stress).

It seems that even if syllable weight has a role to play in the assignment of stress, to grant it a theoretic status in the phonology of OE, as it is usually done, would be misguided or at least missing the need for a more explanatory account. It is time to investigate briefly an account of OE stress based on syllable weight and try to understand the reasons for introducing this notion into the description of OE phonology in the first place.

2.3 An account based on syllable weight

McCully & Hogg's (1990: 333) final account of OE stress, the so-called OESR (Old English Stress Rule) reads as follows (S stands for 'stressed', W for 'weakly (secondary) stressed'):

OESR
Assign maximally binary S W feet from left to right, where S must contain branching, or be dominated by a branching foot at the left edge of the domain.

As argued by McCully & Hogg (1990), the OESR works in a mirror-image fashion to the modern English stress rule: the major difference is that the OESR applies cyclically from left-to-right and is sensitive to morphologically designated extrametricality. Crucially, monosyllabic verbal prefixes are invisible to the OESR, which thus works on *a priori* determined morphological domains: [$_N$and[saca]], yielding *ándsàca* 'apostate', vs. [$_V$on[sacan]], resulting in *onsácan* 'deny'. The verbal prefix is later left-adjoined to the foot *sácan* by Stray Morpheme Adjunction, which is very similar to the Stray Syllable Adjunction process of modern English (Hayes 1982: 235). This account of OE stress can be termed a 'flat approach', as already remarked, because it is assumed that stress computation applies when all suffixes (derivational and inflectional), as well as the morphological domains, are present. In other words, there are no domains after the stem *sac-* ([on[sacenne]] 'deny, infl. inf.' rather than **[on[[[sac]enn]e]], with *-enn*, the mutated infinitive suffix *-an < *anj-* whose last consonant underwent gemination, and the dative suffix *-e*). Accordingly, a word like *wórda* 'word, gen. pl.'[21] and *ǽþeling* 'noble, nom. sg.' must be analysed as shown in (12).

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21 The derivation of *worda*, for example, is not supplied by McCully & Hogg (1990) for obvious reasons: if the OESR, after erecting a 'S' node over branching structure (the rhyme in the case of *word*), it cycles for another time, now trying to erect 'S' on *-a*. This last syllable, if considered to comprise a short vowel, must be labelled as unstressed by some default mechanism that assigns 'w' to unstressable phonological material. It cannot even be subject to Marginal (Final) Destressing, as the final syllable of *ǽþeling*, because it cannot be assigned secondary stressed in the first place (given that the syllable is light). If it is considered to contain a long vowel (as it historically did), it would be subject to Marginal (Final) Destressing (an issue not discussed by the authors).

(12) The OESR applied to *wórda* and *ǽþeling*

| (a) | (b) | c) |

S	W	S		W	S		
S	?W	S	W	?S	S	W	w
word	a	æ	þel	ing	æ	þel	ing
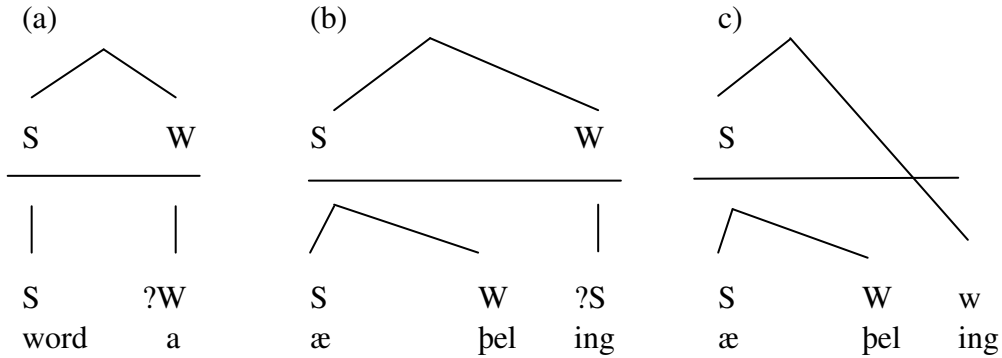
In (12b), on its second cycle, the OESR scans -*ing* as the head of a secondary stressed foot because it is heavy (it contains branching at the level of the rhyme). There is no 'S' label on -*ing* in the original source, although it is underlyingly stressed (as claimed by McCully & Hogg 1990: 327): it conforms to the description of the OESR. It must be assigned the label 'S'. This second weak foot is then subjected to Marginal (Final) Destressing[22] and thus surfaces as unstressed. As can be seen the fact that the final heavy syllable is destressed can only be handled by rule ordering: **OESR** (this scans the word for branching constituents and assigns the labels 'S' and 'W', shown in (12b) below the horizontal line; here the first branching constituent is achieved at the level of the foot) –> **Word Rule** (this decides on the primary prominence of the first of the two nodes, shown in (12b) above the horizontal line) –> **Marginal (Final) Destressing** (this converts a weak final unary, i.e. non-branching, foot into a destressed syllable and attaches it to the preceding foot, shown in (12c), with 'w' showing an unstressed syllable here, for expository reasons). After Destressing has applied, *ǽþeling* now has the following prominence relations on foot level: 'S w', before the last syllable undergoes stray syllable adjunction. In other words, 'W' shows a weak or secondary stressed foot (as in *góldwlànc*: 'S W'), whereas 'w' designates a weak syllable attached to a preceding strong foot by Stray Syllable Adjunction, as in

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22 The syllable has to be non-lexical, otherwise it would also destress the second elements of compounds, as in **góldwlanc*.

the case of the last 'w' syllable of *ǽþeling*. The prominence of *ǽþeling* is now simply 'S', dominating the three syllables of the word.

In contrast to this, in (12a) the final syllable does not qualify for secondary stress (the vowel is short and cannot be assigned 'S' on the second iteration of the OESR). In contrast to this, *wordum* 'word, dat. pl.' would receive the same analysis as *æþeling*. The real motivation behind formulating a weight-sensitive OESR is not apparent at this point. Primary stress would be assigned in the same way even without branching at some level of structure at the left edge of the domain (at the level of the rhyme, or the foot; what matters is that there must be branching *somewhere* in the structure). Formulating a purely morphologically-grounded rule (which says that primary stress is always found on the first syllable of a word unless it is a verbal prefix or an unstressable prefix), would also derive the right result. In addition, there is another theory-internal technical point worth mentioning: the derivation of *æþeling* is ambiguous. The formulation of the OESR as it stands ('assign maximally binary S W feet from left to right') allows primary stress to be assigned in one iteration, without the ultimate (here: heavy) syllable first receiving underlying stress ('S') and then being demoted to weak/secondary stress ('W') and ultimately subjected to Marginal (Final) Destressing and finally right-adjoined to the preceding foot as an unstressed syllable (shown as 'w'). A binary 'S W' foot could be assigned to *æþeling* in the first cycle with 'S' dominating a branching structure, *-æþe*, and 'W' dominating an underlyingly stressed syllable which ultimately ends up as unstressed. Making reference to the weight of the last syllable seems superfluous and unnecessary. Both derivations, nevertheless, yield the same result. This ambiguousness questions the validity of the account of primary stress assignment.

The discussion of secondary stress, as found in *ǽþelìngas* 'noble, nom./acc. pl.', is instructive in showing how circular the analysis of weight-based primary stress is. The derivation of this word is given in (13) (cf. McCully & Hogg 1990: 329).

(13) The derivation of *ǽþelìngas*

```
          /\
         /  \
        S    W
      _____
      |        |
     /|       /|
    S W      S W
    æ þel    ing as
```
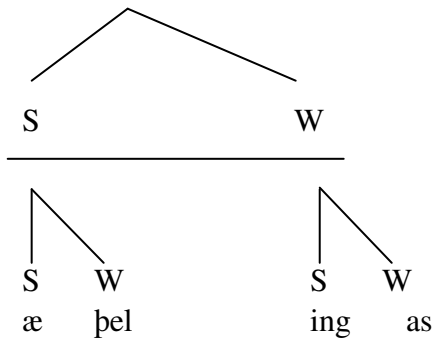
When it cycles first, the OESR assigns 'S' and 'W' to the first two (resolved) syllables. Branching is thus achieved at foot level. On its second cycle, the rule assigns 'S' and 'W' to the two remaining syllables. The Word Rule then assigns primary stress to the first foot, leaving the second foot secondary stressed (creating *ǽþelìngas*). A theory-internal technical problem can already be spotted: when the OESR cycles for the second time, it seems to glide over the heavy syllable of *-ing* (even if the [g] of this suffix is in onset of the next syllable, the rhyme is still heavy, dominating [iŋ]). If the OESR is sensitive to syllable weight and looks for the first available branching spot, in this case *-ing*, the second foot should be erected over this suffix. It is only on its third cycle that another foot could be imposed on the final syllable *-as*. This syllable, since it is domain-final, would undergo Marginal (Final) Destressing and be adjoined to the preceding foot (the one dominating *-ing*). The result would be the same in either case (*ǽþelìngas*). It seems that the OESR is sometimes sensitive to rhymal branching, sometimes to foot-level branching. It is impossible to decide which principle takes precedence. This leaves the analysis ambiguous on theory internal grounds.[23] Another ambiguity is worth mentioning: it is not clear how the Word Rule (the rule that decides on the prominence of any two nodes) would react to a structure shown in (14):

23 Clearly branching at foot level is given precedence over branching at syllable/rhymal level (as encoded in the final version of the OESR), but this is again a stipulation that does not seem to follow from anything.

(14) Word Rule and left-strong prominence
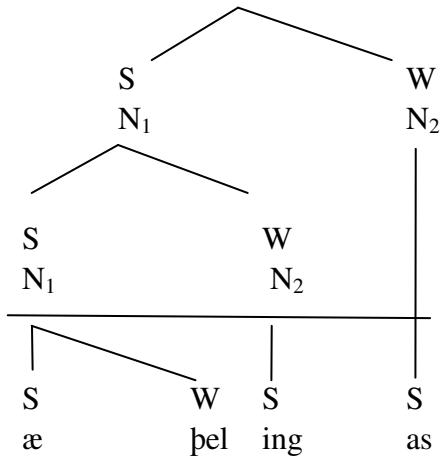
Let us consider the derivation for this alternative scenario in detail: first, the OESR looks for branching and assigns 'S' to these structures (on its first iteration, 'S' is assigned to the first syllable of the leftmost resolved sequence of syllables; on the second iteration the next branching structure receives 'S', the heavy syllable dominating *-ing*, and in the third cycle the final heavy syllable will be designated as 'S'). Second, for any pair of foot-level nodes N_1, N_2, N_1 is strong (McCully & Hogg 1990: 323). Note that there is no special proviso insuring that feet *must* branch, i.e. dominate at least two syllables. It can be surmised that the grouping of feet happens from the left edge, giving OE its left-strong prominence: this assigns primary stress correctly to the structure *ǽþeling*). In the next step of the derivation, the first branching foot node (dominating *ǽþeling*) is found right-flanked by another node (dominating *-as*). The Word Rule (again) assigns primary stress to the first node. The second node at this level (the one dominating *-as*) is now a 'W' foot and must be subjected to Marginal (Final) Destressing (not shown here), yielding **ǽþelingas*. This, however, cannot derive secondary stress (cf. the correct *ǽþelìngas*). This can only be overcome if one assumes that after the first cycling (which erects 'S' on *ǽþe-*), the OESR immediately groups syllables (disregarding their weight) into a non-unary foot (*-lingas*). Thus the right result is achieved but the derivation becomes ambiguous: it is not clear when the OESR is satisfied by branching at rhymal level and when at foot level. If the OESR is only satisfied by foot-level branching in its second cycling but

can be satisfied with both syllable and foot-level branching at the left edge of the word, a more uniform analysis is called for. In McCully & Hogg's analysis secondary stress can only be derived by crude force: in its second cycle the OESR cannot be satisfied by a unary branching foot. It seems that unary feet are not preferred at the right edge of the word: whenever possible a bi-syllabic foot must be constructed (cf. the derivation of *ǽþelìngas* above) which then receives secondary stress.

In connection with the stress pattern of *héafode*, which has no secondary stress on its second syllable (**héafòde) on the evidence of OE poetry, and usually shows syncopation of the medial vowel (*héafde*), can be handled by a stipulation: a foot whose first syllable contains a short vowel (*-o-* in this case) and a second a syllable of any kind (a light one in this case: *-e*) can only be assigned secondary stress at the left edge of a domain. In *héafode*, *-ode* is *not* at the left edge of the domain, so it cannot be assigned secondary stress. At the right edge of the domain, the 'S' node *must* dominate a branching (heavy) syllable, in addition to another syllable, for the foot to receive secondary stress. The stipulation that 'S' can also dominate a branching foot whose first leg is a light syllable at the *left* edge of the domain only is necessary to account for what McCully & Hogg (1990) call a systematic exception to the OESR, i.e. bi-syllabic words whose first syllable is light, as in *gúma* 'man', *cýning*, etc. It is only with this stipulation that the stress pattern a typical OE word like *gúma* can be derived (the first syllable is not heavy, so the word would have no stress). This makes the derivation of primary stress (especially when coupled with the supposition that a primary stressed syllable must be heavy) suspect. Let us look more closely at the derivation of *héafode*. Despite McCully & Hogg's (1990) insistence that stress applies after all suffixes have been aligned, the internal bracketing of *héafode* is given as [[hēafod]e] (*hēafod* is the monomorphemic base (< **hauβuð-*), *-e* the inflectional suffix). It is explicitly claimed that the bracketing [hēafode] is incorrect (1990: 331, their (14b)). This is highly contradictory in the present setting (cf. the bracketing of [*æþelingas*] in which the inflectional suffix and the stem are locked in a single domain, as agreed on by the authors).

Applying the OESR to what is claimed to be an incorrectly bracketed string ([hēafode]), after its first cycle, the rule erects a foot over *hēa-* and labels it 'S'. On its second iteration, a new non-unary foot is erected over *-fode*. This resolved sequence, from the point of its weight, is equivalent to a heavy syl-

lable and thus receives the labels 'S'. Next the Word Rule scans the two nodes dominating *hēa-* and *-fode*: as a consequence, the first node is designated as stronger of the two. The second node (dominating the resolved sequence *-fode*) is demoted to weak/secondary stress, yielding *hēafòde*. There is, however, no proof that this resolved non-unary foot was ever stressed. The derivation of *æþeling* has shown that a final unary weak/secondary stressed foot is destressed by the rule of Marginal (Final) Destressing, and right-adjoined to the strong (primary stressed) foot. This process of destressing, however, cannot work in the case of *hēafòde* because the last foot in non-unary. Still, this bisyllabic foot ends up unstressed. The right solution can only be obtained by brute force. One of the possibilities is espoused by McCully & Hogg (1990): the bracketing is exceptionally altered to [[hēafod]e]. This ensures that *-fod* is scanned as a weak unary foot which ends up unstressed by Marginal (Final) Destressing and is thus adjoined to the foot dominating *hēa-*, before it has a chance to be scanned with the next syllable and create a non unary foot (*-fode*) in the second cycle. The suffix *-e* will be tackled in yet another cycle and, accordingly, can no longer be scanned together with the preceding vowel (a structure previously erected cannot be altered on a subsequent cycle). At the end of the derivation the foot dominating *-e*, too, will be destressed by Marginal (Final) Destressing. Two other equally brute force solutions come to one's mind: (i) the difference between the secondary stressed *-lingas* (in *æþelingas*) and the unstressed *-fode* (in *hēafode*) can be handled by claiming that a non-unary foot can only be stressed if it also contains branching at another level, at the level of the rhyme (cf. the first syllable of *-lingas* vs. *-fode*), taken to be the default case by the OESR, or (ii) a sequence of two resolved short vowels (*-fode*) cannot be stressed at the right edge of the word. This last solution has an equally stipulative mirror-image at the left edge of the domain, as found formulated in the OESR: 'S' can only dominate a branching foot at the left edge of the domain (*áþe-* in *áþeling*). It follows that 'S' (or rather 'w' after demotion to secondary stress ('W') by the Word Rule and after being subjected to Marginal (Final) Destressing) cannot dominate a branching foot at the right edge of the domain. This certainly describes the absence of secondary stress on *-fode* in *hēafode*, but does not explain it.

In contrast to *hēafode*, OE poetry shows that *ríxode* 'he ruled', similarly to other Class II weak verbs, can fill a secondary rise position: *Swā ríxode*

(Beowulf 144a) 'thus he ruled'. Employing the traditional notation, Beowulf 144a reads as *Swā̆ ŕíxòdĕ* with two rise positions, and a number of unstressed positions, meeting the traditional Siversian requirement (*swā̆* and *-dĕ* are unstressed and thus non-ictic). The difference between *héafode* and *ŕíxòde* can only be handled by what McCully & Hogg (1990: 332) call a non-synchronic analysis, by admitting that the difference in stress correlates with the dia-chronic difference in vowel length: *héafode* vs. *ŕíxò̄de*. Similarly to *cyningas*, there is no secondary stress if the original long vowel (a heavy syllable, that is) is not followed by another vowel: *ŕíxō̄d* 'ruled, pt. pl.'.[24] Whatever the im-plications of a non-synchronic analysis, this difference again highlights the fact that a heavy syllable can only be secondary stressed if it is followed by another vowel. Another problem is presented by verbs with a light stem syl-lable: e.g. *bífode* 'he trembled'. Although the historical inflectional vowel is the same (*bífō̄de*), there is seems to be no evidence that they could fill sec-ondary rise positions in poetry (hence ***bífò̄de*). The bracketing given by McCully & Hogg (1990: 333) is again in violation of their initial assumption that OE stress operates on a flat ground: [[timbrō̄d]e] and [[bifō̄d]e]. With this cumbersome solution the right result is obtained for *bífō̄de* (*-ō̄d* is scanned in the same cycle with the initial vowel: the expected 'S W' nodes are erected over *bifō̄d-* and the final syllable is attached to the preceding foot in the usual manner), but for *timbrō̄de* (in the first cycle the appropriate 'S W' relations are formed on top *timbrō̄d-*, but then, in the second iteration, the OESR accesses the original foot structure and erects 'S W' again, now on top of *-brō̄de*). In addition to the theory internal contradiction of use of bracketing, the derivation of *timbrō̄de* is ambiguous: the same prominence relations would have been obtained using [timbrō̄de].

Recall that secondary stress is only found on heavy syllables if they are preceded by a heavy syllable or its resoled equivalent *and* followed by a suffix containing a vowel (*ǽþelingàs* vs. *wésende*). This is why *bifō̄de* has no secondary stress: *-ō̄de* is preceded by a light syllable. Although it seems to be

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24 Although in traditional editions of OE texts, the length of vowels in inflectional suffixes is not shown (*ŕīxode*), there is evidence from syncopation that even in late OE times the length of vowels in inflectional suffixes was maintained: *hēafode* is overwhelmingly recorded as *hēafde* (< *hēafude), whereas verbs like *ŕīxode* (< *ŕīxōde) are hardly ever found with a syncopated penultimate vowel (Campbell 1959, Chapter VII). That the absence of syncopation is independent of the consonant cluster flanking the deleted vowel in *ŕīxode* (**ŕīxde) is supported by *rēafode* in which syncopation is equally impossible.

generally agreed upon that a secondary stressed syllable must be heavy,[25] the formulation of primary stress has suffered under the pressure of secondary stress. Theoretically, there is no correlation between secondary stress and the assignment of primary stress apart from the observation that secondary stress appears at a distance of two syllables (of which the first one must be light, the second either light or heavy) *or* a single heavy syllable counting from the primary stressed vowel. There is nothing that connects the two events, apart from mere observation. Let us concede that primary stress is assigned on the first syllable of words and this has nothing to do with syllable weight.[26] A similar account to that of McCully & Hogg's (1990) is given by Dresher & Lahiri (1991) who devise the notion of the Germanic Foot, the name of a trochaic prosodic structure in which the head (left branch) must dominate at least two moras and the right branch only one. This approach is criticised by Minkova & Stockwell (1994), in very much the same vein as discussed above in connection with McCully & Hogg's (1990) approach.

2.4 A morphologically based approach

The description of OE stress has not been free from morphological accounts either. Suphi's (1985, 1988) account is one of the many morphologically based approaches. In Suphi's (1985) solution the OE lexicon is ordered into four levels: the OESR applies at Level 1 (prior to the application of the OESR, nominal and adjectival prefixation takes place and is this subjected to the stress rule), derivational morphology (including verbal and adverbial pre-fixation) at Level 2, inflectional morphology at Level 3 and compounding at level 4. This last component feeds back into level 3 via a loop device (thus

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25 There are no examples of secondary stressed resolved syllables, but if a resolved syllable, the equivalent of a heavy syllable, ever existed in English, the prediction is that it would also have been secondary stressed in a hypothetical word like *hēafòdume*, but not in *hēafodum* 'head, dat. pl.'. The absence of stress (and ictus) for the latter is well-attested in poetry. It seems only a diachronic coincidence that inflected words like *hēafòdume* do not survive into recorded OE, having been subjected to various reduction processes (final vowel loss, loss of word-final consonants, etc.).

26 This places OE into the group of languages (e.g. Hungarian, Czech, Slovak, etc.) in which primary stress is assigned on the first syllable of words in a weight-insensitive manner. At this point, it seems secondary stress in OE still depends on syllable weight, but the notion of syllable weight in the assignment of secondary stress should be divorced from the notion that primary stress is also assigned in a weight-sensitive manner.

compounds can undergo inflection). This ordering of processes and the levels at which prefixation is applied yields the typical left-strong prominence of *ándsàca* and the right-strong prominence of *onsácan*. In McCully & Hogg (1990: 323) it is argued that, on grounds of simplicity, the OESR is allowed to interact with OE morphology only to the extent that the OESR makes reference to morphosyntactic bracketing. In this model, a discussed above, level ordering and loop devices are disconnected from the derivation.

The morphological approach yields the correct results, but one must remain agnostic whether the formulation of the OESR needs to make reference to the morphology of the language, i.e. to word classes as such, crucially to the distinction between verbs vs. nouns.

The classical prosodic hierarchy advocates a number of levels above the level of the syllable, dealing with phenomena such as stress clash on phrasal level (*Càlifórnian* vs. *Cálifòrnian láw*), the rhythmic structure (iambic vs. trochaic),[27] and the like. The fact that OE monosyllabic verbal prefixes are unstressed may have nothing to do with morphological category, but the diachronic fact that prefixed verbs like *onsácan* are historically recent as compared to adverb *plus* noun compounds (Campbell 1959, §73),[28] and may be regarded as compounds whose first element (a prepositional adverb originally) was subsequently reduced to a clitic (which is conveniently called a verbal prefix because, due to a diachronic coincidence, it happens to precede a verb).[29] The fact that primary compounds like *góldwlànc* are left-strong can

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27 Note that in modern English, the ESR applies from the right edge of a domain respecting syllable weight and erecting trochaic feet (e.g. *cìrcumnàvigátion*), but the rhythmic structure of the language is iambic and syllable weight has no role to play in it (*abóut*, with a light initial syllable, is rhythmically identical to *N*/əʊ/*vémber* with a heavy initial syllable). Some processes, such as high-vowel gliding (*perennial* /pəˈreniəl/ ~ /pəˈrenjəl/) and syncope (*family* /ˈfæmli/ ~ /ˈfæmli/) can only apply within a trochaic foot, but not within an iambic one (*venerate* /ˈvenəˌreɪt/ ~ */ˈvenˌreɪt/). Gordon (1999, 2004, 2006), as already discussed, shows that languages may simultaneously apply various counting mechanism at different levels (stress, tone, glottalisation, poetic lines, etc.).

28 A verb like *onsácan*, with an inseparable verbal prefix, is to be distinguished from verbs like *ínbèran*, with a detachable prefix, to be discussed below. These separable prefixes are known as prepositional adverbs; Campbell 1959, §78), and are also found in modern German and Dutch, for example.

29 Although prepositional adverbs, which still retain primary stress (e.g. *hēt þā ín béran* 'ordered then in to bring', Beowulf 2152a) are usually printed as one word in modern English editions of OE texts, they were separable from the verb and thus stressable in isolation, as opposed to *on-* in *onsácan* (Campbell 1959, §78), with an inseparable and unstressable prefix. The difference between *ínbèran* and *onsácan* is a diachronic mirage:

lend further support to an explanation that simply rests on a non-morphological and, crucially, non-phonological stress assigning mechanism. Stress, from the synchronic point of view, is simply assigned to the first vowel of a (compound) word.[30] The stress in OE is morphological to the extent that it is assigned to all word categories (verbs, adjectives, nouns, etc.), which hardly warrants the label 'morphologically assigned stress'. OE stress is phonological to the extent that it is assigned by a weight-insensitive rule to the first vowel of a word. The fact that *onsácan* is stressed where it is stems simply from the fact that the second vowel is the first visible vowel and thus is must be stressed (the first vowel of this word is invisible, a fact which is morpho-syntactically encoded, not derived by the OESR).[31] OE is thus

the former is historically newer (its stress pattern shows that it is still a compound, cf. *góldwlànc*), the latter is historically more ancient (and probably lexicalised) and shows that the adverb had undergone the processes of compounding with the verb, destressing (which left the verbal stem primary stressed) and finally cliticisation, which ultimately resulted in what one would call an unstressable verbal prefix (this diachronic development is replicated in both phonologically and morphologically based synchronic accounts). Admittedly, one still has to allow for a different treatment of verbs and nouns, because now it follows from the process outlined here that adverb *plus* noun compounds (*ǽtspỳrning*) are historically more recent (like the verb *ínbèran*), contrary to, for example, Campbell's (1959, §71) claim and the synchronic replication of this process in a level-ordered morphologically based account (e.g. Suphi 1985, 1988).

30 Although McCully & Hogg's (1990) remark that bisyllabic prefixes like *æfter-*, *ymbe-*, etc. can never be destressed (hence *æfterspyrian* can only be stressed as *ǽfterspỳrian*) is certainly correct, and in line with the traditional account by Campbell (1959, §78–79), there is another point worth raising: monosyllabic verbal prefixes *can* be stressed (e.g. *mídbèran*). These prefixes are known as prepositional adverbs. The two verbs, *onsácan* and *mídbèran* belong to two different categories and the constraint on monosyllabic verbal extrametricality only applies to the *onsácan*-type, not the *mídbèran*-type (which behaves like a primary compound, cf. *góldwlànc*). This adds another dimension to the prefixed verb-type class. This new class is only new if one is ready to admit prefixed verbs and prepositional adverb plus verb constructions into the same category of objects ('prefixed verbs'), in which case McCully & Hogg's (1990: 326) account cannot explain the *mídbèran*-type. If these types are two distinct categories, the problem vanishes. The fact that bisyllabic prepositions do not surface as unstressed and are also found bearing primary stress (*ǽfterspỳrian*) may be due to phonological constraints that have nothing to do with stress assignment (e.g. the fact that no OE word can begin with two unstressed syllables, and that the language was trochaic in prominence). This issue will not be further pursued.

31 The vowels of monosyllabic verbal prefixes show the expected reduced vocalic value. The following vowels are historically identical: *ǣ-* vs. *a-* (*ǽwielm* 'fountain' vs. *awéallan* 'well up'), *æf-* vs. *of-* (*ǽfþunca* 'source of offence' vs. *ofþýncan* 'dispelase'), etc. Note that it is not claimed that the OESR started to operate after these adverbs were destressed. Rather, it is suggested tentatively that the 'screening off' of verbal prefixes from the OESR may have been a morpho-syntactic process and thus only a distraction in the formulation of OE

fundamentally different from modern English or Latin, for example, in which stress is assigned on a weight-sensitive basis. Although the repercussions of this classification cannot be fully pursued, a markedly different picture emerges now:

(i) prepositional adverbs were merged early with nouns and thus in what is historically a prepositional adverb *plus* noun construction, the first element is stressed which, accordingly, surfaces with a full vowel in OE (*ǽþùnca*),

(ii) early in the history of OE, prepositional adverbs (PP's) were syntactically reanalysed as part of the VP but were still invisible to the OESR, so they appear as unstressed and reduced in OE (*ofþýncan*) and

(iii) at a later stage still new prepositional adverb *plus* verb constructions were formed but these constructions were formed too late for the adverb to be reanalysed as part of the VP and these new constructions were stressed like old nominal compounds (e.g. *ínbèran*). The behaviour of *ofþýncan* and *ínbèran* in terms of the detachability of the prepositional adverb shows that they are syntactically different in OE. This syntactic difference is also

stress assignment: prepositional adverbs may originally have been Prepositional Phrases (PP's) closely associated with a verb, similarly to modern English prepositional verbs (e.g. *turn on* 'attack'). At this stage, they were treated like compound structures with the verb: *ínbèran*. Some of these PP's were subsequently reanalysed as part of the Verb Phrase (and later possibly even merged with the verbal head; for an analysis along these lines see Fischer et al. 2000: 180–210). This bears a striking resemblance to current analyses of phrasal verbs in modern English (e.g. *turn on* 'excite'). The OESR could not stress such PP's (e.g. *and-* in **andsácan*) because they were shielded off from it by syntax. These PP's ultimately underwent weakening (**andsácan* > *onsácan*) and a new category was called for: verbal prefixes (i.e. 'destressed prepositional adverbs'). In other words, the stress pattern of *onsácan* is as much the purview of OESR as the stressing of *can gó* /kənˈgəʊ/ or *the hérring* /ðəˈherɪŋ/ is for ESR. It also follows from this that prepositional adverbs (PP's) were merged early with nouns in the history of the Germanic languages opening the way for the stress rule to access them (as witnessed by OE *ǽwìelm*). The difference between the stress pattern of nouns and prefixed verbs may ultimately boil down to a difference in the syntax of the two types of phrases (NP's and VP's). This distinction between the two types of phrases and the possibility of merger with a prepositional adverb may only have been a continuation of a more ancient process continued into the Germanic languages. The invisibility of the first syllable of *onsácan* to the OE stress rule even after the original adverb had merged with the verb to form a lexical word may be due to the presence of a morphological boundary of some sort between what is now a prefix and the verb (e.g. *on=sacan*). While additional material can be inserted between the syntactically independent *can* and *go* (e.g. *can surely go*), this is impossible with *onsacan*. The reason for this may be that this is already a lexical word (with a complex internal structure) and is thus impervious to syntactic processes.

mirrored in the phonological behaviour of the two kinds of verbal constructions. If this account is correct, the OESR is only a rule to the extent that it stresses the first vowel that becomes available in the minimal domain visible to phonology (larger domains, such as the domain of the phrase, for example, and the processes at work there, such as stress subordination, are beyond the scope of this investigation). The fact that entities known as verbal prefixes are unstressed is the result of the fact that prepositional adverbs were screened off by syntax from phonology. The fact that verbal prefixes show a reduced vowel, in turn, is the result of the phonology's inability to stress the original prepositional adverbs. In terms of synchronic OE phonology this state of affairs can be formulated as: 'stress the first vowel the word'. If anything, then OE primary stress is decidedly a red herring.

2.5 Syllable weight reappears in a disguise

In a more recent attempt, Kim (2001) devises a new way of tackling the problematic aspects of OE primary and secondary stress in the framework of lexical and metrical phonology. In this account, it is claimed that primary stress is morphologically sensitive and is assigned in the domain of the syllable, while secondary stress is phonologically sensitive and assigned in the domain of the bimoraic foot. Only some relevant aspects of this analysis will be briefly analysed here. The representation of *ándsàca* and *onsácan*, at some level of their derivation, is shown in (15) below.

(15) *Andsaca/onsacan/æþelinges* – sample representations

andsaca   *onsacan*   *onsa[c]an*   *æþelinges*
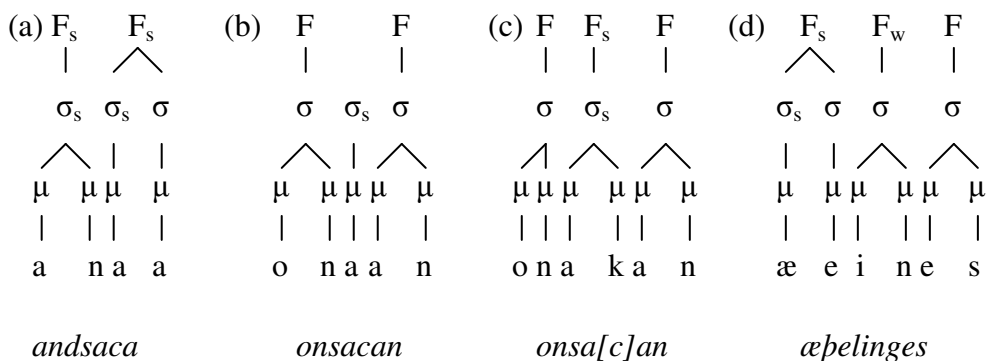
In the representations in (15) only the μ-bearing segments are shown (vowels and coda consonants); 'S' stands for primary stress, 'W' for secondary stress. Since the Germanic Stress Rule (GMSR) is allowed to apply twice, once at Level 1, assigning 'S' to the stem *sac-*, and, for another time, at Level 2, stressing the prefix *and-* that has been previously affixed to the stem at Level 1, this accounts for the prominence relations in *ándsàca* (shown in (15a)). In *onsácan*, the verbal prefix is attached to the stem at Level 2 after the last iteration of GMSR, it surfaces as unstressed (shown in (15b)). Kim (2001) insists that this stressing is morphologically driven: only stems and, generally, nominal prefixes like *and-* are stressed (because they are attached at Level 1), whereas verbal prefixes like *on-* are attached at Level 2 *after* GMSR (in its second cycling) has a chance to apply to them. In addition to this, it is claimed that a stressed syllable does *not* have to be heavy to be stressed (as seen in *onsácan*). After GMSR has applied, foot construction can commence. According to Kim's (2001: 42) parameters, the Germanic foot is a bimoraic trochee. The parameter vital at this point is the one that insures that feet can only be constructed on top of heavy syllables. This is why in (15b) only *-can* of *onsacan* can be assigned to a foot, leaving the first (stressed) syllable stranded. Note that in (15a) the two moras in *-saca*, coming from two adjacent syllables, can immediately be grouped together under a foot. The constraint on bimoraicity precludes such a move in *-sacan* (see again (15b)): a trimoraic foot is disallowed. After feet have been erected, the Stress Percolation Rule (Kim 2001: 43) insures that 'S' assigned at syllable level will percolate upwards to the foot dominating it, yielding the right results. This, however, would leave *onsacan* impossible to interpret at foot level given that its primary stressed syllable is not assigned to a foot. Such stray syllables can be repaired by various processes (e.g. deletion of a syllable in case it is word-final, as in High Vowel Deletion: *word* < **wordu*).

In (15b), repaired as indicated in (15c), the solution is at best ad hoc: Kim (2001), following Suzuki's (1996) arguments on the deletion of intervocalic /h/ in pre-OE, proposes a resyllabification rule that makes the original intervocalic onset consonant of *-sacan* ambisyllabic, shown as *[c]* in (15c): the new coda consonant now insures that a foot be constructed on top of *-sa[c]-* up to which the morphologically assigned stress can now percolate.

Two problems with this analysis can be mentioned here. Firstly, an inter-vocalic consonant will only be ambisyllabic if the syllable following it is heavy (as in *-sa[c]an*). Otherwise, as in *-saca* (15a), no such ambisyllabic consonant is postulated, and indeed necessary for this analysis. No independent phonological argument apart from salvaging an unfooted syllable (15c) can be given in support of this analysis: intervocalic /h/, as discussed by Suzuki (1996), in pre-OE was lost without regard to the weight of the following syllable: *slēan* (< **slæhan*) 'slay' behaves identically to *tā* < (**tāho*) 'toe' (***tāh*).

Secondly, the footing procedure has to apply twice, an issue not discussed by the author: once erecting feet on heavy syllables and, yet again, after an intervocalic consonant has been made ambisyllabic to cater for a heavy syllable on top of which a foot can now be constructed up to which stress can percolate to save a stray unfooted syllable from erasure. This makes the analysis teleological, and also spurious on theory-internal grounds. In addition, the notion of 'only a heavy syllable can be stressed' has been inadvertently brought back: a syllable (e.g. *-sa[c]-*) does, after all, have to be heavy to allow stress to percolate.

To account for secondary stress, Kim (2001: 47ff.) proposes the OE Secondary Stress Rule (OESSR) which states that a foot dominating a heavy syllable will be secondary stressed. This is shown in (15d). The final heavy syllable of (*æþeling*)*es* will be prevented from acquiring secondary stress because it is final. This is achieved by a Nonfinality constraint which makes the third syllable of *æþelinges* secondary stressed and the last heavy syllable unstressed, deriving *ǽþelìnges*. It is claimed that secondary stress is assigned on foot level, as opposed to primary stress which is assigned on syllable level, as discussed above. It is not clear why this difference is need in the first place. Secondary stress could also be assigned on syllable level after a minor alteration to OESSR: e.g. 'stress every non-final heavy syllable following a stressed heavy syllable or a stressed light syllable plus another syllable'. Primary stress would still be assigned by GMSR at some level of the lexicon, and OESSR could then take care of the rest of the heavy syllables, with foot assignment and stress percolation left to a later stage. The advantages of a foot-based secondary stress assignment are not clear.

2.6 Observations encoded vs. explained

A weight-based account of the OESR cannot explain why word final heavy syllables are unstressed (*cýningas* vs. ****cýningàs*). The answer to the question 'Why are such heavy syllables unstressed?' cannot be anything other than 'Because we see that such syllables are unstressed'. This answer is then stated in the form of a rule or constraint (the Marginal (Final) Destressing, for example) which cloaks the initial observation in a formal disguise. The explanation is still wanting, however. There is nothing in principle that could not reverse this situation in OE and make every final heavy syllable secondary stressed. The lack of stress on word-final heavy syllables should fall out naturally from other principles of the theory. In addition, the OESR (as stated by McCully & Hogg 1990) is also problematic because it contains a disjunctive set of environments: the rule is sensitive to branching *either* at the level of the syllable/rhyme *or* at foot level (as a matter of fact, it is not clear which condition applies first, as shown in the derivation of *æþelìngas*). Also, it is not clear why a foot whose left branch contains a light syllable can only be stressed at the left edge of a domain, i.e., crucially, word-initially. Despite all efforts, the assignment of primary stress has nothing to do with syllable weight or foot structure.

   Either explicitly or implicitly, the following properties of OE have been inferred from a functional distinction between heavy and light syllables:

- (a) Secondary stress
- (b) High Vowel Deletion
- (c) Resolved stress (i.e. the equivalence of light syllable followed by another syllable to a single heavy syllable)
- (d) Tertiary stress

These issues will be tackled in the following sections in the framework of a lateral theory of phonology.

3 OE as a templatic language

3.1 High Vowel Deletion

High Vowel Deletion (HVD), as described by Campbell (1959, §345) is a process which deletes the two high vowels, pre-OE *-i* and *-u*, after a heavy syllable, or a light syllable plus another syllable. The often-cited examples include the plural nom./acc. form of strong neuter nouns: *scipu* '(< *skipu*) vs. *word* (**wordu*). The traditional assumption is that HVD was conditioned by syllable weight: the high vowels were deleted after heavy, preserved after light syllables, hence the *scipu*/*word*-dichotomy. The question of syllable weight vis-à-vis HVD is problematic for a number of reasons: some high vowels are deleted even after light syllables, and some are not deleted after heavy syllables.

(16) Distribution of pre-OE *-i* and *-u*

__#	a)	**L**	✗	*scipu̲ < *scipu̲, nere < *neri̲, wine < *wini̲* ('ships', 'save, imp.', 'friend')
	b)	**H**	✔	*lǣs < *lǣsu̲,word < *wordu̲, cȳ < *cȳi̲;* ('meadow', 'words', 'cows') *tung(o)l < *tunglu̲, wolc(e)n < *wolcnu̲, wund(o)r < *wundru̲* ('stars', 'clouds', 'wonders')
	c)	**L L**	✔	*firen < *firenu̲, duguþ < *duguþu̲, wæter < *wæteru̲* ('sin', 'virtue', 'waters')
	d)	**L H**	✔	*fǣreld < *fǣreldu̲, wunung < *wunungu̲* ('passages', 'dwelling place')
	e)	**H L**	✗	*nītenu < *nītenu̲, hēafdu/hēafod/hēafodu < *hēafudu̲, lendenu < *lendenu̲* ('creatures', 'heads', 'loins')
	f)	**H H**	✔	*fulwiht < *fulwihtu̲, ǣrist < *ǣristi̲* ('baptisms', 'resurrection')
__C[32]	g)	**H**	✗	*hēafod < *hēafu̲d, dēmed < *dēmi̲d, wǣron < *wǣru̲n* ('head' 'deemed', 'were')

NB: **L** 'light syllable', **H** 'heavy syllable', ✗/✔ 'presence/absence of HVD'[33]

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32 The more complicated case of prevocalic high vowels, as in *wītu < * wītīō* 'punishments' will be disregarded here.

33 Unstressed *i* appears as <e> in OE, unstressed *u*, in certain environments, as <o>; examples are taken from Campbell (1959).

If **-u* is lost in *word*, and is preserved in *scipu*, the simplest explanation seems to involve reference to syllable weight and a deletion rule: the two high vowels are preserved after light, but lost after heavy syllables. Following this line of argumentation, the monosyllabic *scip* ends in a light syllable, as claimed by Hogg (1992: 44): "Light syllables had the structure –VC, for example *scip*".[34] If light syllables can occur in OE, then the mystery remains why there are no stressed monosyllables ending in a short vowel. This lacuna, it will be argued, is another mirage in OE phonology, which has nothing to do with syllable weight, as traditionally understood.

The data in (16a) and (16b) show the well-known *scipu/word*-dichotomy: the pre-OE high vowels are lost after heavy syllables, but are retained after light ones. The data in (16c) is the most problematic batch for the traditional syllable-based account: the syllabification of words like *scipu* (*sci-pu*), traditionally taken to involve resyllabification and/or ambisyllabic consonants, will always be different from the algorithm responsible for the syllabification of words like *firen < *firenu* (*fi-ren-u*). It seems that *firen* (contra *scip*) ends in a heavy syllable. This is only an observation, not related to any formal property of OE grammar.[35] In (16e) the final syllable closed by a singleton C (e.g. *nīten*) seems again to qualify for a light syllable (the plural is *nītenu*), similarly to *scipu*. Other cases (as in (16d) and (16f)) can again be successfully handled by a theory relying on syllable weight: the final syllables are heavy. Note that, for a traditional account, the problems are now many-pronged: on the one hand, a syllable closed by a singleton final C is treated as light in mono-syllabic words (*scip*), but not in bi-syllabic ones whose first syllable is light (*firen*); on the other hand, a singleton final C is again light in bi-syllabic words whose first syllable is heavy (*nītenu*). The escape hatch is out of reach, it seems: one could claim that word-final singleton C's are not resyllabified into the onset position in case a vowel-initial suffix follows (this would do the trick for *firen*, but not *scipu*), or else that the number of C's in OE and syllable weight are totally unrelated (syllable weight as such plays no role in OE phonology), which would work for *scipu/nītenu*, but not for *word/fǽreld*. The

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34 This runs counter to Bliss' (1962: 9) claim that a syllable is long (i.e. heavy) if it contains a vowel followed by a single final consonant, a statement cited with approval by McCully (1992: 120).

35 Campbell (1959, §574 (4)) gives the classical description of this state of affairs: "The nom. and acc. pl. neuter [nouns] should have *-u* after a long syllable, but no ending after two shorts".

problems are further compounded by the examples in (16g): the high vowels remain in pre-consonantal position following a heavy syllable. This highlights the problems surrounding HVD if the process is cast in the mould of syllable weight. The next section will attempt to develop a new approach to tackle these problems that does away with the problematic 'syllable factor'.

3.2 Templates in general and the OE template in particular

The work on templatic morphology is linked to the Semitic languages, a group of languages whose morphology is known as non-concatenative (see e.g. McCarthy 1979/1985). What this means essentially is that there are two interlocking autosegmental tiers hosting vocalic and consonantal material. Certain morpho-semantic and syntactic categories (voice, aspect, derivational categories such as diminutive, etc.) require a given amount of vocalic and consonantal material to be interspersed in a given morpho-syntactic domain. Hence the root *ktb-* (whose abstract meaning is 'write') can be found mixed with the vowel 'a' in a well-defined morpho-syntactic template as *kataba* 'he has written it', *kattaba* 'he made it be written', etc. The template is a priori determined and may involve gemination (of either the C's or the V's).

   Templatic morphology or phonology in the Indo-European languages still sounds rather exotic, although some attempts have been made in the direction of dispelling this belief. Scheer (2001, 2003) has shown that Czech, for example, shows (non-synchronic) templatic characteristics in its nominal morphology. For lack of space, the Czech template will not be discussed. Instead the possibility of analysing the data above will be introduced with the help of an OE template.

   Let us postulate that OE had a constraint that worked from the beginning of the word and looked for CV units, starting with the first stressed (and thus pronounced) V. The size of this template was CVCV (the second V could also be v, i.e. unpronounced). The parameters of this constraint are set out in (17).

(17) Parameters of the OE template

> **Edge**: left
> **Size**: CVCV (i.e. two CV units)
> **First anchor point**: a stressed (pronounced) V, the head of the template
> **Second anchor point**: V or v
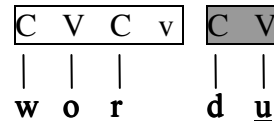> **Operation**: iterative; the head always attaching to a pronounced (not necessarily stressed) V

If we apply this constraint, a unified picture of HVD can be developed: the two high vowels are deleted when they cannot attach to a CVCV template. Let us see how this works.
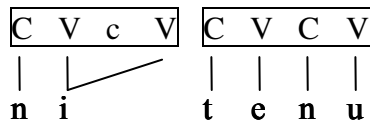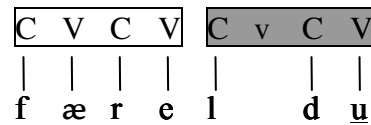
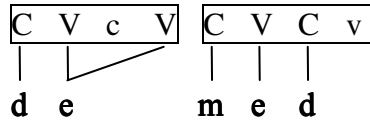(18) HVD and the OE template

    a) *scipu*
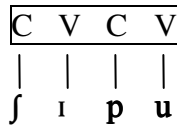
    b) *word*

    c) *nītenu*

    d) *færeldu*

    e) *firen*
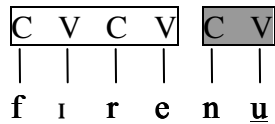
    f) *fulwiht*
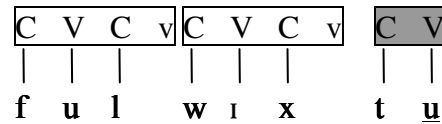
g) *dēmed*

```
C  V  c  V    C  V  C  v
|   | /        |  |  |
d  e          m  e  d
```

The template applies from the left edge of the word attaching onto the first stressed V. The size is two CV units. The application is iterative. The first vocalic slot of the template must be filled with a pronounced vowel, the second can also be filled with an unpronounced vowel (see (18f)). HVD occurs under the following circumstances: the constraint on the size of template is not satisfied ((18b), (18e) and (18f)), or the head of the template is empty (18d). The problematic areas in the representation are shaded. It is here that the two vowels undergo deletion. In (18g) the original high vowel is attached to the head position of the template and thus escapes deletion. As can be seen, it is not the size of the word that decides on the preservation of the high vowels, but rather the iterated application of the OE CVCV template. If the traditional account relies on counting syllables and their weight, this account relies on counting CVCV units. The suggested template also does away with the problems incumbent on an analysis relying on syllable weight, ambisylalbicity or a combination of the two. This templatic constraint explains the early OE forms *hēafodu* 'nom./acc. pl.' < **hēafudu* (the last two vowels are preserved because they can attach to the CVCV template). The alternative forms *hēafdu* and *hēafod* must be viewed as the result of syncopation (cf. *hēafde* < **hēafudæ*) and analogical re-formations based on *we(o)rod*.

This templatic analysis ushers in through the back door the much contested notion of resolution, i.e. the equivalence of one light syllable plus another syllable to one heavy syllable. A resolved sequence of syllables is a CVCV template whose vowels happen to be pronounced. Resolution is not a meter-specific device needed to check the number of positions in a half-line. It is part of OE phonology: HVD is one of the processes that can capture it at work. This neatly dovetails with the usual assumption on resolution: two syllables (of which the first one must be light) *are* equivalent to a single heavy one (hence the identical behaviour of *word* and *firen*), albeit in a totally new setting that also enjoys the benefit of having done away with the initial

problems associated with the traditional notion of syllable. In short, HVD and 'resolution' can be captured with the same fundamental principle of OE phonology (that of templaticness).[36]

Since the notion of syllable is non-existent in CV phonology, the question of syllable weight does not arise in mono-syllabic words closed by a single C: what we can say is that OE *wer*, for example, satisfies the OE minimal word requirement (it is comprised of two CV units) and is thus well-formed. Contrary to Creed's (1966: 24) assertion, no claim is made here to the effect that the two syllables of *wine* (< *wini*) share the same stress: the second syllable is part of the template, but the quantitative development shows that the second V is anything but stressed. As a consequence, the question of syllable weight and resolved stress that have dogged OE phonology can now be dispensed with. After we have accounted for HVD, it is time to look at secondary and tertiary stress.

3.3 The distribution of secondary and tertiary stress

As we have seen in Section 2 secondary stress in primary compounds is original primary stress subordinated to the first primary stress (cf. *góld* + *wlánc* resulting in *góldwlànc* 'proud with gold'). Secondary stress on heavy derivational suffixes depends on the nature of the preceding string of segments (a heavy syllable or a resolved sequence of two syllables in the traditional account) *and* the presence of another syllable, hence *síngènde* vs. *wésende*.
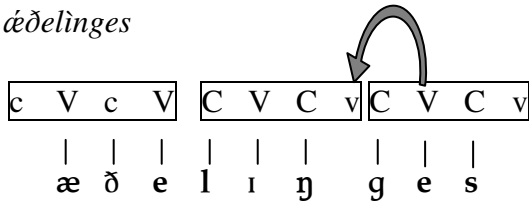
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36 This account begs a number of questions: why is it that only the high vowels are deleted? This deletion process has noting to do with the quality of these vowels, but rather with their quantity: they are both short. It is a diachronic coincidence that at the time when the OE template was active only these two vowels were short. The traditional description should more accurately read as Short-Vowel Deletion (or Short-VD for short). Note that in this new approach to deletion a long vowel would not undergo it: it fills the CVCV template by default. This interpretation is supported by the fact that the front long high vowel *ī* was not deleted: *wīte* < *wītī*. The same holds for vowels that were long at the time when short-Vowel Deletion was operative, such as the dative suffix in certain declensional classes: *-e* < *-æ* < *-ǣ* < *-ai*. These V's did not undergo deletion and appear as unstressed in recorded OE. It also follows from the framework outlined here that a vowel could eschew deletion either by having been long at the time of the operation of 'HVD' or by having attached to a CVCV unit. In other words, *-i* and *-ī*, for example, must have existed side by side (cf. *wini* and *wītī*, surviving into recorded OE as *wine* and *wīte*, respectively).
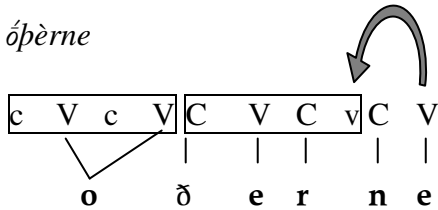
This double conditioning begs for an explanation in the lateral theory. This explanation should fall out of some general property of the theory.
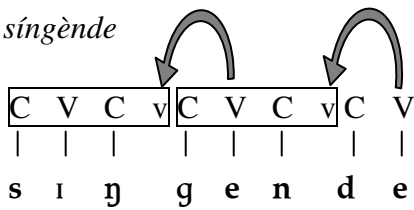
(19) The distribution of secondary stress
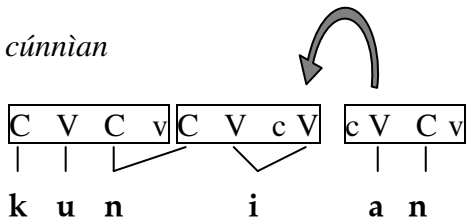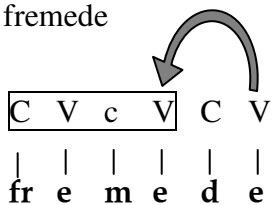
(a) *ǽðelìnges*

```
c  V  c  V   C  V  C  v  C  V  C  v
|  |  |  |   |  |  |     |  |  |
æ  ð  e  l   ɪ     ŋ     g  e  s
```

(b) *ṓþèrne*

```
c  V  c  V   C  V  C  v  C  V
         |   |  |  |     |  |
   o         ð  e  r     n  e
```

(c) *síngènde*

```
C  V  C  v   C  V  C  v  C  V
|  |  |      |  |  |     |  |
s  ɪ  ŋ      g  e  n     d  e
```

(d) *cúnnìan*

```
C  V  C  v   C  V  c  V   c  V  C  v
|  |  |      |                |  |
k  u  n         i          a  n
```

(e) fremede

```
C  V  c  V   C  V
|  |  |  |   |  |
fr e  m  e   d  e
```

In (19) a number of (simplified) sample representations are provided to illustrate the argument: the OE CVCV template is applied iteratively and exhaustively. A formal property of the lateral CV theory is used: licensing, a vocalic force which supports melodic expression. Here, it is put to use in supporting a CVCV template whose head V is now allowed to be (secondary) stressed. Licensing can hit both v (19a, b) and V (19d). The example in (19e) clinches the original supposition that in OE licensing (rather than government) is applied first: the second vowel of the first template (*freme-*) is not syncopated in spite of the general tendency in OE to syncopate unstressed vowels (cf. *hēafde*). The explanation that offers itself is the presence of licensing from the following pronounced vowel (*fremede*). Government from this vowel hits the intervocalic consonant (not shown here).

  The absence of syncopation in *fremede* cannot be explained by the nature of the consonants flanking the vowel: *dēmde*, for example, shows that it is obligatory after a heavy syllable. The absence of syncopation cannot be explained by the so-called Anti-penetration Constraint (Szigetvári 1999) either: the vowel following the syncope-prone vowel in *fremede* is anything but stressed (as shown by the gradual decomposition of its melody). Let us conclude at this point that in OE licensing is applied first. Examples like *dēmde* < **dēmede* are problematic for this account but must be put aside here. Note however, that whenever syncopation occurs the vowel that is responsible for silencing another vowel is always in the same CVCV template (underlined here) as the syncopated vowel: *dēm(e)de* (with syncopation) vs. *fremede* (no syncopation).

  Primary stress is independent of licensing: it is assigned by a phonological rule that looks for the first non-reduced V at the right edge of a minimal phonological domain (the word, excluding prefixed verbs). Nevertheless, the primary stressed V in the first template of *síngènde*, for example, receives licensing from the first V of the second template, but we must assume it is not utilised (the stress has already been assigned). It can be seen that the OE CVCV template's second vocalic slot could be satisfied by either a v or a V. The head vowel must always be a pronounced vowel, however. This explains some of the mirage-effects surrounding OE stress assignment. On the one hand, secondary stress can only appear at a template's throw from the primary stress, i.e. after the first CVCV portion of the skeleton. This does away with the traditional assumption that branching, or syllable weight for that matter, is

involved in primary stress assignment. The traditional disjunctive formulation (there must be branching at either rhymal *or* foot level) disappears in this approach. The shadows of secondary stress have been removed from over primary stress: the primary stressed V *can* be short, and will necessarily fill the first position of the OE template. On the other hand, we can see why in the traditional formulation of secondary stress a vowel was necessary in the weak branch of the foot: recall that in *ǽðelìnges* the OESR, after it cycles for a second time, erects a branching foot on *-inges*, rather than on a branching rhyme dominating *-ing*. At this point, the erection of a bi-pedal foot over an equally plausible branching rhyme seemed ad hoc. In the lateral explanation, a pronounced vowel is necessary for secondary stress because it provides for licensing that gives this second CVCV template secondary prominence (stress). In addition, no stipulation (Marginal (Final) Destressing) is required to account for the absence of secondary stress on final 'heavy syllables'. In (20a) the representation of *ǽðeling*, in (20b) the representation of *ǽðelìnga* 'gen.pl.' can be seen. There is no secondary stress on the final syllable in spite of the fact that it is part of the second CVCV template because there is no V from which licensing could be obtained. No stipulation is necessary, this is a consequence of the lateral theory and its assumptions on vocalic characteristics (embodied in the notion of licensing/government).
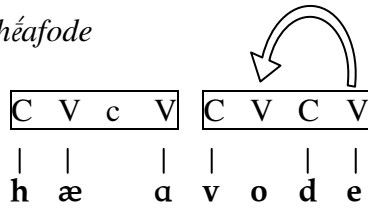
(20) Absence of secondary stress
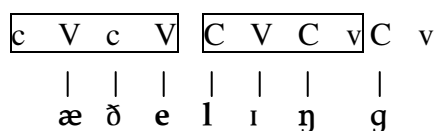
a) *ǽðeling*

b) *ǽðelìnga*
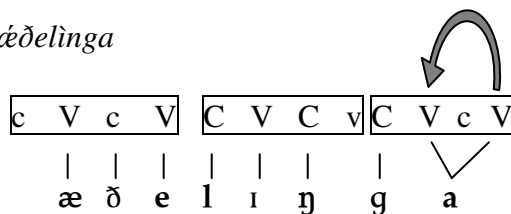
c) *hḗafode*

In *ǽðeling* (20a) there is no stress on the second CVCV template as there is no V after it, i.e. no licensing to support it (v cannot be the originator of licensing, as seen in (6b)). Despite V-to-V licensing binding together the two Vs in the gen. pl. *-a* suffix in (20b), this template has no stress, because there is no vowel after it to provide licensing for the template enclosing this long vowel (compare this to (19d) where *-ī-* is stressed owing to licensing from the following vowel).[37] In (20c) there is no vowel to support the template enclosing *-fode*, hence the absence of stress. No stipulation is needed, the secondary stress pattern of OE be read off the representations.

Note also that if a template is not supported by licensing, as in (20c), in addition to lack of stress (*hḗafǒde*), there is also syncopation (*hḗafde*). This can only be explained by government (shown above with an empty arrow). Once the CVCV template is not supported by licensing, it begins to disintegrate, as it were, as a consequence of which the second vowel can exert its governing potential on the vowel preceding it. The prediction is that an OE word like *hēafodume* would show no syncopation of the underlined vowel, as the template enclosing it is licensed. This example has to remain hypothetical for lack of data. The recorded data are simply too recent to test this prediction.

To conclude, there is little evidence for an additional, tertiary level of stress. Secondary stress is derived from primary stressed syllables and may even undergo further destressing, as shown by *Bíowùlfěs bíorh* 'Beowulf's barrow' (Beowulf 2807a) vs. *wǎs hǐm Bḗowǔlfěs síþ* 'was for him Beowulf's venture' (Beowulf 501b), in which the word *Bḗowùlf*, originally a compound noun meaning 'the wolf of bees', appears with either a stressed or an unstressed

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37 The absence of syncope (e.g. *rēafode/**rēafde* vs. *hēafde/hēafode*), for example, is strong indication that OE (at some stage of its recorded history) still retained a distinction between short and long vowels in non-primary stressed positions. In other words, the analysis of secondary stress in OE sketched out here must have been valid at some synchronic point in the history of the language. This is not a diachronically-tainted synchronic analysis. Diachrony is simply a succession of synchronic events arranged chronologically. Here one such synchronic event is analysed.

second constituent, probably depending on the degree of semantic compositionality and/or its position in a line.[38] Tertiary stress, on the other hand, appears on derivational and inflectional suffixes (after a CVCV template and if followed by a vowel) and, similarly to a secondary stressed syllable, can also undergo destressing, exemplified here with the derivational suffix -*heard* (e.g. *róndǎs régnhěardě* 'rims right-hard' (Beowulf 326a)). Note that the classification of compounds and noun *plus* derivational suffixes is quite elusive (cf. the discussion of *góldwlànc* vs. *wísdǒm*). In either case, secondary/tertiary stress will be caught in the net of semantic compositionality (and, consequently, loss of stress) and/or positional de-stressing in a half-line in the vicinity of other stresses. Granting all this, one can still predict where tertiary stress will occur. If it *does* occur, it will be metrically identical to a secondary stress, i.e. it will create a rise position in a poetic line. Note that while non-primary stress can be demoted, zero stress (on a suffix in word-final position, for example) can never be promoted to any degree of stress.

The traditional classification of stresses, just to be emphatic on this point, as secondary and tertiary relies heavily on morphological transparency, the former occurring on second halves of true, i.e. transparent (auto-stressed) compounds (*góldwlànc*), the latter on obscured (yet stressable) second parts of compounds (on derivational/lexical suffixes) and inflectional suffixes (*wísdǒme/síngènde*). Campbell (1959) uses 'half' stress for both types of stress. The two types of stress are in complementary distribution from a morphological point if view. Phonologically, however, non-primary stress is a middle ground where demoted primary stressed syllables and promoted unstressed syllables overlap.[39] Non-primary stress, as argued above, can undergo demotion. A schematic representation is supplied below, in (21).

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38 The demotion of secondary stress on true compounds like *góldwlànc*, for example, is a complex issue in OE poetry (see, for example, Cable 1991: 26–30), but seems to depend on the presence of other stresses close by. This issue will not be discussed here. This, however, is very similar to stress subordination in modern English (examples from Wells 2008): cf. *modernise* /ˈmɒdənaɪz/ (*/ˈmɒdnaɪz/) vs. *modernisation* /ˌmɒdənaɪˈzeɪʃn/ ~ /ˌmɒdnaɪˈzeɪʃn/, with the latter showing demotion of stressed /aɪ/ to zero stress in the vicinity of major stresses. The absence of stress on /aɪ/ is indicated by the possibility of syncopation. Interestingly, in *idolisation* /ˌaɪdəlaɪˈzeɪʃn/ syncope is not indicated as a possibility. One must assume there is a lexical difference: in *idolisation* /aɪ/ is stressed, in *modernisation* unstressed.

39 See Fulk (1992: 227) for an account of tertiary stress which did exist phonologically but it was syllable weight rather than stress that was responsible for assigning ictus below the

(21) The non-primary stressed middle-ground
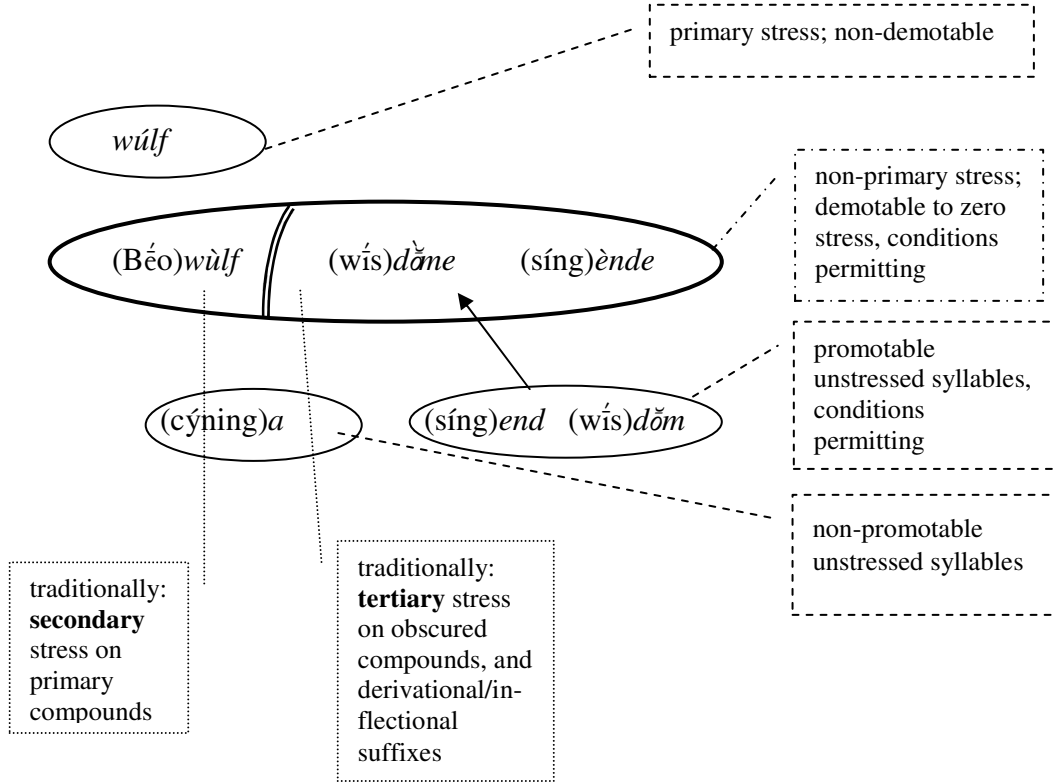
3.4 Some consequences of the OE template (summary)

The analysis presented above predicts that, after the first CVCV template has clicked into the right position, there can be no secondary stress on a following word-final CVCV template, no matter whether it is filled with two V's and an intervening C (e.g. hypothetical *-asa*), a short V and a consonant cluster (as *-ing* in (19)), or a long V (e.g. word-final *-ā*), all of them comprising a CVCV template. Absence of stress is a function of licensing coming from the next pronounced vowel.

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level of secondary stress. This is reminiscent of the CVCV account: a CVCV (roughly translatable as a heavy syllable in the traditional account) will bear ictus when medial.

A case worth examining is the absence of secondary stress on the medial V of *hēafodu* 'heads' (also discussed by McCully & Hogg 1990: 331ff.), as opposed to the secondary stressed medial syllable in the past tense of Class II weak verbs (e.g. *tímbròde* 'he trembled'). These stresses are inferred from OE metrics and the Sieversian four-position principle (an issue that cannot be discussed here for lack of space). These syllables can fill secondary rise positions in a half-line: e.g. *þĕndĕn rĕ́afòdĕ* 'then stripped' (Beowulf 2985a). The medial syllables of *hēafodu* and *rēafode* behave differently with respect to syncope: syncopation of the medial vowel in the former is widespread (*hēafdu*, *hēafdes*, etc.), whereas it is non-existent in the latter (**rēafde). Following Russom's (1987: 41) conclusions that the poet writing Beowulf employed non-synchronic metrical values, it can be assumed that secondary stress *rĕ́afòde* is a remnant from an age when the medial vowel was still historically long, i.e. *-ō-* (**rĕ́afȫd-*). In contrast to this, the medial vowel of *hēafodu* (*hēafudu) never had a long vowel.

These data from poetry square nicely with the lateral analysis proposed here: secondary stress is predicted in *rĕ́afȫde*, but not in *hĕ́afodu*. The original long V in *rĕ́afȫde* (a CVCV template) is supported by licensing coming from the next pronounced vowel, whereas in *hĕ́afodu* (again a CVCV template) it fails to be licensed (there is no following V to support the template enclosing *-odu*). We are now able to answer the question why the second vowel in obscured compounds like *wĭ́sdòmes* (as opposed to *wĭ́sdom*) is stressed: the vowel was originally long (cf. *dōm*) and supported by licensing from the following V. Note that we are unable to determine whether the medial vowel in *wĭ́sdòmes* was long or not in actual pronunciation at the stage of the composition of Beowulf. Since this may be an archaic feature of the language, the Beowulf poet may only have had the passed-down time-honoured knowledge of creating a secondary rise without reviving the original long vowel. Since stress, as we have seen, is not bound to heavy syllables, the vowel in *wĭ́sdòmes* may have been a secondary stressed short vowel (for the Beowulf poet at least).

The lateral theory can also explain why the originally long *-ō-* in the past participle (*rēafōd*) of Class II weak verbs is unable to receive secondary stress (and thus create a non-primary rise position in poetry), not even in the very conservative Beowulf: the long vowel was not originally followed by another vowel and thus failed to be licensed. As can be seen, vocalic length alone (or a

heavy syllable, for that matter) was not sufficient for secondary stress assignment. This is also supported by the fact that other originally long vowels (e.g. dative plural *-a* (< *-ā* < *-ôm*), or dative singular *-e* (< *-ǣ* < *-ai*), etc.) are also unfailingly unstressed in OE metrics. The supposition is that these vowels would not have been stressed, not even if Beowulf had been composed any number of centuries earlier.

(22) Some possibilities for secondary stress assignment

recorded OE	pre-OE
hēafod	*hēafud
hēafode	* hēafodæ
rēafod	* rēafōd
rēafòde	* rēafồde
stāna	*stānā
weddìan	*weddĩan

Some further consequences of the templatic lateral analysis (e.g. the existence and behaviour of pre-fabricated chunks of template, as found, for example, in a long vowel/diphthong), i.e. the possible appearance of secondary stress in verbs like *bífồde* 'he trembled' (i.e. verbs in which a historically long vowel is preceded by a short one) will not be discussed here.

4 Conclusions

Our analysis has tried to offer a new way of looking at OE stress. OE stress is flat, i.e. no cycles have to be invoked to explain it: stress falls out naturally from the assumption that when stress-calculation is initiated, all suffixes, both derivational and inflectional, have already been aligned. Primary stress falls on the first vowel available in the minimal phonological domain. It was suggested that verbs with unstressed prefixes are probably a red herring and belong to syntax, rather than phonology. Non-primary stress requiring licensing is found at a distance of a CVCV template from the primary stressed vowel. It was argued that the main distinction between the various levels of stress is that of *primary* vs. *non-primary* (found on auto-stressed second parts of compounds,

and derivational/inflectional suffixes requiring licensing; both able to undergo metrical demotion) vs. *unstressed* (found on both etymologically long and short suffixes, as well as final vowels of mono-morphemic words). More controversially still, it has been suggested that the traditional notions of HVD, resolution and 'tertiary' stress can be described less cumbersomely with the introduction of a CVCV template in OE. This accounts more succinctly for a number of phenomena and does not rely on stipulations like Marginal (Final) Destressing, but tries to deduce some domain-final phenomena of OE from more fundamental principles of the lateral theory, such as licensing or the absence thereof.

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