The Stress Pattern of the Latin Loan Names in Old English Verse and Substructure of Old English Lexicon*

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1. Introduction

When two languages contact, linguistic elements are transferred from one language to another since the two languages will not match completely in phonology and grammar. One may contain sounds which are absent from the other. Or one language may have grammatical categories which the other does not. In this situation the bilingual speaker has a choice between adoption and adaptation.[1] In this paper, I would like to examine what Old English (OE) speakers adopted from Latin stress pattern and adapted to the stress pattern of OE native words when they borrowed biblical and classical names from Latin.

As data I chose the biblical and classical names in OE verse. Among native OE words, it is very difficult to find a word with more than four syllables, excluding compounds and morphologically highly complex words. Most monomorphemic (inflected) words are of one or two syllables. Even derived words with more than four syllables are rare. This characteristic tends to make the OE stress pattern relatively simple compared with Modern

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[1] Adoption or importation refers to the situation in which the features of the donor language are maintained in the recipient language. Adaptation or substitution indicates the situation in which the foreign features are nativized into the patterns of the recipient language. The choice between adoption and adaptation is not an all-or-nothing one. Some languages seem to be predominantly adopters, while others generally adapt. It is unclear whether these tendencies are predictable. The degree of adoption and adaptation depends on many elements such as the quantity of loans, the degree of bilingualism, and the prestigious or derogatory connotations of words (McMahon 1994).

English. The limited length of OE native words is also observed in most Latin loanwords (Moon in preparation). Many Latin loanwords were truncated or shortened when they were borrowed. In contrast with this tendency, Latin biblical names tend to be longer than native words. In addition, many of them have a more varied syllable-makeup than that of OE native words. We can easily anticipate the different length and syllable composition of the loan names will bring about adopted properties in stress assignment. In this paper, I aim to investigate how the adopted and adapted properties of biblical and classical names loaned from Latin characterize the substructure of the OE lexicon in relation to stress assignment.

The paper is organized as follows. Section 2 presents the data. Section 3 provides an analysis of the data within the framework of Optimality Theory (OT) (Prince & Smolensky 1993, McCarthy & Prince 1993, 1994, 1995 among others). In section 3.1., I will confirm the adapted stress pattern of the biblical and classical names borrowed from Latin. In section 3.2., I will investigate the adopted stress pattern. Section 4. discusses the relation between Latin loan names and OE native words in the stress pattern. It will be shown that an OT analysis, specifically constraint hierarchy, makes it possible to easily compare two substrata of the OE lexicon, and that the two substrata constitute the core-periphery structure in the OE lexicon. Section 5 concludes the paper.

2. The Biblical Names Loaned from Latin

The biblical and classical names in OE poetry generally reflect characteristics of the later Latin loanwords (Campbell 1959 : 548, 549). Hence the stress pattern and other phonological aspects of loan names given in (1) shows those of later loanwords.

(1) (Campbell 1959 : 549-557, Hüttenbrenner 1917) [2]

a. disyllabic words : Ǎdam, Júdith, Plǎ́ton, Jǎ́cob cf. Ǎ́dàmes, Jǎ́còbes; Tíle cf. Tíles

b. trisyllabic words : Ǎ́gùstus, Ǒ́mèrus, Nǒ́vèmbris, Dĕ́cèmbris ; Álbàno, Séptèmbris; Bábilon, Élene, Níneve, Lúcifer cf. Bábilònes, Lúcifères; Mǎ́rìa, Mǎ́thèas; Július, Líbia,

[2] Depending on the syllable internal structure, words in (1) are separated by a semicolon.

Síria [3]

c. quadrisyllabic words : Ā́gamèmnon, Ā́gustìnus, Hŏlofèrnus ; Cónstantìnus; Fĭlistìna, Ápollĭnus, Híerusàlem; Ábimèlech, Bénedĭctus; Árriànus, Cȳ́riàcus, Júliàna [4]; Grēgŏrius, Ī́tàlia [5]

d. quintasyllabic words : Élamitàre [6]; Bártholòmeus, Mérmedònia, Máximiànes [7]

e. words with more than five syllables : Nábochodonòssor [8]

An examination of the data above shows us that primary stress falls on the initial syllable of words, and the word-final syllable does not bear any stress. The same is true in OE native words. As mentioned above, we may expect a rich pattern of secondary stress in Latin names since they tend to be longer than native words and have more varying syllable composition. Contrary to expectation, the distribution of secondary stress is not so rich: most words carry secondary stress on the heavy penultimate syllable, and a few words bear secondary stress on the antepenultimate syllable, all of which have a penult and final syllable in vowel hiatus.

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[3] Trisyllabic names with vowel hiatus rarely demonstrate synizesis (i.e. collapsing into one vowel). They show the same pattern as trisyllabic words without vowel hiatus.

[4] *Árriànus, Cȳ́riàcus* and *Júliàna* follow the type *Ā́gamèmnon* as /x\x. When synizesis occurs to them, they conform to the trisyllabic words, producing /\x as in *Júli͡àna*. The position of stressed syllables remains unchanged regardless of synizesis.

[5] Unlike the preceding three words with vowel hiatus, Campbell (1959) argues that *Grēgōrius* and *Ītālia* are assigned tertiary stress on the light syllable, following Sievers (1893) who scanned the words as type D //\x. On the other hand, Bliss's (1958) scansion ignores the tertiary stress since he analyses this as his type D //xx. In this paper, I follow Bliss's analysis.

[6] Campbell (1959) cites this word having a long penultimate syllable as *Elamitāre,* while Hüttenbrenner (1917) refers to this word as *Elamitare.* Although the entry form has a light penult, the only form cited in the concordance of OE poetry (Bessenger 1978) is an inflected *Elamitarna* which has a heavy penult.

[7] Vowels in hiatus in the last three words usually undergo synizesis. These words then pattern with the quadrisyllabic words in (1c) in their stress assignment. Nevertheless, they have the same stress pattern as after synizesis.

[8] Hüttenbrenner (1917 : 54) argues that this word has only two stresses; one is the primary stress on the initial syllable and the other is a secondary stress on the penultimate syllable. He says there is no possibility of stress being assigned to a syllable between the primary and secondary stress. I follow his claim.

As Campbell (1959) points out, the secondary stress assigned to the penultimate syllable in these words may be due to the influence of Latin stress. This is found in Latin loanwords that are trisyllabic or longer. We can schematize how Latin loanwords maintain the trace of their original penultimate stress, after being borrowed, following Campbell (1959 : 548).

(2) magíster (Latin) > mágìster > mȃgìster (OE)

When Latin words are borrowed into OE, they follow the stress patern of OE native words, hence the primary stress goes to the initial syllable. In order to maintain secondary stress in the penultimate syllable (here it is the original Latin stress), the initial syllable must be lengthened. This is because a word-medial syllable in native words cannot bear secondary stress without following a heavy syllable or its equivalent (= a sequence of a light and a heavy syllable or two light syllables). Sometimes a change in quantity does not occur, if the secondary stress is already preceded by a heavy syllable of its equivalent. The secondary stress in *Ápollìnus*, for example, is already preceded by a sequence of a light plus a heavy syllable; thus, there is no need for the initial syllable to be lengthened. However, some Latin loanwords lose their original penultimate stress due to the stress pattern of OE native words, i.e. the condition that primary stress attract at least two moras in order for secondary stress to exist. The loss and preservation of the Latin original stress as secondary stress do not seem to be phonologically conditioned. In this paper, I will not discuss how the quality and quantity of vowels in Latin words are adjusted to OE phonology. Rather I will focus only on the stress pattern of the two substrata.

To summarize the pattern shown in the data in (1), the stress pattern of Latin loan names is totally integrated into the OE pattern in two aspects: first, all Latin names carry primary stress in their initial syllable; second, no Latin loan names carry stress in their final syllable except when they are monosyllabic. Except for these cases, we can say that the OE stress pattern may not influence the stress pattern of Latin loan names in the OE period. Given that Latin loan names, which are longer than OE native words, are assigned secondary stress, the stress pattern of Latin loan names is not necessarily the same as that of OE native words. In the next section, I will analyze the distribution of stress in the biblical and classical names loaned from Latin within the framework of OT. I will first identify

the stress pattern shared by OE native words, and then explore the stress pattern which cannot be obtained through the constraint hierarchy for the stress pattern of OE native words.

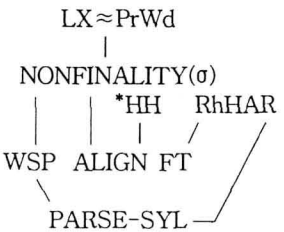
3. The Stress Pattern of Latin Loan Names

3.1. Adapted Stress Pattern

In what follows, I confirm the rankings which OE native words and Latin names share. In many cases, the stress pattern of Latin loan names is analyzed within the same hierarchy of constraints worked out for OE native words in the previous work (Moon 1996).

(3) The constraint hierarchy for the stress of OE native words (Moon 1996) [9]

undominated constraints: FTBIN, FTFORM, ALIGN Head



(4) The constraints

a. Foot Binarity (FTBIN) : Every foot is minimally binary at some level of analysis (μ, σ), i.e. either syllabically or moraically binary.

b. Foot Form (FTFORM) : ALIGN(FT, L, H(FT), L): The left edge of every foot coincides with the left edge of the head of the foot (Trochaic Foot).

c. ALIGN Head (PrWd, L, H(PrWd), L) : The left edge of the PrWd must be the head of the PrWd, i.e. F′ (Primary stress assignment).

d. LX≈PrWd : A member of the morphological category MCat corresponds to a PrWd.

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[9] The hierarchy in (3) is little bit different from that in Moon (1996): one more constraint, No Spondee is added to the hierarchy in (3).

e. NONFINALITY(σ) : No prosodic head of a foot is final in a PrWd.

f. Rhythm Harmony (RhHAR) : HL[10] is prohibited (= *HL).

g. No Spondee (*HH) : A foot consisting of two heavy syllables is prohibited.

h. PARSE-SYL : Every syllable belongs to a foot.

i. Weight-to-Stress Principle (WSP) : Heavy syllables are prominent in foot structure and on the grid.

j. ALIGN FT (FT, R, PrWd, R) : Every foot stands in final position in a PrWd.

The constraints of FTBIN, FTFORM, and ALIGN Head are undominated for Latin loan names, too.

(5) Ápollìnus

	FTBIN	ALIGN Head	FTFORM
☞ a. (Ápol)(lì)nus			
b. A(pól)(lì)nus		*!	
c. (Á)(pòl)(lì)nus	*!		
d. (Apól)(lì)nus			*!

As in OE native words, every foot in the Latin proper nouns is syllabically or moraically binary, hence (5c) is ruled out due to its unary foot. An iambic foot in (5d) is prohibited since every foot must be trochaic. (5b) is out since the unfooted initial syllable brings about dealignment between the head foot and the left edge of the word.

The ranking ALIGN Head ≫ ALIGN FT, which shows the dactyl in native words, e.g. *wúnode*, pret.1, 3.sg of *wunian* 'to dwell,' also represents the dactyl as in the following Latin loan proper noun:

(6) ALIGN Head ≫ ALIGN FT : Bábilon

	ALIGN Head	ALIGN FT
☞ a. (Bábi)lon		*
b. Ba(bílon)	*!	

[10] H indicates a heavy syllable and L a light syllable.

In the tableau, the two candidates tie with respect to the satisfaction of constraints except for ALIGN Head and ALIGN FT. The initial dactyl, / x x is obtained by the dominance of ALIGN Head over ALIGN FT.

Now, let us consider a longer word with the initial dactyl effect. The dominance of ALIGN Head over ALIGN FT correctly chooses an optimal output.

(7) ALIGN Head ≫ ALIGN FT: Élamitàre

	ALIGN Head	ALIGN FT
☞ a. (Éla)mi(tàre)		***
b. E(lámi)(tàre)	*!	**
c. (Éla)(mìta)re		****!

A final syllable of the biblical names is not allowed to be the head of a foot, even though it can be a part of a foot. NONFINALITY(σ) prevents a final syllable from carrying stress in OE native words. NONFINALITY(σ) plays the same role in the Latin names. As in the OE native words, NONFINALITY(σ) is relatively high ranked in the hierarchy of constraints: it dominates ALIGN FT and WSP. The candidate *(Éla)(mìta)re* is ruled out due to worse violation of ALIGN FT. The candidate and the optimal output tie with respect to the satisfaction of ALIGN Head. The constraint which conflicts with ALIGN FT in the two candidates is ALL-FT-LEFT requiring that every foot stand in initial position in a PrWd. Since the constraint is almost invisible in the constraint hierarchy for the stress of Latin names as well as OE native words, I do not discuss it in the hierarchy of constraints.

As seen in the tableau (8), a final syllable cannot be a head of a foot regardless of syllable weight: the final parsed heavy syllable in (8b) satisfies WSP, while violating NONFINALITY(σ); (8a) meets NONFINALITY (σ) at the cost of WSP. The ranking NONFINALITY(σ) ≫ WSP correctly selects an optimal output between the candidates.

(8) NONFINALITY(σ) ≫ WSP : Ádam [11]

	NONFINALITY(σ)	WSP
☞ a. (Á)dam		*
b. (Á)(dàm)	*!	

Another conflict occurs between NONFINALITY(σ) and ALIGN FT: NONFINALITY(σ) forbids a word-final foot which consists of a single heavy syllable while ALIGN FT requires that every foot abut with the final position of PrWd.

(9) NONFINALITY(σ) ≫ ALIGN FT : Bénedìctus

	NONFINALITY(σ)	ALIGN FT
☞ a. (Béne)(dìc)tus		***
b. (Béne)dic(tùs)	*!	**

In the above tableau, (9a) meets NONFINALITY(σ) by leaving the final heavy syllable footloose. This instead brings about a worse violation of ALIGN FT : (9a) violates ALIGN FT three times in total. Even though candidate (9b) violates ALIGN FT twice, it fatally violates NONFINALITY (σ). Consequently, the optimal output for *Benedictus* is chosen under the ranking of NONFINALITY(σ) ≫ ALIGN FT.

When a two-syllabled Latin name becomes longer through inflection, it is assigned secondary stress as in *Ádam~Ádàme* cf. an OE native name *Béowulf~Béowùlfe*. This means that RhHAR(=*HL) is visibly active in the hierarchy of constraints for the stress of Latin loan names: if RhHAR is ranked low in the hierarchy, namely, if a foot consisting of a heavy and a light syllable (HL) is permitted, a word consisting of HLL would lose the chance to have secondary stress. The position of RhHAR in the hierarchy is determined by words such as *Ágamèmnon*.

Ágamèmnon in the below tableau shows that RhHAR conflicts with PARSE-SYL and ALIGN FT. Candidate (10a) is a worse violator of ALIGN FT and PARSE-SYL. On the other hand, (10b) violates ALIGN FT and PARSE-SYL four times in total, which is less than (10a). However, it fatally violates RhHAR which is satisfied by (10a).

(10) RhHAR ≫ ALIGN FT, PARSE-SYL : Ágamèmnon

	RhHAR	ALIGN FT	PARSE-SYL
☞ a. (Á)ga(mèm)non		****	**
b. (Ága)(mèm)non	*!	***	*

[11] In this tableau, PARSE-SYL is irrelevant since it is ranked below WSP in the hierarchy of constraints, as will be shown later in this subsection.

In tableau (11), the two candidates tie with respect to the violation of the two constraints, ALIGN FT and PARSE-SYL, which are not ranked with each other and hence whose violations are evaluated with the same importance. The optimal output is determined with RhHAR ranked above ALIGN FT and PARSE-SYL.

(11) RhHAR ≫ ALIGN FT, PARSE-SYL : Ǎdàme

	RhHAR	ALIGN FT	PARSE-SYL
☞ a. (Ǎ)(dàme)		**	
b. (Ǎda)me	*!	*	*

In addition to a foot which consists of a heavy and light syllable, OE native words prohibit a foot which consists of two consecutive heavy syllables. The constraint *HH also dominates ALIGN FT in the Latin loan names.

(12) *HH ≫ ALIGN FT : Bénedìctus

	*HH	ALIGN FT
☞ a. (Béne)(dìc)tus		***
b. (Béne)(dìctus)	*!	**

The two candidates have the same surface form. However, as in OE native words, the stress pattern of Latin loan names chooses (12a) over (12b): (12b) is ruled out due to the violation of *HH which is met by (12a).

WSP and PARSE-SYL which conflict in OE native words also conflict in OE's Latin loan names. This is reconciled by the surface output, *Ǎgamèmnon*, which is illustrated in tableau (13).

(13) WSP ≫ PARSE-SYL : Ǎgamèmnon

	WSP	PARSE-SYL
☞ a. (Ǎ)ga(mèm)non	*	**
b. (Ǎ)(gàmem)non	**!	*

In candidate (13b), the heavy syllable in the second foot and the final

unparsed heavy syllable violate WSP. In candidate (13a), only the final unparsed heavy syllable violates WSP. With respect to PARSE-SYL, (13a) is the worse violator. The actual attested stress pattern of this word solves the conflict by positing WSP over PARSE-SYL in the hierarchy of constraints.

We have seen that the hierarchy of constraints for native words also accounts for the stress pattern of Latin proper nouns. Finally, let us consider how the constraint ranking verified up to now operates.

(14) Ā́dàmes gen.sg. of Ādam 'Adam'

	NONFINALITY	WSP	RhHAR	PARSE-SYL
☞ a. (Ā́)(dàmes)		*		
b. (Ā́da)mes		*	*!	*
c. (Ā́)da(mès)	*!			*
d. (Ā́)dames		*		**!

Ā́dàmes manifests the same stress pattern of OE native words such as *húntòðe* gen.sg. of *huntoð* 'hunting.' All the candidates in the tableau satisfy the undominated constraints. The parsed last syllable in (14c) fatally violates NONFINALITY(σ). Candidate (14b) has a foot which consists of a heavy and a light syllable. This is forbidden due to the violation of RhHAR. Candidates (14a) and (14d) tie on the satisfaction of the constraints, except for PARSE-SYL. Candidate (14d) fails to meet PARSE-SYL, by leaving the last two syllables unparsed. Thus, the most optimal output is (14a), which minimally violates the constraints.

3.2. Adopted Stress Pattern

Thus far, I have presented the rankings for Latin names that coincide with those for native words. In this subsection, I will provide the rankings that are limited to Latin proper names. As mentioned before, the difference in the rankings is unavoidable given that Latin loan words have a syllable make-up which is different from that of OE native words, and tend to be longer than OE native words. However, there is no drastic change that requires the ranking between constraints presented in (3) to be reversed. One of the prominent characteristics of the ranking specific to Latin loan names is that constraints which have no ranking relationship between them

for OE native words are required to be hierarchically ranked for Latin loans in OE.

I begin with the interaction of ALIGN FT and PARSE-SYL. In native words, there is no ranking between them. In contrast, Latin loan names demand that ALIGN FT be ranked higher than PARSE-SYL. This is illustrated by the following tableau:

(15) ALIGN FT ≫ PARSE-SYL : Máximiànus [12]

	ALIGN FT	PARSE-SYL
☞ a. (Mák)simi(à)nus	*****	***
b. (Mák)(sìmi)(à)nus	*******!	*

After we cancel out the shared violations in each column of the tableau, we easily find the resolution of the conflict between ALIGN FT and PARSE-SYL. With regard to PARSE-SYL, (15a) is worse than (15b), while (15b) is worse than (15a) with respect to ALIGN FT, all else being equal. The optimal output (15a) reconciles the conflict, by ranking ALIGN FT over PARSE-SYL in the hierarchy.

Another relative ranking of constraints is required. WSP and ALIGN FT are not ranked in OE native words. However, their relative ranking is required in Latin loan names, as seen in tableau (16).

(16) WSP ≫ ALIGN FT : Bártholòmeus

	WSP	ALIGN FT
☞ a. (Bár)tho(lò)meus	*	******
b. (Bár)tholō(mèus)	**!	****

The constraint which conflicts with WSP in the above tableau is ALIGN FT. Candidate (16a) violates WSP once. The first foot in each candidate violates ALIGN FT four times. The second foot in (16a) adds two more violation of ALIGN FT. The second foot in (16b) does not incur the violation of ALIGN FT since it is not followed by any syllable. However,

[12] In OE the spelling x represents a sequence of two sounds, [ks]. Regardless of synizesis, this word has the same stress pattern as Máximiànus and Máximi͡ànus. The form in tableau (15) is the former, that is, the word without synizesis.

the unparsed syllable *-lō-* makes (16b) a worse violator of WSP, compared with candidate (16a). The attested form (16a) resolves the conflict at the expense of ALIGN FT.

To summarize the ranking relationship discussed up to now, we obtain the hierarchy in (17), which is restricted to the biblical and classical names borrowed from Latin in the OE period.

(17) WSP ≫ ALIGN FT ≫ PARSE-SYL

In OE native words, there is no ranking relationship between WSP and ALIGN FT, or between ALIGN FT and PARSE-SYL, although WSP dominates PARSE-SYL. In contrast to native words, OE's Latin loanwords need a hierarchy among the three constraints, WSP, ALIGN FT, and PARSE-SYL. In (18), I present two diagrams of subhierarchies of constraints, for ease of comparison.

(18) a. Subhierarchy of constraints for OE native words

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WSP      ALIGN FT
  \
   PARSE-SYL
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b. Subhierarchy of constraints for OE's Latin loan names (to be revised)

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WSP
 |
ALIGN FT
 |
PARSE-SYL
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Other than the subhierarchy in (18), the ranking relationship of the remaining constraints is the same as in (3).

However, there are a few words whose stress pattern cannot be accounted for by the revised hierarchy of constraints. They are the words which consist of four heavy syllables, such as *Águstìnus*[13] and *Cónstantìnus*.

[13] Depending on how the medial *-st-* cluster is syllabified, the second syllable of the word may be heavy or light. When the *-st-* cluster is heterosyllabified, the second syllable becomes heavy as in *Ā.gus.tīnus*. When the cluster is tautosyllabified, we have the syllable-internal structure of *Ā.gu.stīnus*. In OE the syllabification of the word-medial *-st-* cluster is influenced by stress and the quantity of the vowel preceding the cluster. However, the cluster is neither uniformly syllabified nor phonologically conditioned. Hence, it is safe to consider two cases. If we accept the

Given the hierarchy presented above in (18b), we incorrectly have an output, **Cónstàntīnus*, as seen in tableau (19).

(19) Cónstantìnus

	WSP	ALIGN FT	PARSE-SYL
(☞) a. (Cón)stan(tì)nus	**!	****	**
☜ b. *(Cón)(stàn)(tì)nus	*	******	*
c. (Cón)(stàn)tīnus	**!	*****	**

In this analysis, I propose a constraint that requires two syllables with nonprimary stress not to be adjacent.

(20) *Stress Plateau (*StPl) : Within a monomorphemic word, no stressed syllable may be adjacent to the stressed syllable which is not the head of the PrWd.

The proposed constraint may be a kind of *Clash-SYL.[14]

(21) *Clash-SYL: No adjacent stressed syllables (Kager 1994 : 20).

Both constraints prohibit sequences of stressed syllables such as *…(σ̀)(σ̀)…, but allow the sequence such as …(σ̀σ)(σ̀σ)… since the sequence has a buffer syllable between the stressed syllables.[15] However, *StPl differs from *Clash-SYL in that *Clash-SYL bars any adjacent stressed syllables while *StPl forbids adjacent secondary stresses, namely, …(σ̀)(σ̀)…. *StPl has the effect of prohibiting possible tertiary or secondary stress immediately following or preceding secondary stress within a monomorphemic word. In addition, *StPl allows a syllable with secondary stress to immediately follow a syllable with primary stress. For instance, a sequence [(σ́)(σ̀)σ], in which [ ] indicates a PrWd boundary, does not violate *StPl.

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tautosyllabification of the cluster, the stress pattern of *Āgustīnus* is the same as that of *Āgamemnon*. If the *-st-* cluster is heterosyllabified, *Āgustīnus* patterns together with *Constantīnus* in the stress assignment.

[14] Kager originally names this constraint as *Clash-SYLL. I changed this to *Clash-SYL to conform with the name of the constraint PARSE-SYL mentioned in this paper.

[15] So the second candidate in (15), (*Mák*)(*sìmi*)(*ǎ*)*nus*, does not violate *StPl since there is a buffer syllable *-mi-* between the stressed syllables *-si-* and *-ā-*.

The position of *StPl in the hierarchy is determined by the name, *Constantīnus*. *Constantīnus* shows that *StPl is ranked at least above ALIGN FT. There seems to be no word which requires the relative ranking among the constraints WSP, *HH and *StPl.

(22) *StPl ≫ ALIGN FT : Cónstantìnus

	WSP	*StPl	*HH	ALIGN FT	PARSE-SYL
☞ a. (Cón)stan(tì)nus	**			****	**
b. (Cón)(stàn)(tì)nus	*	*		******!	*
c. (Cón)(stàn)tīnus	**			*****!	**
d. (Cónstan)(tìnus)	**		* !	**	

In this subsection, we have examined the hierarchy of constraints restricted to Latin proper names. We can briefly summarize the pattern in three aspects. First, there is no case that demands the rankings which are used to account for OE native words to be reversed. Secondly, the Latin biblical and classical names require ranking relationship between the constraints which are not ranked for OE native words. Finally, a constraint *StPl is required for certain names which is not visible for OE native words. These characteristics are illustrated by the subhierarhcy of constraints given in (23) in which the bolded constraint is only for Latin names.

(23) The subhierarchy of the constraints for the stress pattern of Latin loan names (final)

WSP ***StPl**
| /
ALIGN FT
|
PARSE-SYL

I would like to close this subsection by looking at one more example.

(24) Bártholõ̀meus

	WSP	*StPl	ALIGN FT	PARSE-SYL
☞ a. (Bár)tho(lõ̀)meus	*		******	***
b. (Bár)tho(lõ̀)(mèus)	*	*!	******	*
c. (Bár)(thòlõ)(mèus)	**!		******	
d. (Bár)(thòlõ)meus	**!		******	**
e. (Bár)tholõ(mèus)	**!		****	**

All the candidates in the above tableau satisfy the constraints ranked above WSP or *StPl such as NONFINALITY (σ) and undominated constraints. Candidates (24a) and (24b) both violate WSP once. However, (24b) violates *StPl which is satisfied by (24a), since the stressed syllables *-lõ-* and *-me-* are adjacent. In spite of two consecutive feet in (24c), (24c) meets *StPl since *-lõ-* intervenes between the stressed syllables. However, the buffer syllable *-lõ-* causes the violation of WSP. Likewise, (24d) and (24e) violate WSP twice, respectively. Without looking down to ALIGN FT and PARSE-SYL, we obtain the most harmonic output for *Bartholõmeus*.

4. The Lexical Stratification in OE

In this section, I will compare the stress pattern of Latin loan names with that of OE native words in terms of the constraint hierarchy and discuss how Latin loan names are incorporated into OE native words with respect to the stress pattern and ultimately how the OE lexicon is substructured.

One of the key tenets of OT is that the grammar of a language is represented by a single invariant hierarchy of constraints. Since the ranking of constraints is language-particularly determined, the different hierarchies of the same universal constraints lead to the differences between languages. Language-internal variation such as lexical stratification and stylistic variation may be a challenge to the tenet; the different phonological characteristics of sublexica cause language-internal variability. There have been many attempts to compromise language variation with the invariant ranking of constraints within a language. In this paper, I want to briefly review two models of loanword phonology proposed within the framework of OT.

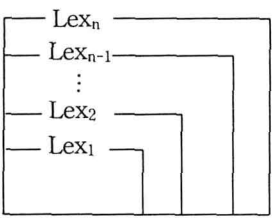
To account for the phonological differences among the various strata in

the lexicon of Japanese, Itô & Mester (1998) argue for a core-periphery model of phonological lexicon in which the relevant structural organization of the lexicon is set inclusion, leading from the innermost lexical core Lex_1 to the most inclusive set Lex_n comprising all lexical items.

(25) $Lex_n \supset Lex_{n-1} \supset Lex_{n-2} \cdots \supset Lex_2 \supset Lex_1$ (FKO 1998 : 10)

The whole lexicon is organized as a structure with more and more inclusive subsets. A member of Lex_{n-1} satisfies all the markedness constraints of Lex_{n-1}, but not all the members in Lex_n meet the markedness constraints that regulate members in Lex_n. A core area, i.e the native lexicon, here Lex_1, fulfils the maximum set of lexical constraints. The relation can be depicted as in (26).

(26) The core-periphery structure



As seen in the model in (26), the hierarchical character of lexical stratification plays a central role. In order to provide a principled account of the core-periphery structure of the lexicon within a unitary system, the authors propose that the ranking of input-output (henceforth I/O) faithfulness constraints is involved in differentiating among various strata. Only faithfulness constraints-not structural constraints, can be indexed to a particular lexical stratum or lexical item. Their model is 'the stratum-indexed faithfulness model.' By ranking indexed I/O faithfulness constraints across the invariant hierarchy of structural constraints, they argue that the core-periphery structure can be obtained with a uniform constraint set.

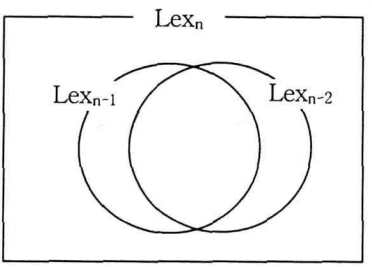
We can find another model of lexical stratification within the framework of OT. Like Itô & Mester, Fukazawa, Kitahara & Ota (1998, henceforth FKO) also adhere not only to the basic tenet of OT that the grammar of a language is represented by a single invariant hierarchy of constraints, but also to the stratum-indexed faithfulness constraints. FKO also allow only a stratal replication of faithfulness constraints, not a stratal replication of

structural constraints in the lexicon. The main difference is that FKO account for language-internal variability by projecting multiple sets of I/O faithfulness constraints which are not regulated by a metaconstraint: each set of faithfulness constraints is linked to a substratum in the language, and the stratum-specific versions of a given faithfulness constraint can be ranked independently of each other. While Itô & Mester impose the ranking consistency of faithfulness constraints in order to capture the inherent property of the core-periphery structure, under FKO's proposal, the split and itemized faithfulness constraints can bring about inconsistent ranking between them. For instance, we can obtain the following inconsistent ranking which is empirically supported.

(27) Inconsistent ranking of itemized faithfulness constraints
(FKO 1998 : 12)
IDENT[lab]-IO-M 》 X 》 IDENT[lab]-IO-SJ
vs.
IDENT[voice]-IO-SJ 》 Y 》 IDENT[voice]-IO-M
(X, Y = markedness constraints, M = Mimetics, SJ = Sino-Japanese)

By itemizing stratum-specific I/O faithfulness constraints and ranking them separately, FKO's model explains the non-subset relation between strata. In other words, unlike Itô & Mester's (1998) proposal, they show that lexical stratification is not always necessarily core-periphery organization. The grammar can generate a stratified lexicon that ignores such core-periphery structure even if the markedness constraints are ranked invariantly with respect to each other. Namely, there are lexical items in Lex_{n-1}, which satisfy a markedness constraint X, but not a markedness constraint Y, while lexical items in Lex_{n-2}, are subject to Y but not to X. This can be schematized as in (28).

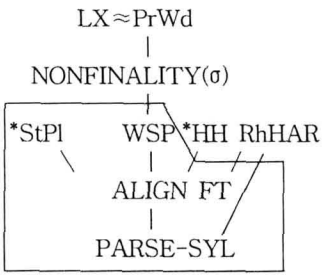
(28) The overlap structure of the lexicon



In the above situation, the core-periphery structure is no longer maintained. In addition to the inclusive stratal relation in the lexicon, their model allows an account of the overlap relation in the lexicon as in (28). What FKO's model implies is not to deny the presence of the core-periphery structure of lexical stratification. Rather, they argue that the core-periphery structure is not an inherent aspect of the grammar, but only a tendency.

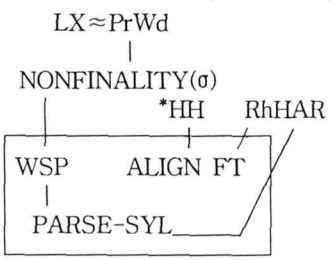
Now, going back to the OE lexicon, let us consider how to characterize the relation between Latin loan names and OE native words in the OE lexicon. In the previous subsections, we have obtained the following hierarchy for the stress of Latin loan names.

(29) The constraint hierarchy for the stress pattern of Latin loan names
undominated constraints: FTBIN, FTFORM, ALIGN Head



We can compare the hierarchy given in (29) with the following constraint ranking for the stress of OE native words in (30).

(30) The constraint hierarchy for the stress of OE native words
undominated constraints : FTBIN, FTFORM, ALIGN Head



Then, do the two constraint hierarchies exhibit a core-periphery relation or a non-core-periphery relation? At a glance, the two hierarchies in (29) and (30) seem to be in an overlap relationship: the boxed subhierarchies in (29) and (30) seem to be different from each other. Since the constraint hierarchy for the stress pattern is not characterized by the intervening I/O

faithfulness constraints, we cannot directly determine whether the relation between the Latin loan names and OE native words is core-periphery or non-core-periphery. However, we can apply our results to the general notions of core-periphery and non-core-periphery structure which were mentioned previously. The stress pattern of OE native words is also obtained by the hierarchy of (29), but not all of the Latin loan names are correctly assigned stress in terms of the hierarchy of (30). It seems that this is because the constraint hierarchy for the stress pattern of Latin loan names is more restrictive than that of OE native words. There is no OE native word whose stress pattern is not gained through the hierarchy for the Latin loan names. OE native words vacuously satisfy *StPl since there is no OE native word having a syllable composition which can be regulated by *StPl.

To see whether the stress pattern of OE native words is obtained by the hierarchy in (30), let us consider an example.

(31) húntòþes gen.sg. of huntoþ 'hunting'

	NON	RhHAR	WSP	ALIGN FT	PARSE-SYL
☞ a. (hún)(tòþes)			*	**	
b. (hún)toþes			*	**	**!
c. (húnto)þes		*!	*!	*	*
d. (húnto)(þès)	*!	*	*	*	

In the above tableau, the input is an OE native word, while the ranked constraints are for the stress of Latin loan names. As seen in (31), the hierarchically ranked constraints for Latin loan names can correctly choose an harmonic output for the stress pattern of the OE native word *huntoþes*.

On the other hand, there still remain some Latin loan names which are not subject to the constraint hierarchy for the stress pattern of OE native words, although most Latin loan names are subject to the hierarchy. Let us look at one more constraint tableau, in which contrary to tableau (31), the input is a Latin loan name and the ranked constraints are for the stress pattern of OE native words.

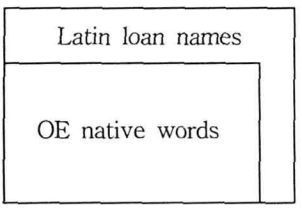
(32) Máximiànus

	ALIGN FT	PARSE-SYL
? a. (Mák)simi(ǎ)nus	*****	***
? b. (Mák)(sìmi)(ǎ)nus	*******	*

In (32), two candidates tie with respect to the satisfaction of other constraints. If there is no ranking relation between ALIGN FT and PARSE-SYL as in OE native words, we cannot winnow the most harmonic output for the stress pattern of *Maximiānus*; each of the candidates violates the two constraints eight times in total.

To summarize, it can be said that the relation between Latin loan names and OE native words is core-periphery structure with OE native words being more inclusive. The adopted pattern of Latin stress constitutes the periphery part of the whole lexicon, while the core area is adapted by the Latin loan names.

(33) The substructure of OE lexicon in the stress pattern



5. Conclusion

In this paper, I have discussed the stress pattern of Latin loan names and compared it with that of OE native words. An OT analysis has helped us to easily capture the adoptive and adaptive aspects of the stress pattern of Latin loan names. An apparent comparison of the two hierarchies may lead us to think that they are in the overlap relationship as FKO's model presents. However, we have noted that the relationship of the stress pattern of Latin loan names and OE native words can be represented by the core-periphery structure of the lexicon. The result of this analysis has also shown that the core-periphery structure of the lexicon is not necessarily represented by I/O faithfulness constraints intermixed with the invariant

hierarchy of structural constraints, but rather by the relaxed ranking relationship vs. the restrictive ranking relationship between the relevant constraints. One thing that I would like to emphasize is that the result of this analysis does not imply that the whole OE lexicon is substructured as core-periphery. Even though the stress pattern of the two sublexica (i.e. OE native words vs Latin loan names) shows the core-periphery structure, we cannot assert that in other aspects of the grammar the OE lexicon is stratified as core-periphery without further empirical evidence.

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ABSTRACT

The Stress Pattern of the Latin Loan Names in Old English Verse and Substructure of Old English Lexicon

An-Nah Moon

In this paper, I would like to investigate how partitioning of the lexicon due to the different phonological properties of two sublexica in Old English (OE), namely OE native words and the biblical and classical names loaned from Latin, is characterized with the help of Optimality Theory. The goals of this paper are threefold: i) to explore the stress pattern of the Biblical and Classical names borrowed from Latin in the Old English period; ii) to compare the stress pattern of the Latin classical names with that of OE native words; iii) to find out how the Latin classical names and OE native

words substructure the OE lexicon.

The result of this analysis shows that the constraint ranking worked out for Latin loan names is also worked out for OE native words, but not vice versa. The constraint ranking for the stress pattern of OE native words is more inclusive than that of Latin loan names. In other words, OE native words and the Latin loan names constitute the core-periphery structure in the OE lexicon as far as the stress pattern is concerned. However, this does not mean that the whole OE lexicon is the core-periphery structure in other aspects of the grammar. Itô & Mester (1998) claim that the core-periphery structure of the lexicon follows from the stratum-indexed faithfulness constraints differently ranked within a fixed hierarchy of structural constraints. In this paper we will see that the core-periphery structure of lexical stratification can be obtained without recourse to the indexed faithfulness constraints ranked with the invariant hierarchy of the markedness constraints.

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