ELISION OF UNSTRESSED GERMANIC SHORT VOWELS

by

Robert W. Murray

B.A., Simon Fraser University, 1979

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF

THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

in the Department

of

Languages, Literatures and Linguistics

SIMON FRASER UNIVERSITY

August 1980

APPROVAL

NAME: Robert W. Murray

DEGREE: Master of Arts

TITLE OF THESIS: Elision of Unstressed Germanic Short Vowels

EXAMINING COMMITTEE:

CHAIRMAN: Dr. N.J. Lincoln

E.W. Roberts
Senior Supervisor

T. Perry
Supervisory Committe Member

P.L. Wagner
External Examiner
Department of Geography
Simon Fraser University

Date Approved: July 29, 1980

PARTIAL COPYRIGHT LICENSE

I hereby grant to Simon Fraser University the right to lend my thesis or dissertation (the title of which is shown below) to users of the Simon Fraser University Library, and to make partial or single copies only for such users or in response to a request from the library of any other university, or other educational institution, on its own behalf or for one of its users. I further agree that permission for multiple copying of this thesis for scholarly purposes may be granted by me or the Dean of Graduate Studies. It is understood that copying or publication of this thesis for financial gain shall not be allowed without my written permission.

Title of Thesis/Dissertation:

Elision of Unstressed Germanic Short Vowels

Author: _____

(signature)

Robert W. Murray

(name)

1 August 1980

(date)

ABSTRACT

ELISION OF UNSTRESSED GERMANIC SHORT VOWELS

This thesis has two main concerns. The first is to present an analysis of the elision of the unstressed Germanic Short Vowels in Gothic and Old High German. Although the historical development of the elision of these vowels has been well documented in traditional works such as Kieckers (1960) and Streitberg (1963), these works tend to present the data in such a way that the interrelationship between different developments in Germanic can not be expressed. Chapter 2 of this thesis presents an analysis of the phonological process of elision which may be related to other phonological processes in Germanic. This goal is accomplished by determining a scale of relative strength for the Short Vowels on the basis of their elision.

In addition, the various environments in which elision occurs are assigned relative strength values. Finally, the traditional concept of Root Weight is shown to play a crucial role in the analysis of elision. The role of strength in phonological theory has been extensively outlined in J. Foley's Foundations of Theoretical Phonology. The analysis of elision is developed within the framework presented in this monograph.

The second concern of this thesis (presented in Chapter 3) is to criticize a recent interpretation of Germanic Short Vowel elision presented in Fullerton (1977). Fullerton's analysis of elision is incorporated into his study of the Germanic First Class Weak Verbs and is developed within the framework of Transformational Generative

Phonology. In particular, this thesis argues that the inappropriate application of a simplicity criterion which imposes a greater cost on an analysis in which phonological rules apply selectively, even though systematically, to specific members of a natural class results in a spurious analysis of the elision of the unstressed Short Vowels.

Furthermore, it is argued that Fullerton's analysis of Germanic Short Vowel elision is the source of an internal inconsistency in his application of the notions of Rule Loss and Relexicalization. In fact, no principled means is incorporated into the analysis which determines the occurrence of Rule Loss and Relexicalization. The application of these notions is determined solely on the basis of surface developments and has no underlying theoretical justification. It is demonstrated that these factors are a consequence of the misapplication of a simplicity criterion to his analysis of elision. As a result, the adequacy of Fullerton's analysis of the First Class Weak Verbs, in general, must be seriously questioned.

Finally, Chapter 4 presents a further discussion of Root Weight and demonstrates that the four arguments against this concept offered by Fullerton do not, in fact, indicate that Root Weight will not play a significant role in future studies of Germanic.

ACKNOWLEDGEMENTS

I am very pleased to acknowledge the assistance I have received from my supervisors, Dr. E.W. Roberts and Dr. T. Perry, who were always available and maintained an interest even as the hours dragged on.

I would also like to acknowledge the influence of Dr. J. Foley's work.

In particular, I would like to take this opportunity to thank Dr. G.L. Bursill-Hall for his boundless enthusiasm. His continued interest and support have meant more than I can possibly express here.

Finally I would like to acknowledge the financial assistance I have received during my M.A. studies from the Social Sciences and Research Council of Canada and from Simon Fraser University.

TABLE OF CONTENTS

Approval ii

Abstract iii

Acknowledgements v

Chapter 1 - Introduction 1

Footnotes 6

Chapter 2 - Analysis of Elision in Gothic and Old High German 7

Footnotes 33

Chapter 3 - A Critique of Fullerton's Interpretation of Germanic Vowel Elision 35

Footnotes 61

Chapter 4 - Root Weight 62

Footnotes 87

Chapter 5 - Conclusion 90

Bibliography 96

Chapter 1

Introduction

This thesis presents a study of the elision of the unstressed Proto-Germanic (PG) Short Vowels (a, e, o, i and u) on the basis of Gothic (Go.) and Old High German (OHG) data. The outline of the elision of these vowels has been well documented in traditional works such as Kieckers (1960: 89) and Streitberg (1963: 170). In essence, these studies take the following three factors into consideration:

1. Root Weight

Root Weight interacts crucially with the elision of i and u. For example, in Old High German i is elided in the final syllable of a word after Heavy Root but not after Light Root:

PG	gastiz	OHG	gast	'guest'
	winiz		wini	'friend'

A Light Root is tentatively defined here as a colligation of C_0^2VX, where X may represent any segment:

X = C	Go.	nasjan CVC	'save'
X = V		stoojan CCVV	'judge'

A Heavy Root is defined as a colligation of C_0^2VXC, where, as in the case of Light Roots, X may represent any segment:

X = C	Go.	blinds CCVCC	'blind'
X = V		sookjan CVVC	'search'

A Heavy Root may also consist of two light syllables:[1]

OHG	nimit CVCVC	'he takes'

2. Vowel Quality

All short vowels do not undergo elision in the same manner. For example, although a underwent elision in Proto-Germanic in final syllable after light roots, in this same position i and u remained in Old High German:

PG	dagaz	OHG	tag	'day'
	winiz		wini	'friend'

3. Vowel Position

Although i is deleted in final syllable after heavy roots in Gothic, it remains in medial syllable after heavy roots:

PG	gastiz	Go.	gasts	'guest'
			gasti-goodei	'hospitality'

Although these facts are well known, traditional studies tend to present the elision of these vowels (as they do all historical developments) in isolation from other developments in the Germanic languages. Chapter 2 of this thesis represents an attempt to present a phonological study of the elision of the Germanic Short Vowels which can be related to other phonological developments in Germanic. This goal is accomplished by determining a scale of relative strength for the Short Vowels on the basis of their elision. The role of strength in phonological theory has been extensively outlined in J. Foley's Foundations of Theoretical Phonology. The analysis of elision presented in this thesis is developed within the framework outlined in this monograph.[2]

In Foundations of Theoretical Phonology, strength hierarchies of

phonological elements are determined on the basis of the participation of these elements in phonological processes (Foley 1977: ix). The concern of this thesis is elision, the consequence of an extreme phonological weakening process of the form:

[+segment] → Ø.

Weakening processes typically affect the weakest phonological elements and may or may not generalize to include other stronger elements. In the case of elision, it follows that the element which undergoes elision most extensively in relation to other elements is considered the weakest. Of the Germanic Short Vowels, a is most susceptible to elision while u is the most resistant, thus indicating that a represents a weaker phonological element than u.

The determination of relative strength values of phonological elements is one means by which various analyses of other developments can be compared and interrelated. For example, the relative strength values of a and u determined on the basis of their participation in elision is the same as that proposed in Foley (1970) where the relative strength values were determined by a study of other phonological processes besides elision. In order to establish this strength relation on the basis of elision, extensive discussion of both the positional factors mentioned in (3) above and the concept of Root Weight ((1) above) which interact crucially with the process of elision is required.

After presenting a study of unstressed Germanic Short Vowel, a recent account of the elision of the Proto-Germanic Short Vowels (Fullerton 1977) incorporated into a Transformational Generative

analysis of the Germanic First Class Weak Verbs is criticized in Chapter 3. This account ignores both the gradual nature of the elision process in Germanic and the interrelationship between Root Weight and elision. The underlying motivation of the analysis is a simplicity criterion which places an additional cost on an analysis in which phonological rules apply selectively (even though systematically) to specific members of a natural class. Although, it is clearly simpler to write one rule:

$$V \rightarrow \emptyset / \_\_ \#$$

rather than the following rules:

$$\underline{a},\underline{e},\underline{o} \rightarrow \emptyset / \_\_ \#$$

$$\underline{i} \rightarrow \emptyset / \text{ heavy root} \_\_ \#$$

(but $\underline{i} \rightarrow$ idem/light root__#),

it is demonstrated that Fullerton's simplicity criterion is irrelevant to an analysis of elision. In addition, it is shown that Fullerton's inconsistent use of Rule Loss (where the loss of a phonological rule results in paradigmatic leveling) and Relexicalization is a direct consequence of his misapplication of a simplicity criterion to the analysis of Short Vowel elision.

Chapter 4 deals with purported counterexamples to the relevance of Root Weight to studies of Germanic such as the operation of Sievers' Law and its Converse. This thesis proposes that Sievers' Law and its Converse be interpreted as the consequence of Gothic syllabification. This reinterpretation is complementary to the analysis

presented in Chapter 2. As a result, Fullerton's claim that Root Weight is not likely to be incorporated into formal studies of Germanic and that the operation of Sievers' Law and its Converse provides support for this position must be seriously questioned.

Footnotes

[1] The concept of Root Weight is discussed in Chapter 4 where disyllabics such as PG nemet- are subsumed under the class of Heavy Roots

[2] Other studies which include reference to phonological strength include: Hooper (1976) and Vennemann and Ladefoged (1973).

Chapter 2

Analysis of Elision in Gothic and Old High German[1]

This Chapter presents an analysis of the elision of the unstressed Proto-Germanic Short Vowels on the basis of Gothic and Old High German data. The analysis is developed, in essence, within the framework provided by J. Foley's Foundations of Theoretical Phonology (1977). This framework outlines the role of the following concepts:

1. the inherent strength of phonological elements
2. the strength of positions within words or morphemes
3. the overall strength of morphological units such as syllables and words.

The relevance of each of these factors to the analysis of Germanic Short Vowel elision is discussed in the sections below.

2.1 Phonological Strength

Before presenting the analysis of elision, a brief outline of Foundations of Theoretical Phonology (FTP) follows.[2] Some fundamental theoretical points are presented and, as an exemplification of these points, an analysis of consonantal lenition (another weakening process) as presented in FTP is outlined.

The central concern of FTP is the explanation of phonological developments in terms of:

1. abstract phonological elements which are determined by their participation in phonological rules (Foley 1977: ix)
2. universal phonological rules which are in turn subsumed under universal principles of language (ibid. 69).

The actual phonetic segments of a language are considered to be phys-

ical manifestations of abstract phonological elements which are ranked in terms of their inherent phonological strength. For example, a study of phonological processes such as consonantal lenition in Romance and Germanic enables the following parameter of relative strength to be set up:

1. the α parameter which in Romance is manifested as

   velars (1) → dentals (2) → labials (3)

   (that is, velars represent the weakest phonological element, labials the strongest).

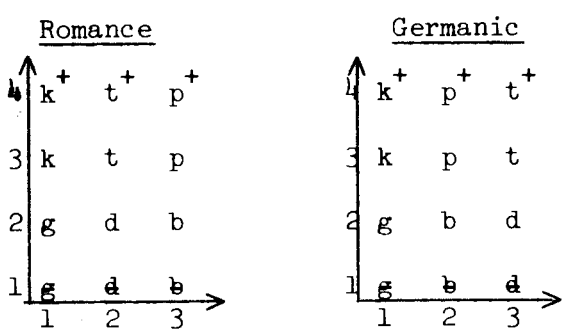
   In Germanic, this same scale is manifested as

   velars (1) → labials (2) → dentals (3) (FTP: 145)

2. the β parameter (for both Romance and Germanic):

   voiced spirants (1) → voiced stops (2) → voiceless stops (3) → geminates, affricates, aspirates, voiceless spirants (4)

These two parameters may be combined for Romance and Germanic respectively (FTP: 34):



These relations are established on the basis of the participation of these phonological elements in phonological rules. For example, one

of these rules is lenition:

$$\beta_2 \rightarrow \beta_1 / V \underset{\alpha\ p}{\_\_} V \qquad \text{(FTP: 51)}$$

where β refers to elements on the β scale and α to the α scale. Reference to particular elements on the α scale is determined by p. For example, $p = 1$ refers to α_1. This rule applies to languages in varying degrees; thus the universal condition:

$$1 \leq p \leq q.$$

"The universal rule states that weakening of β_2 to β_1 occurs intervocalically depending, however, on the value of α" (FTP: 51).

For example, in North German $q = 1$

$$\alpha_1 \beta_2 \rightarrow \beta_1$$

or, in terms of phonetic manifestations;

g → g

sagen	→ sagen	'say'
beben	→ idem.	'tremble'
baden	→ idem.	'bathe'

(FTP: 51).

In South German $q = 2$

$$\alpha_1 \beta_2 \rightarrow \beta_1$$

$$\alpha_2 \beta_2 \rightarrow \beta_1$$

or,

g → g/Ø

b → b/Ø

Lt magister - Meister
habest - du haast
benedicere - benedeien (FTP: 50).

In Spanish $q = 3$;

$\underline{\alpha}_1 \underline{\beta}_2 \rightarrow \underline{\beta}_1$

$\underline{\alpha}_2 \underline{\beta}_2 \rightarrow \underline{\beta}_1$

$\underline{\alpha}_3 \underline{\beta}_2 \rightarrow \underline{\beta}_1$

or,

g → ɡ

d → ɗ

b → ɓ

Old Spanish	amigo	Modern Spanish	amiɡo	'friend'
	vida		viɗa	'life'
	haber		haɓer	'have' (FTP: 25).

Finally, phonological rules are subsumed under general principles of language. Two of these principles are:

1. the principle of particular and consistent manifestation; "Though the phonetic manifestation of phonological elements may vary from language to language, it does not vary within any particular language" (FTP: 49). For example, once it has been established that $\underline{\alpha}_1 \underline{\beta}_1$ is manifested as ɡ in one phonological process, this phonological element must receive the same manifestation in all other processes in the same language.

2. the Inertial Development Principle; this principle states that "(1) strong elements strengthen first and most extensively and preferentially in strong environments, and (2) weak elements weaken first and most extensively and preferentially in weak environments" (FTP: 107).

In terms of phonetic manifestations in Romance and Germanic, the rule of Lenition states that the following changes are possible:

Romance	Germanic
1. g → ɡ	1. g → ɡ
2. d → ð	2. b → β
3. b → β	3. d → ð.

However, in accordance with the Inertial Development Principle which states that weak elements weaken first and preferentially, Lenition may affect $\underline{\alpha}_1 \underline{\beta}_2$ without affecting $\underline{\alpha}_2 \underline{\beta}_2$ and $\underline{\alpha}_3 \underline{\beta}_2$. That is, for Romance and Germanic,

g → ɡ

but d → idem.

b → idem.

However, the occurrence of $\underline{\alpha}_2 \underline{\beta}_2 \rightarrow \underline{\alpha}_2 \underline{\beta}_1$ implies the occurrence of $\underline{\alpha}_1 \underline{\beta}_2 \rightarrow \underline{\alpha}_1 \underline{\beta}_1$ (that is, for Romance $\underline{d} \rightarrow \underline{ð}$ implies $\underline{g} \rightarrow \underline{ɡ}$ and for Germanic, $\underline{b} \rightarrow \underline{β}$ implies $\underline{g} \rightarrow \underline{ɡ}$) and the occurrence of $\underline{\alpha}_3 \underline{\beta}_2 \rightarrow \underline{\alpha}_3 \underline{\beta}_1$ implies $\underline{\alpha}_2 \underline{\beta}_2 \rightarrow \underline{\alpha}_2 \underline{\beta}_1$ and $\underline{\alpha}_1 \underline{\beta}_2 \rightarrow \underline{\alpha}_1 \underline{\beta}_1$ (cf. 'property of inclusion' FTP: 30). Thus, given the following five logical configurations:

A.	B.	C.
b → β	b → idem.	b → β
d → ð	d → idem.	d → ð
g → ɡ	g → ɡ	g → idem.

D.	E.
b → β	b → idem.
d → idem.	d → ð
g → idem.	g → idem.

only C, D and E are linguistically possible for Romance and Germanic (FTP: 26).

The study of elision undertaken in this Chapter is developed, in essence, within the framework outlined above. A five vowel system is assumed for Proto-Germanic:

"Eine Betrachtung der Entwicklung des germanischen Vokal systems darf mit folgender Entwicklungsphase des indogermanischen Vokalismus bzw. mit folgendem Vokal bestand anfangen;"[3]

i e a o u (van Coetsem 1970: 40).

As noted in Chapter 1 (P.1,2) historical studies of the elision of the unstressed Short Vowels have often noted the relevance of the following three factors:

1. Vowel Quality

For example, i and u are less likely to be elided in Old High German than a:

PG	mari	OHG	meri	'sea'
	fihu		fihu	'cattle'
	dagaz		tag	'day'

2. Vowel Position

Vowels in final syllable underwent elision before vowels in Medial syllable:

"Eine kurze Endsilbe, die auf eine lange Tonsilbe folgt, verliert ihren Vokal früher als eine kurze Mittelsilbe nach langer Tonsilbe" (Streitberg 1963: 170).

PG	gastiz	Go.	gasts	'guest'
	*		gasti-goodei	'hospitality'[4]

3. Root Weight

Lenition occurs more extensively after heavy root than after light: "ferner ist nach langer haupttoniger Silbe die Reduktion energischer als nach kurzer haupttoniger Silbe" (Streitberg 1963: 170).

PG	gastiz	OHG gast	'guest'
	mari	meri	'sea'

It is argued below that within the framework of FTP these facts can be seen as the consequence of the following theoretical premises

1. Phonological elements have an inherent relative strength value. Weakening processes, such as lenition, apply preferentially to the weakest element. The application of elision to a stronger phonological element implies that all weaker elements have been elided.
2. Positions within morphological units such as words also have a relative strength value. For example, initial position of a word (#__) is, in general, stronger than final position (__#). The three positions relevant to an analysis of elision are:
    a) word final (__#)
    b) final syllable of a word ending in a consonant (__C#)
    c) medial syllable (__(C)$).
3. Morphological units have an overall strength value. "Morphological units such as words and syllables have a certain inherent, rather constant strength. The more

phonological elements this strength must be distributed over, the weaker each phonological element" (FTP: 86).[5]

In order to determine the interrelationship between these three factors the following outline of elision in Gothic and Old High German is presented. Due to the fact that an analysis of the elision of e and o is complicated by other factors to be discussed below (P 16), initially only the elision of a, i and u is considered.

2.2 Inherent Phonological Strength

The initial concern is to establish a relative strength hierarchy for the Germanic vowels. This hierarchy can be established by a study of elision in the two environments:

a) word final (__#)

b) final syllable followed by a consonant (__C#).

Word Final Position (__#)

1. In word final position, a, i, and u are elided after heavy roots:

PG	waita	Go.	wait	'I know'
	nemeti[6]		nimiθ	'he takes'
	burgu		baúrg	'city' (accusative)

2. In word final position, a is elided but i and u are maintained after light roots:

PG	bara	OHG	bar	'I bore'
	mari		meri	'sea'
	fihu		fihu	'cattle'

As a consequence of (2), it may be concluded that a represents a weaker phonological element than do i and u.

Final Syllable Ending in a Consonant

3. In this position, a is elided after both heavy and light roots:

PG	wulfaz	Go.	wulfs	'wolf'
	dagaz		dags	'day'

4. i, however, is elided after a heavy root but maintained after a light root:

PG	gastiz	OHG	gast[7]	'guest'
	sigiz		sigi	'victory'

Again, the greater strength of i relative to a is indicated, since i is maintained after light root while a is elided.

5. u is maintained after both heavy and light root in Gothic:

PG	dauθuz	Go.	dáuθus	'death'
	sunuz		sunus	'son'

i, however, as noted in (4) is elided after heavy root::

PG	gastiz	Go.	gasts	'guest'

The maintenance of u in the same position where i undergoes elision indicates that u is stronger than i.

On the basis of the above data, the following parameter of relative strength is posited:

a	i	u
1	2	3

where a greater numerical value indicates a greater resistance to elision.

An attempt to determine the relative strength values of e and o is complicated by the fact that these vowels become i and a respectively, early in the development of Proto-Germanic. In the case of PG e, although in word final position there is no direct evidence whether e had been deleted directly or whether it first became i and then subsequently underwent elision, there is indirect evidence that the latter did not occur. Compare the following two developments:

PG	bere[8]	'you bear' (sg. imperative)
	mari	'sea'
A.		
bere	mari	
beri	-	Vowel Shift
*beri	mari	Elision (i is maintained after light roots)
B.		
bere	mari	
ber	-	Elision
ber	mari	Vowel Shift

Only B provides the correct Old High German forms:

ber[9]

meri.

As Streitberg notes:

"Im absoluten Auslaut scheint idg. -e den Übergang zu i nicht mitgemacht zu haben vielmehr schon in urgerman. Zeit geschwunden zu sein ... Wäre idg. e im absoluten Auslaut zu i geworden, so hätte dieses im

Westgermanischen nach kurzer Wurzelsilbe erhalten bleiben müssen,"

PG	mari	Old English	mere
		Old Saxon	meri
		OHG	

'sea'

(Streitberg 1963: 55).

However, in the case of o in word final position a study of elision and vowel shift can not contribute to the understanding of whether o became a and then elision applied or whether o itself underwent elision. Compare:

PG dageso 'day' (genitive singular)

ohtoo 'eight'

A.

dageso	ohtoo	
dagesa	ahtoo	Vowel Shift
dages	-	Elision

B.

dageso	ohtoo	
dages	ohtoo	Elision
-	ahtoo	Vowel Shift

Either A or B yields the correct Old High German forms:

tages

ahto.

The following observation can be added to the above list:

6. e (and possibly o) behave as a in word final position. That is, they are deleted after heavy and light roots whereas i and u are

elided after heavy roots only:

PG	sehe	Go.	saíh	'you see' (sg. imperative)
	teso	OHG	des	'this' (genitive)

The above facts indicate that a, e and possibly o are weaker than i and u. A definitive statement on the relative strength values of a, e and o can not be made on the basis of a study of elision alone as a result of the fact that o changes to a and e conditionally changes to i relatively early in the history of Proto-Germanic. However, it is noted that although a is elided in both word final position (_#) and in final syllable ending in a consonant (_C#)

PG	waita	Go.	wáit
	dagaz		dags

e is elided in word final position

PG	bere	OHG	ber

but not in final syllable ending in a consonant. In the latter position, e is raised to i:

"1. Vor Konsonanz ist das idg. e fast durchweg zu i geworden.
a) idg. e = i. ahd. mihhil 'gross'..." (Streitberg 1963: 53).

This development then is a possible indication of the greater strength of e relative to a.[10]

On the basis of the above study of elision, the following relative strength parameter is indicated:

a	e	i	u
1	2	3	4

Historically, this parameter underlies the sequence of elision of the Short Vowels:

"Endlich ist zu beachten, dass nicht alle Vokale in gleichem Masse der Schwächung ausgesetzt sind. Am wenigsten widerstandsfähig ist a und zwar deshalb, weil seine Artikulation der Indifferenzlage am nächsten steht. Dann kommt e, während i und namentlich u kräftigern Widerstand leisten" (Streitberg 1963: 170).

Although the relative position of o can not be determined on the basis of a study of elision alone, assuming that the relation between i,u reflects the correct relation between e,o the following parameter of vowel strength for Germanic is posited as a working hypotheses:

a	e	o	i	u
1	2	3	4	5

2.3 Positional Strength

In addition to establishing a parameter of inherent strength for the Germanic vowels, a positional hierarchy must also be established. The interrelationship between the inherent relative strength of phonological elements and the relative strength or weakness of the environment in which they appear is regulated by the Inertial Development Principle; that is, strong elements are expected to strengthen first and most extensively and preferentially in strong environments while weak elements weaken first and most extensively and preferentially in weak environments (FTP: 107).

"In addition to governing the strengthening or weakening of elements according to their inherent strength, the inertial development principle also refers to the positional strength of the elements. Certain positions are stronger than others and, according to the IDP (inertial development principle), elements in strong positions undergo preferential strengthening, and elements in weak positions undergo preferential weakening" (FTP: 109). A partial list of weak and strong environments includes:

Strong	Weak
initial (#__)	final (__#)
postnasal (N__)	intervocalic (V__V)
posttonic (V́__)	postatonic (V__) (FTP: 109).

"Since the beginning of a word is strong position, we expect either simple maintenance, as in Latin dictus → Italian detto, with retention of d, or strengthening, as in Latin *rete → Spanish red [rred], with prolongation of initial r. Since the end of a word is weak position, we expect either simple maintenance, as in Latin amica → Spanish amiga, with retention of a, or weakening, as Latin dictus → Italian detto, with loss of final s" (FTP: 109).

In the case of Germanic Short Vowel elision, the relative strength of three positions must be considered:

1. word final (__#)
2. final syllable ending in a consonant (__C#)
3. medial syllable (__ $).

In order to determine a tentative positional strength hierarchy, the data presented in Section 2.2 is reviewed. It was noted that u is elided in word final position after a heavy root in Gothic:

PG burgu__ Go. baúrg__ 'city' (accusative)

However, in final syllable ending in a consonant, u is maintained:

PG dauθuz Go. dáuθus 'death'

In accordance with this development, word final position (__#) can be considered weaker than final syllable ending in a consonant (__C#). This claim is further substantiated by the fact that although in the position (__C#) there is a trace of a from earlier Indo-European o in Early Norse and Finnish, there is no trace of this vowel in word final position (__#):

"Im Urnordischen ist a im Nom. Sg. der a-Stämme vor R erhalten. Vgl. urnord. erilar, HoltingaR und finn. ansas 'Balken' (Go. ans), kuningas 'König'. Ebenso findet sich ein Akk. Sg. auf a, horna *hornan, staina *stainan. [This a is from earlier Indo-European o]. Von den Vokalen des absoluten Auslauts fehlt auch im Nordischen jede Spur" (Hirt 1931: 137).

In addition, evidence from the Noun Compounds suggests that medial syllable (__(C)$) is stronger than both final syllable ending in a consonant (__C#) and word final position (__#). Although a was deleted in all cases in both the latter positions, it often remains in medial syllable in Noun Compounds:

Go. aíha-tundi 'bramble'

weina-triu [11] 'vine'

In Noun Compounds "Die Erhaltung des a ist weit gewöhnlicher als dessen Schwund" (Kieckers 1960: 97).

Furthermore, although in Gothic i is elided after heavy root in final syllable followed by a consonant, it is generally maintained in medial syllable following heavy root:

PG gastiz	Go.	gasts	'guest'
		gasti-goodei	'hospitality
		naudi-bandi	'fetter'

Kieckers notes: "Bei den i-Stämmen ist i in der Regel erhalten" (98).[12]

Thus the following positional hierarchy is indicated (beginning with the weakest):

1. word final (__#)
2. final syllable ending in a consonant (__C#)
3. medial syllable (__(C)$).

Finally, it may be stated that stressed position (́) is stronger than the positions listed above since elision never occurs in this position.

2.4 Morphological Strength

In FTP, Foley proposes that morphological units (such as words) have a constant inherent strength. "The more phonological elements this strength must be distributed over, the weaker each phonological element" (FTP: 86). As an exemplification of this claim, consider the analysis of French syncope presented in FTP:

"proparoxytone syncope applies before paroxytone syncope because the posttonic vowels in trisyllabic words are weaker than the posttonic

vowels in bisyllabic words" (FTP: 86; cf. also Newton 1972).

French Syncope

sɛkolo	netedo	tɛnit	kredet	
syɛkolo	-	tyɛnit	-	Dipthongization of ɛ
syɛklo	netdo	-	-	Proparoxytone Syncope
-	-	-	kreydet	Dipthongization of e
-	-	tyɛnt	kreydt	Paroxytone Syncope

Thus, FTP makes the claim that a phonological analysis must not only take into account the inherent strength of phonological elements in conjunction with positional strength but, in addition, the overall strength value of the morphological unit itself must be taken into consideration.

The elision of Germanic Short Vowels would appear to provide support for this claim. In all the positions where elision occurs (__#, __C#, __(C)$), this elision is more extensive after heavy root than light root:

1. Word Final Position

Although i and u are elided in word final position after heavy root, they are maintained after light root:

Heavy Root		Light Root	
PG nemeti	OHG nimit	PG mari	OHG meri

2. Final Syllable Ending in a Consonant

In this position, i and u are again more likely to be elided after heavy root than light root:

Heavy Root	Light Root
PG gastiz OHG gast	PG winiz OHG wini 'friend'

3. Medial Syllable

In medial syllable, a is generally maintained in Noun Compounds. Elision, when it does occur, is more common after heavy root than light root:

"Soviel ich sehe, lässt sich bei den Endsilben kein Moment dafür geltend machen, dass -a- nach langer Tonsilbe früher geschwunden sei als nach kurzer. Dagegen finden sich Spuren davon, dass dies der Fall war, in Mittelsilben, d.h. in der Kompositionfuge. Bei den reinen a-Stämmen herrscht im Gotischen fast durchweg das a; doch ist es gewiss kein Zufall, dass all Beleg für Synkope des a dieses nach langer Wurzelsilbe oder in dritter Silber stehn hatten: Vgl. wein-drugkja (gegenüber häufigerm weina)... (Streitberg 1963: 172).

It may be concluded that Germanic Short Vowel elision occurs in accordance with the concept of morphological strength; that is, elision is most likely to occur after relatively long colligations of C_0^2VXC or [light syllable][light syllable] (heavy roots) than after shorter colligations of the form C_0^2VX (light roots).

2.5 Other Phonological Developments in Germanic

On the basis of a study of elision, the following hypotheses have been presented in this thesis:

1. the parameter of inherent relative strength

a	e	o	i	u
1	2	3	4	5

2. the positional hierarchy (beginning with the weakest)

   a) __#

   b) __C#

   c) __(C)$

3. the fact that elision is more likely to occur after heavy roots than after light roots is a consequence of the distribution of strength within words. Phonological elements are weaker in words incorporating heavy roots since the morphological strength of the word is distributed over a greater number of elements.

Relative Phonological Strength

At this stage of the presentation it is appropriate to note that a study of strengthening and weakening processes (other than elision) has posited the same strength relation between Germanic a, o and u. Foley (1970: 224)posited the following parameter of relative strength:

a	o	u
1	2	3

This parameter was determined on the basis of two cases of vowel weakening:

1) Indo-European o weakens to a

OHG	ahto	from earlier*oktoo	'eight'
	gart	*ghorto	'yard, house'

2) Indo-European u weakens to o

OHG	joch	*jugom	'yoke'

On the other hand, nasalized a strengthens to o:

German	English	
sanft	soft	
Zahn	tooth	
ander	other	(cf. Foley 1970: 224).

"If a + N = o, then o must be phonologically stronger than a, since the addition of a unit of phonological strength (nasalization) converts a to o" (Foley 1970: 223).

Thus a study of other phonological developments besides elision determines the same relationship between a, o and u as indicated by the study of elision.

Furthermore, implicit in the above analysis of elision, is the contention that the strength scale for vowels established on the basis of a study of Old High German and Gothic is not only valid for these two languages but is in fact representative of Germanic in general. For example, the strengthening of nasalized a to o in Old English offers support for this claim. In addition, the same relation between i and u:

$$\frac{i \quad u}{1 \quad 2}$$ [13]

has been posited on the basis of a study of syncope and umlaut in Icelandic, thus suggesting that the scale is relevant to a study of North Germanic (FTP: 87).

Positional Strength

It should also be noted that implicit in the setting up of a positional hierarchy is the assumption that other phonological processes will develop in accordance with the relative strength of these positions. For example, given that stressed position (ˊ) is stronger than word final position (_#), it is not expected that a phonological element would strengthen in word final position but not in stressed position. In fact, the development of the Germanic long vowels tends to support the positional hierarchy determined on the basis of a study of elision. That is, the Germanic long vowels develop in accordance with the positional hierarchy: [14]

1. final syllable (__(C)#)
2. medial syllable (__(C)$)
3. stressed syllable (ˊ).

(The vowel strength parameter: $\underset{1}{a}\ \underset{2}{o}\ \underset{3}{u}$ is assumed).

In the strongest position (stressed syllable), Indo-European (IndEur) aa appears as oo in Gothic:

IndEur	braater	Go.	brooθar	'brother'
	staa		stooθ	'stood'

The same development occurs in weaker medial syllable:

Go. salbooda 'I annointed'

(oo from IndEur aa: Kieckers 1960: 235)

However, in the weakest position (word final) IndoEuropean aa appears as a in Gothic:

Go. giba 'gift'

(a from IndEur aa: Prokosch 1939: 137)

Thus in the stronger positions (stressed and medial syllable) aa strengthens to oo while in the weakest position (word final) the Gothic reflex of aa is a where a represents the weakest phonological element.

In Old High German, although Indo-European aa appears as oo in medial syllable, in stronger stressed position, aa has further strengthened to uo:

Go.	brooθar	OHG bruoder [15]	'brother'
	salbooda	salboota	'I annointed'

These developments exemplify the role that a positional hierarchy determined on the basis of elision may play in future analyses of other phonological developments in Germanic.

2.6 Apocope and Syncope Rules

The following rules of apocope and syncope are presented as a summary of the study of elision outlined in this Chapter. Foley (1977: 69) presents the universal rule of apocope as:

universal rule: $V_n \rightarrow \emptyset / \_\_ \#$

universal condition: $1 \leq n \leq m$

parochial condition: varies from language to language

The expansion of phonological rules is determined by the Inertial Development Principle; that is, the elision of a stronger phonological element implies the elision of all weaker phonological elements. The elision of an element in stronger position implies the elision of that element in all weaker positions. For example, in accordance with the vowel strength parameter for Germanic:

m = 1 a → Ø/__#

m = 2 a,e → Ø/__#

m = 5 a,e,o,i,u → Ø/__# (cf. Foley 1977: 69).

In Germanic, the apocope and syncope rules must make reference to Root Weight. Following are the Germanic apocope and syncope rules as exemplified with Gothic and Old High German data:

Apocope 1: $\overset{v}{V}_n$ → Ø/heavy root___#

Condition: $1 \leq n \leq m$

Go./OHG: m = 5

PG		Go.		OHG	
	waita		wait	weiz	'I know'
	waite		wait	weiz	'he knows'
	dageso/a[16]		dagis	tages	'day' (gen.)
	nemeti		nimiθ	nimit	'he takes'
	burgu		baúrg	burg	'city' (acc.)

Apocope 1': $\check{V}_n \rightarrow \emptyset / \_\_ \#$

Condition: $1 \leq n \leq m$

Go./OHG: $m = 3$

PG	bara	Go.	bar	OHG	bar	'I bore'
	bere		baír		ber,bir	'give' (imp.)
	theso		θis		θes	'this' (gen.)
	mari		(mari)[17]		meri	'sea'
	fihu		faíhu		fihu	'cattle'

Syncope 1: $\check{V}_n \rightarrow \emptyset$/heavy root___C#[18]

Condition: $1 \leq n \leq m$

Gothic: $m = 4$

OHG: $m = 5$

PG	dagamaz	Go.	dagam	OHG	tag	'day' (dat. pl.)
	gastiz		gasts		gast	'guest'
	dauθus		dáuθus		tood	'death'

Syncope 1': $\check{V}_n \rightarrow \emptyset / \_\_\_ C\#$

Condition: $1 \leq n \leq m$

Gothic/OHG: $m = 3$

PG	dagaz	Go. dags	OHG	tag	'day'
	sigiz/winiz	sigis[19]		wini	'victory/friend'
	sunuz	sunus		sunu	'son'

The application of the prime rule implies the application of the non-prime rule.[20] For example, the application of:

Apocope 1': $\check{V}_n \rightarrow \emptyset / \_\_$

$m = 3$

implies that a, e, o were elided in the same position after heavy root. That is,

Apocope 1: $\check{V}_n \rightarrow \emptyset$/heavy root___

$m \geq 3$

The following implications for Germanic are evident:

a) the elision of u in word final position after heavy roots implies the elision of all other short vowels in this position

b) the elision of a vowel after light roots implies the elision of that vowel after heavy roots

c) the elision of a vowel in final syllable ending in a consonant (__C#) implies the elision of that vowel in word final position (__#).

Footnotes

[1] The study of elision undertaken in this Chapter is concerned with the general trends in Germanic as evidenced by Gothic and Old High German data. The Old High German examples are selected as being representative of the West Germanic languages in general, where elision occurs after Heavy Root but not after Light Root. The elision of i after Light Roots as well as after Heavy Roots in Gothic is seen as the consequence of the generalization of the elision process to elide i after Light Roots. The same generalization process is evident in Old High German but is not so extensive as in Gothic; that is, it did not affect all lexical items in Old High German (e.g. i-stem feminine snur 'daughter in law' but masculine wini 'friend'). The fact that elision does not affect all lexical items in both Gothic and Old High German is of particular interest in light of Wang's (1969) claim that phonological change "diffuses" across the lexicon. The elision of the short vowels in Norse has been a controversial subject which must remain beyond the scope of this thesis (cf. King (1971) for discussion). The Proto-Germanic and Indo-European reconstructions which have been established in the literature are assumed. The main sources for these forms are: Kieckers (1960), Krahe (1967), Prokosch (1939) and Streitberg (1963). Although it is recognized that the reconstructions themselves require investigation, it is impossible in this thesis to undertake a complete reanalysis of these reconstructions. For example, in order to determine whether the vowel u in the reconstructed Indo-European form *peku is in fact a short vowel, an investigation of the reflexes of this form in other Indo-European languages is required (e.g. Latin pecu, pecŏris, pecus, pecŭdis). This thesis, in fact, represents an initial step towards such an investigation. Finally, it should be noted that other forms of the PG noun and verb paradigms which did not have suffixes with original PG short vowels involve a greater complexity of development and are not considered in this presentation as such a study is not required for the criticism of Fullerton 1977 presented in Chapter 3 and the discussion of Root Weight presented in Chapter 4. However, one problem of particular interest is the presence of a short vowel in the genitive singular suffix of such forms as Go. gastis OHG gastes. Krahe (1967: 83) states that the suffix in these i-stem masculine forms is in fact a consequence of analogy based on the a-stem genitive suffix. The genitive singular Indo-European suffix for the i-stem masculine is given as -eĭs/-oĭs. These forms along with the Indo-European genitive singular suffix of the a-stem require further investigation which must remain beyond the scope of this thesis.

[2] In addition, see the discussion of elision in FTP: 44-48.

[3] In fact, a distinction between Indo-European o and a is not made in the Proto-Germanic forms except in the discussion of the change of Indo-European o to PG a on Page 17. Otherwise both Indo-European o and a are represented by Proto-Germanic a.

[4] Following convention, Gothic orthography is used in this Chapter: Go. ei = [i] or [ii] , aí = [ɛ], aú = [ɔ], ái and áu represent diphthongs.

[5] cf. also Lehiste (1970) and Grundt (1976).

[6] As noted on page 1 the definition of Heavy Root includes disyllabics such as PG nemet-. Again, see discussion in Section 4.1.

[7] On the basis of Gothic and Old Norse forms it is assumed that the elision of the vowel preceded the dropping of final -z:
PG gastiz Go. gasts Old Norse gestr OHG gast

[8] Fullerton(1977: 10) posits PG beri. See criticisms of this reconstruction page 43 below.

[9] More commonly in OHG bir. This form is generally attributed to analogy in traditional works (cf. Streitberg 1963: 55).

[10] That is, the following development would indicate the greater strength of e relative to a: a,e → Ø/__#
a → Ø/__C#
e → i/__C#

[11] It is also possible that other factors besides medial position such as phonotactic constraints play a role in blocking elision.

[12] An example of the loss of i in medial syllable is Go. bruuθ-faθs 'bridegroom' (also Go. bruuθs 'bride'). Again, such examples are considered the consequence of the generalization of elision (See discussion in Footnote 1 where reference is made to Wang's (1969) claim that phonological change diffuses across the lexicon). In addition, it is recognized that such cases as the elision of i in Go. bruuθ-faθs but not in gasti-goodei 'hospitality' could be indicative of a hierarchical division of Roots where elision is more likely to occur after certain types of Roots; that is, a finer distinction than Heavy vs. Light may be indicated.

[13] See the discussion of umlaut and syncope in Old Norse for a demonstration of the relevance of this scale (P. 57).

[14] The two environments word final position and final syllable ending in a consonant are not differentiated in this discussion. An in-depth discussion of the development of the long (geminate) vowels cannot be given here.

[15] The change of oo to uo is generally considered a diphthongization process: "Germ. oo got. oo unterliegt im Ahd. einer Dipthongierung, deren gemeinahd. Gestalt uo ist" (Braune-Eggers 1975: 38).

[16] See page 17 for discussion of change of IndoEuropean o to a.

[17] The Gothic form mari- appears in Noun Compounds only. See discussion in footnote 1. Word final i disappears in Gothic. (See chart Wright 1934: 98).

[18] Note again, that in these examples the change of o to a and e to i preceded elision.

[19] Again see footnote 1 of this chapter.

[20] Note that other rules may intervene

Chapter 3

A CRITIQUE OF FULLERTON'S INTERPRETATION OF GERMANIC VOWEL ELISION

This Chapter presents a criticism of a recent interpretation of the elision of the unstressed Germanic Short Vowels outlined in Fullerton (1977). Fullerton's analysis of elision is incorporated into a study of the historical development of the First Class Weak Verbs from Proto-Germanic into the various Germanic languages (including Gothic, Old High German and Old English) and is developed within the framework of Transformational Generative Phonology. In accordance with the theoretical precepts of this framework, a series of synchronic grammars is set up to describe the phonological changes which have occurred in the development of a language. At each synchronic stage, phonological rules apply to an underlying form in order to derive the surface form. Changes in the surface forms may be a consequence of:

1. Relexicalization;[1] change of an underlying form
2. Rule Addition; the addition of a new rule to a grammar
3. Rule Loss; a rule present in one synchronic grammar may be lost from a subsequent grammar
4. Rule Reordering; the ordering of rules may change fromone grammar to the next.

In addition, a phonological rule may generalize in scope. (Fullerton 1977: 2).

The first part of this critique focuses on Fullerton's use of Relexicalization and Rule Loss. Fullerton incorporates Rule Loss

into his analysis as a means of describing change which results in increased paradigmatic uniformity; that is, leveling. Relexicalization occurs in cases where, as the result of the operation of a phonological rule, no alternating segments remain. Although these working definitions are implied in Fullerton's analysis, it can be demonstrated that these notions are applied in an arbitrary and inconsistent way. In fact, the application of Rule Loss and Relexicalization does not follow from underlying theoretical principles but is determined solely on the basis of surface developments. This weakness in Fullerton's analysis is a consequence of his treatment of the development of the unstressed Short Vowels.

It is then argued that Fullerton's Proto-Germanic Short Vowel deletion rule is inadequately motivated. Although this rule represents an apparent simplification at one stage of the grammar, the overall consequences of this rule are not considered. As noted above, Fullerton's treatment of elision requires an imprecise concept of leveling based on Rule Loss to be introduced into the analysis. In fact, it is argued that the Proto-Germanic Short Vowel deletion rule can not be maintained since it is contradicted by subsequent developments in Germanic. In particular, evidence from Old High German will be considered. The Proto-Germanic Short Vowel deletion rule in question is written by Fullerton as:

$$V \rightarrow \emptyset / \left\{ \begin{array}{l} \_\_\# \\ \text{weak stressed syllable } \_\_C\# \end{array} \right\}$$

The first expansion of this rule:

$$V \rightarrow \emptyset / \_\_\#$$

completely ignores the relevance of Root Weight to the elision process in spite of the relevance of this notion to subsequent developments in Germanic as demonstrated in Chapter 2 above.

Finally it is demonstrated that the ultimate source of the inconsistent use of Rule Loss and Relexicalization and the inadequacy of Fullerton's interpretation of Short Vowel elision can be traced to the fact that an arbitrary simplicity criterion plays a central role in the selection of the most highly valued analysis.

3.1 Rule Loss, Relexicalization and Proto-Germanic

Fullerton divides his analysis of Proto-Germanic into two synchronic grammars (Fullerton 1977: 10, 11, 35). Grammar I contains the phonological rules:

1. Sievers' Law
2. $V \rightarrow \emptyset / \left\{ \begin{array}{l} \_\_\_\# \\ \text{weak stressed syllable} \_\_\_C\# \end{array} \right\}$

In Fullerton's Proto-Germanic Grammar, Sievers' Law refers to an epenthesis rule which inserts *j* in the environment:

Heavy Root $\_\_\_+jV-$

(This interpretation of Sievers' Law is discussed in Chapter 4, Section 2 below).

As a demonstration of the application of these rules, con-

sider the following derivation of:

PG mari 'sea' (i-stem noun: Nominative/Accusative Sing.)

nasjanan (1st Class Weak Verb: Infinitive) 'save'

meerjanan (1st Class Weak Verb: Infinitive) 'announce'

Grammar I

/marj/	/nasjanan/	/meerjanan/	
-	-	meerijanan	1 Sievers' Law (i epenthesis after Heavy Root)
[mar]	[nasjann]	[meerijan]	2 $V \rightarrow \emptyset / \left\{ \begin{matrix} \_\_\# \\ \text{wk. str. syl.} \_\_ C\# \end{matrix} \right\}$

Grammar II

In Grammar II the first expansion of Rule 2 is lost; that is the rule: $V \rightarrow \emptyset / \_\_\#$ does not apply. As a consequence of the loss of this rule, underlying /marj/ now appears as surface [mari].[2] On the other hand, underlying /nasjanan/ and /meerjanan/ of Grammar I are now relexicalized as /nasjann/ and /meerjann/. Relexicalization occurs in these forms as a result of the fact that the surface forms of Grammar I ([nasjann], [meerjann]) are not in paradigmatic relation with other surface forms. The surface form [mar] of Grammar I, however, is in paradigmatic relation with other Proto-Germanic forms:

PG marajz Genitive Singular

mareej Dative Singular (Fullerton 1977: 11).

Thus underlying /marj/ would be maintained in Grammar II as a con-

sequence of this paradigmatic relation:

"Thus alternating with audible surface segments, the suffix vowels /-j, -w/ of the Nominative/Accusative singular [that is, /marj/: RWM] remained at the underlying level even though deleted from the surface form. With loss of the deletion rule they are heard again" (Fullerton 1977: 11).[3] Grammar II then would have the following derivations:

/marj/	/nasjann/	/meerjann/	
-	-	meerijann	Sievers' Law
-	-	-	V → ∅/ (LOST:/__#) wk. str. syl.__C#
[mari]	[nasjann]	[merijann]	

In Fullerton's attempt to account for diachronic developments by means of writing a series of synchronic grammars the following schema is implied:

Grammar I: Rule (eg. A → ∅/__#: /CVCA#/→[CVC])

Grammar II:	Rule Loss	Relexicalization
	/A/ reappears in surface form: [CVCA]	/CVCA/ relexicalized as /CVC/

Thus besides simple maintenance of a rule, two developments which may occur in subsequent grammars are:

1. Relexicalization

2. Rule Loss

Relexicalization occurs, according to Fullerton, when there is no surface alternation within a paradigm:

"Where a deletion rule does not result in alternations and the segment affected is therefore recoded [that is, relexicalized: RWM] by subsequent generations as zero, the diachronic term 'loss' will be used" (Fullerton 1977: 3). That is, an underlying form containing a segment which does not appear in the surface form and which is not in paradigmatic surface alternation is relexicalized. In such a case, the underlying segment is lost historically and can never reappear. For example, given a paradigm such as:

Verb Paradigm (Present Tense)

	Singular	Plural
1st person	CVC+A	CVC+AC
2nd person	CVC+E	CVC+EC
3rd person	CVC+O	CVC+OC

and a phonological rule:

$$A \rightarrow \emptyset / \_\_ (C)\#$$

the 1st person singular and plural will be relexicalized as /CVC/ and /CVCC/ respectively. A can not reappear in a subsequent grammar.

Rule Loss is incorporated into the analysis as a means of describing paradigmatic leveling. For example, given a paradigm such as:

Verb Paradigm (Present Tense)

	Singular	Plural
1st person	CVC+A	CVC+Am
2nd person	CVC+As	CVC+An
3rd person	CVC+At	CVC+Ast

and a phonological rule:

$A \rightarrow \emptyset / \_\_ \#$

The 1st person singular will not undergo Relexicalization since this form is in paradigmatic relation with the other forms. In a subsequent grammar the phonological rule may be lost resulting in paradigmatic uniformity of the surface forms; that is, [CVCA] not [CVC].

It is possible that the consistent application of Rule Loss and Relexicalization as outlined above could prove valuable to analyses which attempt to describe diachronic change by writing a series of synchronic grammars.

For example, Fullerton argues that the loss of the first expansion of his Proto-Germanic Short Vowel deletion rule:

$V \rightarrow \emptyset / \_\_ \#$

is demonstrated by the reappearance of word final vowel in certain surface forms. As an example of this development he cites the i and u stem neuters (Nominative/Accusative Singular):

OHG meri 'sea'

Go. faíhu 'cattle'

Although word final i and u are deleted by Fullerton's PG Vowel Deletion Rule, he argues that in the above cases i and u are restored in subsequent developments in Proto-Germanic as a result of the fact that these forms are in paradigmatic alternation with other forms having surface i and u.

"Not all deleted vowels reappear; those of i and u stem neuters Nominative/Accusative Singular do because they manifest the noun suffix morpheme which in other forms of the paradigm is not deleted e.g. Genitive Singular PG marajz, fexawz, Dative Singular mareej, fexeew" (Fullerton 1977: 11).

On the other hand, the Proto-Germanic First Class Weak Verbs have the following present indicative suffixes:

2nd person singular: -zi

3rd person singular: -di

1st person plural: -mi

In this case, these suffixes were relexicalized as:

-z, -d and -m

since, after the deletion of word final i, no alternation re-

mained which would enable word final i to be maintained at the underlying level (cf. Fullerton 1977: 11).

However, Fullerton himself notes that a consistent application of these notions as just outlined cannot be maintained in his analysis. For example, in the 2nd person singular imperative, ber 'bear' (from underlying /beri/)[4], the suffixal i which is deleted occurs in surface alternation with:

berid	2nd person plural imperative
beriz	2nd person singular indicative
berid	3rd person singular indicative

On the other hand, compare the noun paradigm:

/marj/	mar	Nominative/Accusative Singular
	mareej	Dative Singular
	marajz	Genitive Singular

Given these two paradigms, it would be expected, according to the notion of Relexicalization as defined thus far, that since [mar] and [ber] are in surface alternation with forms containing the suffixal segment [i] , this i would be maintained at the underlying level in /mari/ and /beri/. As Fullerton states: "as with the Ø ← /-i/ of the neut. i-stem Nominative/Accusative singular, one expects that the 2sg. imper. -Ø would be perceived as the /$\frac{i}{a}$/-vowel of the other present (including imperative) forms, and that it would surface as i again with loss of the

deletion rule. In fact, however, 2sg. imperative i does not reappear, e.g. Go. baír, Old English/Old Saxon ber, OHG ber, bir" (Fullerton 1977: 11).

Fullerton subsequently argues that the fact that i does not reappear constitutes evidence that /beri/ has been relexicalized as /ber/:

"In any case, the deletion rule has resulted in a recoding [Relexicalization: RWM] of the 2sg. imperative with no final vowel, i.e. /ber/ ..." (Fullerton 1977: 11).

The inconsistency of Fullerton's approach to Relexicalization becomes clear at this point. Given the two paradigms on the preceding page, it would be expected that, after the loss of the phonological rule:

$$V \rightarrow \emptyset / \_\_ \#$$

the surface forms [mari] and [beri] would be restored. However, only the surface form [mari] (OHG meri) is restored. /beri/ is relexicalized as /ber/ (OHG ber, bir). It is concluded that the fact that an inconsistent application of relexicalization must be introduced into the analysis is an indication that the analysis of elision in general must be seriously questioned.

In addition, it must be noted that the application of Rule Loss does not follow from any underlying theoretical premises. Its application is solely dependent on surface developments. That is, although the rule:

$V \rightarrow \emptyset / \_\_ \#$

is present in one grammar, it may be lost from a subsequent grammar even though underlying forms which fulfill the environmental description are still present. This use of the notion of Rule Loss has been criticized in Vennemann (1972). Vennemann argues that Rule Loss "is an aftermath of morphologization, which is the change of a phonetically motivated rule into a morphosyntactically conditioned rule" (Vennemann 1972: 189).

As an example of Rule Loss he cites a case of leveling in the Gothic Strong Verb system. At an early stage in Proto-Germanic Verner's Law may be written as:

$$\begin{bmatrix}+\text{obs}\\+\text{cont}\end{bmatrix} \rightarrow [+\text{voice}] / \begin{bmatrix}+\text{syll}\\-\text{accent}\end{bmatrix} \quad ([+\text{voice}])\_\_[+\text{voice}]$$

This rule is the historical source of the paradigmatic alternation in the Old English verbal system:

	Infinitive	Pret. Sg.	Pret. Pl.	Past Part.
OE	liiθan	laaθ	lidon	liden

However, in later Proto-Germanic, after stress had been fixed on the first syllable, a morphologized version of Verner's Law is evident and the rule is subject to loss as demonstrated in Gothic:

$$\begin{bmatrix}+\text{obs}\\+\text{cont}\end{bmatrix} \rightarrow [+\text{voice}] / \begin{bmatrix}\underline{\quad}\\+\text{Verb}\\+\text{Past}\\+\text{Ablaut}\end{bmatrix} [+\text{voice}]$$

(cf. Vennemann 1972: 189).

Go.	liiθan	laiθ	liθum	liθans

As a consequence of the arbitrary application of Rule Loss and the inconsistent use of Relexicalization it is concluded that the introduction of a case of leveling in Proto-Germanic dependent on these notions is unjustifiable.

3.2 Short Vowel Elision in Word Final Position

The previous section argued that Fullerton's analysis of Proto-Germanic is considerably weakened by:

1. the inconsistent application of Relexicalization and
2. the fact that the use of Rule Loss has no theoretical motivation (that is, its occurrence is determined on the basis of surface developments and does not follow from any underlying theoretical premises).

This section turns to the source of the Rule Loss induced leveling which is incorporated into Fullerton's analysis.

The need to introduce paradigmatic leveling into the analysis of Proto-Germanic can be seen as the direct consequence of **the first** expansion of Fullerton's Vowel Deletion rule:

$$V \rightarrow \emptyset / \_\_ \#$$

In order to exemplify this position, an abbreviated outline of Fullerton's interpretation of the development of the i and u stem forms

PG	mari	OHG	meri	(Neuters: Nominative/Accusative Sg.)
	fihu		fihu	
	gastiz		gast	(Masculine Nom./Acc. Sg.)
	dauθuz		tood	

is presented.
These developments are, in fact, representative of West Germanic in general (including Old English and Old Saxon, for example).

Fullerton's interpretation of the development of these forms can be summarized as follows:

Proto-Germanic Grammar I

/mari/	/fihu/	/gastiz/	/dauθuz/	
mar	fih	-	-	V → Ø/__#
[mar]	[fih]	[gastiz]	[dauθuz]	

Proto-Germanic Grammar II

/mari/	/fihu/	/gastiz/	/dauθuz/	
[mari]	[fihu]	[gastiz]	[dauθuz]	Rule Loss

Old High German Grammar I

/mari/	/fihu/	/gasti/	/toodu/	
-	-	gast	tood	V → Ø/CVXC__
[mari]	[fihu]	[gast]	[tood]	

Fullerton must incorporate Rule Loss induced leveling into Proto-Germanic Grammar II in order to derive the correct Old High German forms.

However, with regards to the diachronic development of these forms, the only rule required is the Old High German rule deleting i and u after heavy roots but not after light roots. Prokosch notes, for example

"West Germanic preserves -i after short stems, but drops it after long stems. Therefore we have Old English giest but wine, Old Saxon/Old High German gast wini; feminines Old Saxon daad, stedi, Old High German taat, turi" (Prokosch 1939: 246). Thus the appropriateness of Fullerton's rule:

$$V \rightarrow \emptyset / \_\_ \#$$

must be questioned. The most significant characteristic of this rule is its lack of reference to Root Weight. The relevance of Root Weight to an analysis of Germanic vowel elision was clearly indicated by the study undertaken in Chapter 2. Fullerton, however, rejects the relevance of Root Weight to a study of elision and, therefore, must incorporate Rule Loss induced analogy into Proto-Germanic Grammar II.[5] It is apparent that no such leveling would be required by the analysis if the environment Heavy Root had been incorporated into this deletion rule:

Proto-Germanic Grammar I[6]

/mari/	/nemiti/	/gastiz/	
-	nemit	-	i → Ø/Heavy Root___#
[mari]	[nemit]	[gastiz]	

Old High German Grammar I

/mari/	/nemit/	/gasti/	
-	-	gast	i → Ø/Heavy Root___
[mari]	[nemit]	[gast]	

The failure to incorporate Root Weight into the analysis necessitates the introduction of leveling. It is unlikely that this introduction of leveling can be justified particularly in light of the fact that its occurrence is unpredictable in Fullerton's framework; that is, there is no reason to expect that underlying /mari/, surface [mar], underlying /beri/, surface [ber], of one grammar would become /mari/, [mari] but /ber/, [ber] in a subsequent grammar.

Since the leveling is claimed to have taken place in Proto-Germanic, there can be no direct evidence for a surface development:

Stage I: ber mar

Stage II: ber mari,

a development which could indicate analogy. Thus the claim can only indirectly be justified or rejected on the basis of a consideration of subsequent developments in Germanic. In this regard, it is significant to note that Fullerton's West Germanic Vowel Deletion Rule does, in fact, incorporate Root Weight (Fullerton 1977: 22):

$$\begin{bmatrix} V \\ \text{-stress} \end{bmatrix} \rightarrow \emptyset / \left\langle \begin{Bmatrix} C \\ \# \end{Bmatrix} VX_1^2 \right\rangle C \underline{\qquad} \begin{matrix} \$ \\ \langle \text{+high} \rangle \end{matrix}$$

That is, i and u are deleted in the environment:

$$\begin{Bmatrix} C \\ \# \end{Bmatrix} V X_1^2 C \_\_ \$$$

This environment expands to:

CVCC	OHG	gast	PG	gastiz
CVVC		tood		dauθuz
CVCVC		ubil		ubilu

All of these expansions are included in the definition of Heavy Root offered in Section 4.1 . The fact that Root Weight plays a crucial role in the subsequent development of West Germanic demonstrates that the claim that Root Weight is not relevant to the elision process in Proto-Germanic is clearly without foundation.

3.3 The Role of Simplicity

In Section 3.2 it was demonstrated that the incorporation of Rule Loss induced leveling into Fullerton's analysis of Proto-Germanic is a direct consequence of the application of the Proto-Germanic Short Vowel Deletion rule:

$$V \rightarrow \emptyset / \_\_ \#$$

In addition, it was argued that subsequent developments, particularly in West Germanic as exemplified with data from Old High German suggest that this rule can not be justified.

This section discusses the underlying motivation for the Proto-Germanic deletion rule; a simplicity criterion which assigns a higher 'cost' to certain analyses.

Fullerton incorporates the following simplicity criterion into his analysis:

"The study assumes that the correct description of the speaker's grammar is always the simplest one consistent with all the evidence ... relative simplicity can be viewed as identical with relative generality, for less writing is required in the notation to specify all the members of a natural class than to specify only some members" (Fullerton 1977: 1).

It has been frequently stated that within the framework of Transformational Generative Grammar the determination of a correct simplicity criterion is an empirical problem. Thus Fullerton's statement must be interpreted as an hypothesis regarding phonological change. That is, the claim is being made that the phonological rule:

1. $V \rightarrow \emptyset / \_\_ \#$ or $\begin{bmatrix} -\text{consonantal} \\ +\text{vocalic} \\ -\text{long} \end{bmatrix} \rightarrow \emptyset / \_\_ \#$

is simpler, in terms of feature notation, than:

2. $e \rightarrow \emptyset / \_\_ \#$ or $\begin{bmatrix} -\text{consonantal} \\ +\text{vocalic} \\ -\text{long} \\ -\text{high} \\ -\text{low} \\ -\text{back} \end{bmatrix} \rightarrow \emptyset / \_\_ \#$

Therefore, Fullerton hypothesizes that Rule (1) is more likely to be added to a speaker's grammar; Rule (2) can only be added

at an extra cost.

For example, according to this simplicity criterion, developments in Old High German occur at an extra cost since at some particular stage a grammar must be set up which contains a rule deleting only a after light roots:

PG	daga(z)	OHG	tag	a → ∅/__#
	mari		meri	i → idem/__#
	fihu		fihu	u → idem/__#

However, the fact that elision applies selectively in Old High German is not considered relevant by Fullerton. A central consideration is that:

"It takes fewer symbols to designate all short vowels, for example, than it does to designate any one of them. Consequently, when one finds that Proto-Germanic deletes weakly stressed a from certain final syllables, one looks for other evidence that the other weakly stressed short vowels are also deleted in the same environment" (Fullerton 1977: 2).

Thus although subsequent developments in Germanic as evidenced in Old High German demonstrate that elision applies selectively to a, according to this simplicity criterion Fullerton is predisposed to writing a Proto-Germanic vowel deletion rule which deletes all short vowels. Since the study of subsequent developments indicate that a was elided in Proto-Germanic (that is, PG a is not present in the various Germanic languages), Fuller-

ton assumes that i and u were also elided even though evidence in West Germanic does not indicate the general elision of i and u.

The overriding importance placed on simplicity criteria incorporated into Transformational Generative analyses in general has been frequently criticized. For example, Derwing (1973) in comparing the role of simplicity in science to the role it plays in Transformational Generative analyses states:
"In short, simplicity is invoked in science (and normally then only as a holding operation) once a wide range of data from that domain regarded as crucial to the evaluation of a specific theory has already been taken into consideration; it is never invoked as a SUBSTITUTE for data" (Derwing 1973: 246). He then argues that within the Transformational Generative framework:
"in the ABSENCE of data, an arbitrary 'evaluation measure' or 'simplicity metric' will suffice; for Chomsky 'simplicity' constitutes ULTIMATE AXIOMATIZATION, something the analyst is apparently free to invoke in order to resolve any problem of indeterminacy which may face him" (Derwing 1973:246). As a result of the overriding importance placed on the simplicity criteria, a linguist is predisposed to writing certain analyses. However, although the role of this simplicity criterion in a synchronic grammar is open to discussion, it is not likely to play an important role in historical reconstruction. That is, the fact that the rule

$$V \rightarrow \emptyset / \_\_ \#$$

is simpler to write than a rule which applies to specific members of the natural class of Short Vowels is not, in itself, a justification for the incorporation of this rule into an analysis of a Proto-language. In fact, the development of Germanic Short Vowel elision (as outlined in Chapter 2) clearly indicates the incorrectness of this rule. Although it is true that Fullerton is approaching the process of elision from the perspective of synchronic grammar change, he is, nevertheless, arguing that the following development occurred:

PG Stage I	dagesa	mari	beri	gastiz
PG Stage II	dages	mar	ber	gastiz
PG Stage III	dages	mari	ber	gastiz
OHG Stage I	tages	mari	ber	gast

The elision of i in Stage II of Proto-Germanic can not be motivated by the fact that a is deleted in this position. Any developments argued to have occurred in a Proto-language can only be motivated on the basis of a study of subsequent developments of the relevant languages.

Furthermore, although it is simpler in terms of feature notation to write the rule

$$V \rightarrow \emptyset / \_\_ \#$$

than a rule which applies to specific members of the natural class

of Short Vowels, the implications of this rule must be considered. That is, as noted in Section 2 of this Chapter, it is this rule which necessitates the introduction of Rule Loss-induced leveling into the analysis of Proto-Germanic. A rule which incorporates Root Weight and which applies specifically to a and not i and u after Light Roots, would generate the correct Old High German forms. (See P. 48).

The introduction of an inconsistent application of Relexicalization and a concept of Rule Loss subject to no theoretical conditions proves to be completely without justification. In fact, it is doubtful whether the incorporation of such unconstrained notions into a grammar solely on the basis of surface developments can be justified. Chomsky notes that:

"linguistic principles of any real significance generally deal with properties of rule systems not observed phenomena, and can thus be confirmed or refuted only indirectly through the construction of grammars, a task that goes well beyond even substantial accumulation and organization of observation" (Chomsky 1978: 2).

It must be concluded that an analysis which offers a principled account of the development is to be preferred over an analysis which is dependent on an inconsistent and arbitrary application of Relexicalization and Rule Loss.

Finally, note that Fullerton's analysis clearly demonstrates the misapplication of the concept of natural class. The fact that phonological rules often apply to all members of a natural class must, in fact, be seen as the consequence of the generalization

of a rule which applies to specific members of a natural class to include all members of this class. After the rule has generalized to include all members of a class, a phonological rule may be written which applies to all members. It is often the case however that a stage may be evident in a language where the rule has not generalized to include all members. For example, the Second Germanic Consonant Shift affected d but not b and g:

Go.	dags	Modern German	tag	d → t
	briggan		bringen	no change
	giban		geben	no change

In the case of the elision of Germanic Short Vowels the rule does not apply to all members of the class of Short Vowels in Gothic and Old High German as outlined in Chapter 2. In fact, the rule never generalized to include all the Short Vowels in subsequent developments in High German; rather, a vowel neutralization rule applied before the rule generalized to include all Short Vowels.

"In classical Middle High German, all unstressed vowels in inflectional or word morphs had become e, a 'neutral' vowel ..." (Keller 1978: 273).

In addition, although a rule may generalize to include all members of a class, it may at some stage be 'interrupted' by another rule. Foley (1977) notes the interrelation between syncope and umlaut in Icelandic and offers the following derivation:

katilum	bagguli	
katlum	-	i-syncope
kötlum	bögguli	umlaut (a → ö/__u)
-	böggli	u-syncope (Foley 1977: 87).

Rule interruption can be seen as a source of rule ordering paradoxes in phonology (cf. Newton 1971). That is, a general syncope rule deleting i and u can not be written. Consider:

A.	katilum	katill	
	katlum	-	i,u syncope
	kötlum	ketill	umlaut (a → ö/__u, a → e/__i)
B	bagguli		
	bögguli		umlaut
	böggli		syncope (Foley 1977: 87).

In derivation A syncope precedes umlaut while in derivation B it must follow umlaut.[7]

The fact that it is simpler in terms of feature notation to write a rule which applies to all members of a natural class is a consequence of the generalization of this rule. However, it can not be concluded on this basis that, at a particular stage of a language, a rule applying to all members of a natural class is more likely to be added to a grammar than a rule which applies only to specific members of this class.

In fact, the problems a Transformational Generative analysis confronts when attempting to write a grammar of a Proto-Language

would seem insurmountable. Traditionally, a Proto-Language represents an abstraction arrived at on the basis of internal or comparative reconstruction or a combination of both. That is, a Proto-Language by definition must be compatible with developments which have occurred or are occurring in the various derived languages.

Unlike an historical language where at least data are available to determine, however indirectly, the 'tacit' knowledge of a speaker of that language, no such data, except the abstractions made by linguists are available in setting up a synchronic grammar of a Proto-Language. Although there are a number of questions which could be raised about the ultimate feasibility of setting up a synchronic grammar of a Proto-Language the criticisms presented here have focused on the lack of continuity between Fullerton's Proto-Germanic grammar and subsequent developments in Old High German.

3.4 An Aspect of Old High German

The importance of an understanding of subsequent developments and the application of this knowledge in a principled fashion to the study of a Proto-Language was emphasized in Section 3.3. It is clear that Fullerton fails to comply with these points and in fact presents an unprincipled analysis of Proto-Germanic. In particular, he is making the claim that the following development occurred:

PG	Stage I	mari	fihu	beri
	Stage II	mar	fih	ber
	Stage III	mari	fihu	ber
*OHG		meri	fihu	ber

In Section 3.1 it was argued that the case of Proto-Germanic leveling claimed by Fullerton to have taken place at Stage III is unacceptable since it depends on:

1. an inconsistent use of Relexicalization
2. the application of a notion of Rule Loss which is not governed by any theoretical premises

Finally, it is not based on empirical data nor on intelligently. reconstructed Proto-forms. (See discussion following page).

In Section 3.2 it was demonstrated that the need to incorporate this case of Proto-Germanic leveling could be traced to the application of a rule which deletes all Proto-Germanic Short Vowels and makes no reference to Root Weight. This Section deals with the relevant aspects of the following items

PG		OHG	
	bere		ber
	binde		bint
	mari		meri
	nemeti		nimit
	fihu		fihu

in order to clearly demonstrate that a principled account of these developments is available.

Before discussing the development of these Proto-Germanic forms into Old High German, it is essential to note that the suffix of the 2nd singular imperative of the strong verbs in early Proto-Germanic

is -e:

PG bere 2nd sg. imperative

As Prokosch (1939: 215) notes:

"-e disappears completely, resulting uniformly in imperatives of strong verbs without endings."

The following development of the items cited above is evident:[8]

mari	binde	bere	nemeti	fihu	Proto-Germanic
-	bind	ber	-	-	Apocope 1: e → Ø/(Heavy Root)__#
-	-	-	nemiti	-	Raising: ĕ → i
-	-	-	nemit	-	Apocope 2: i → Ø/Heavy Root__#[9]
meri	-	-	nimit	-	Umlaut: a → e, e → i /__i

Unlike Fullerton, who posits the development indicated on Page 58 on the basis of an unacceptable case of Proto-Germanic leveling, in the analysis proposed in this thesis, short vowel elision is seen as the consequence of the generalization of a rule which first elides the weaker members of a natural class and subsequently generalizes to include stronger members. Thus the occurrence of ber, nemeti and mari in Proto-Germanic and subsequently the occurrence of ber, nimit and meri in Old High German is an instance of regular phonological development. In this approach, the introduction of Proto-Germanic leveling is not required.

Footnotes

[1] Fullerton (1977: 2) uses the term 'recoding' to refer to the change of abstract underlying representations. The more commonly used 'relexicalization' will be used in this thesis (cf. Hooper (1976)). The role of each of these grammar changes has been outlined in King (1969). See also Bynon (1977).

[2] In Fullerton (1977: 10) the vocalization of j to i is the consequence of automatic readjustment rules and not separate phonological rules.

[3] Fullerton (11) also argues that the same development occurred in the case of the u-stem neut. nom. acc. sg.

[4] Fullerton (10) posits the form PG beri. See footnote 7 of Chapter 2 and also discussion on Page 59, 60.

[5] See discussion Sections 4.2 and 4.3.

[6] Fullerton has final -z dropping before vowel deletion in OHG but see Footnote 7 Chapter 2.

[7] Cf. Anderson's (1974)local ordering theory.

[8] Note that the ordering: Apocope 1
Raising
Apocope 2
is only required if in fact the raising of unstressed e to i is an unconditioned change. Prokosch notes that traditionally this raising was believed to represent an unconditioned change but Prokosch argues that it was a conditional change (Prokosch 1939: 100, 234). Note also Antonsen's statement: "Further, the change of PIE */e/ in non-root syllables to PGmc. */i/ occurred only under certain conditions. It was not, as is so often assumed, an unconditional change" (Antonsen 1972: 139). However, this problem is not crucial to the discussion at hand.

[9] cf. scale of inherent strength on Page 19 and the discussion of implications on Page 29. That is, in the case of Apocope 1, the elision of e after Light Roots implies its elision after Heavy Roots. In the case of Apocope 2 the elision of i after Heavy Roots implies the elision of a, e, o after Heavy Roots.

Chapter 4

ROOT WEIGHT

The notion of Root Weight played a crucial role in the analysis of elision and the criticism of Fullerton presented in Chapters 2 and 3 of this thesis. Chapter 4 is divided into three sections. Section 4.1 presents a further discussion of Root Weight. Section 4.2 discusses three arguments presented in Fullerton against the relevance of Germanic 'vowel balance', a notion which is dependent on Root Weight. Finally, section 4.3 deals with Fullerton's interpretation of Sievers' Law and its Converse.

4.1 Root Weight

As noted above (P. 1), traditionally a Heavy Root is defined as: "one containing a long vowel or diphthong, or a short vowel followed by more than one consonant; other syllables are 'light'" (Edgerton 1934: 235).

This definition is, in essence, incorporated into Fullerton(1977: 7): "'heavy root'= CVXC where X stands for any segment, a non-vowel as in /θank-/ or the second vowel of a geminate vowel sequence as in /sook-/ = /sōk/."

It should be noted however that this definition is not altogether precise. For example, the vowel may be preceded by two consonants as in Go. sniiθan 'cut' or by no consonants Go. ans 'burden'. However, as van Coetsem notes, in the definition of Germanic root classes it

is only what follows the syllabic peak which is relevant: "it is important to state for Proto-Germanic the maximal length of a monosyllabic morpheme or morpheme section from its syllabic peak to its right boundary, as in *gr(eip) Go. [griipan], *b(end) Go. bindan etc. This maximal length may be tentatively and informally represented as xxx or as $\overline{xx}$, $\overline{x}$ being equivalent to xx, as in *$k^{w}(\overline{aen})$, Old Saxon $\overline{quan}$ 'wife', *l($\overline{aet}$) Old Norse $\overline{lata}$. By using one single symbol x instead of e.g. V or C, attention is drawn to the number of elements and not to what they are, which seems irrelevant here" (van Coetsem 1972: 179).

Since long vowels have been defined as phonologically geminate in this thesis, it is unnecessary to distinguish between van Coetsem's $\overline{xx}$ and xxx. Only the colligation xxx is required. Heavy Root is tentatively defined here as a colligation of xxx and a Light Root as xx, where the initial x represents the initial V, often referred to in the literature as the syllabic peak. The following examples are noted:

Heavy Root

Go.	sniiθ+an xxx	'cut'
	dáuθ+us xxx	'dead'
	gast+s xxx	'guest'

Light Root

Go.	stoo+jan xx	'judge'
	tau+jan xx	'do'
	sun+uz xx	'son'

The preferential environment for elision is the position following a colligation of xxx (Heavy Root):

PG gastiz (xxx) OHG gast

relative to the position following xx (Light Root):

PG winiz (xx) OHG wini

There are indications, however, that the preferential environment for elision must be expanded to include certain classes of disyllabics. Such an extension is implied in Prokosch:

"probably the same law originally applied to all Germanic dialects: after a long syllable or after two syllables (which phonetically and metrically, amounts to the same thing) [i and u] disappear sooner than after a short syllable. This law, which seems to express a general trend of Germanic towards accented syllables of two morae is clearly preserved" (Prokosch 1939: 134).[1]

King (1971) also refers to the similarity between disyllabics and Heavy Roots. In a criticism of analyses of Old Norse in which syncope of i is claimed to occur after Light Roots before syncope after Heavy Roots, he states:

"this is directly counter to the normal pattern of weakening (of which syncope is a special case) in the other Germanic languages. In these languages (notably West Germanic dialects, but Gothic to a limited extent) i syncope is part of a general phenomenon of 'vowel balance' by which i and u are deleted when (a) immediately following a long syllable or (b) in the third syllable of a word: West Germanic ist ← *isti, Gothic nimiþ ← *nemidi. Although the principle underlying processes like these is neither precise nor well understood, there does seem to be a general phonetic regularity involved in these and like processes: e.g. compensatory lengthening, lengthening of vowels in open syllables, shortening of vowels in closed syllables" (King 1971: 7).

Elision occurs after both Heavy Root (xxx) and disyllabics (xxxx). Thus the term Heavy Root can be extended to include disyllabics and the preferential environment for elision can be written as:

$$xxx(x)\_\_^{2}.$$

The elision of word final u in Old English provides support for this extension. Erdmann (1972: 407) notes the Old English apocope rule deleting u:

"final u drops in forms of the structure:

light - {light / heavy} - u	[*budinu	OE byden	'tub'
heavy - heavy - u	*lirnungu	leornung	'learning'

but not in forms of the structure

heavy - light - u" *haaligu OE haaligu 'holy'

examples: RWM].

Thus elision occurs after colligations of xxx(x) (Heavy Roots) but not after xx (Light Roots). Compare the following examples:

Elision of u in Old English

PG	sun uz	OE	sunu	NO
	xx			
	dauθ uz		deeaθ	YES
	xxx			
WGmc	budin u		byden	YES
	xxxx			
	lirn ung u		leornung	YES[3]
	xxx			
	haal ig u		haaligu	NO[4]
	xx			

The above discussion clearly demonstrates the relevance of the concept of Root Weight to an analysis of elision.[5]

4.2 Purported Counterexamples to the Relevance of Root Weight

The concept of 'vowel balance' is integrally related to Root Weight (cf. King's statement P 65). The elision of the Short Vowels is one manifestation of vowel balance in accordance with Root Weight. In terms of this thesis, this manifestation of vowel balance is considered the consequence of the weakness of the elements following Heavy Root (xxx(x)__) relative to the elements following Light Root (xx__). Fullerton (1977: 29) does not believe that this notion of

vowel balance is relevant to a study of Germanic and notes the following factors:

"1. that neither the Proto-Germanic short vowel deletion rule nor its Gothic extension dependson the length of the preceding syllable[6]

2. that Sievers' Law INSERTS a weakly stressed vowel after a long syllable

3. that the West Germanic deletion of a ignores the length of the preceding syllable

4. that West Germanic final i and u are not deleted from every third syllable."

This Section discusses Fullerton's first, third and fourth objection to the relevance of Root Weight. Fullerton's second objection which is crucial to this thesis is treated separately in Section 4.3.

a) Proto-Germanic Short Vowel Deletion

Fullerton claims that a Proto-Germanic vowel deletion rule may be written which makes no reference to Root Weight:

$$V \rightarrow \emptyset / \left\{ \begin{array}{l} \_\_\# \\ \text{weak stressed syllable } \_\_C\# \end{array} \right\}$$ (Fullerton 1977: 35).

However, in Section 3.2 it was demonstrated that the first expansion of Fullerton's rule which is

$$V \rightarrow \emptyset / \_\_\#$$

necessitates Fullerton's introduction of an unacceptable case of

leveling into the analysis of Proto-Germanic, whereas an analysis which includes an elision rule which makes reference to Root Weight does not require this concept of Leveling (See P 48).

The second expansion of Fullerton's rule

$$V \rightarrow \emptyset / \text{weak stressed syllable} \_\_ C\#$$

does in fact make reference to Root Weight as defined in this thesis. Consider the following derivation:

PG dagamiz (dative plural) 'day'

/dagamiz/

[dagamz] $V \rightarrow \emptyset$ / weak stressed syllable __C#

However, since stress was fixed on the initial syllable in Proto-Germanic, the environment

weak stressed syllable__C#

is, in fact, equivalent to the environment

Heavy Root___C#

where Heavy Root = xxxx as defined in Section 4.1.

In Fullerton's analysis specific reference is made to the fact that the preceding syllable is unstressed. In his approach, the elision occurring in this environment has no apparent relation with

a subsequent rule he includes in his grammar of West Germanic where he states that the environment for the deletion of i and u is

$$\begin{Bmatrix} C \\ \# \end{Bmatrix} V X_1^2 C \_\_\_ \qquad \text{WGmc } \underline{\text{ubilu}} \quad \text{OHG } \underline{\text{ubil}}$$

Clearly the same process is evident in Proto-Germanic and in West Germanic but Fullerton's rules do not make this relation apparent. This thesis represents an attempt to present a unified account of developments such as these and not to disassociate processes which are obviously related and treat them as disparate phenomena. It must be concluded that Root Weight as defined in Section 4.1 is the crucial factor in both of the abovementioned cases of elision.

b) West Germanic Deletion of a

Fullerton recognizes the role that Root Weight plays in the West Germanic elision of i and u; these vowels are elided after Heavy Roots as defined in Section 4.1 but maintained after Light Roots:

PG	dauθus	OHG	tood	'death'
	nemeti		nimit	'he takes'
	fehu		fihu	'cattle'
	mari		meri	'sea'

Unstressed a however is clearly elided without regard for Root Weight.[7] Fullerton accounts for this development by positing the following West Germanic short vowel deletion rule:

$$\overset{V}{[-\text{stress}]} \rightarrow \emptyset / < \begin{Bmatrix} C \\ \# \end{Bmatrix} VX_1^2 > C \underset{<+\text{high}>}{\qquad} \$$$

This rule subsumes:

a → ∅/C__$

PG	maarida$	WGmc	maarid	(pp. st. NA sg.)
	θega$nas		θegnas[8]	(G. sg.)
	faga$nooda$		fagnood	(pp. st. NA sg.)

a is elided after both Heavy and Light Roots and also in both word final and medial syllable position. In this thesis, the elision of a is seen as a consequence of its inherent phonological weakness. The fact that a is elided after both Heavy and Light Roots does not in itself demonstrate the lack of validity of the notion of Root Weight. In Chapter 2 of this thesis it was proposed that an element following Heavy Root is weaker than an element following Light Root. Elision, a weakening process, is more likely to occur after Heavy Root than after Light Root. Thus the fact that a is elided after Light Roots does not indicate the irrelevance of Root Weight but rather involves a clear case of rule generalization. That is, the elision of a after Light Roots carries the implication that a is elided after Heavy Roots as well. True counterevidence to the relevance of Root Weight would take the form:

a → Ø/Light Root___ but

a → idem/Heavy Root___

Such counterevidence, however, clearly does not exist. In addition, it is to be noted that the elision of a in the above examples further corroborates the positional hierarchy proposed in Chapter 2 where the elision of medial syllable a implies the elision of word final a:

PG faga$nooda West Germanic fagnood

c) West Germanic Deletion of i and u: Polysyllabics

The elision of vowels in polysyllabics has long been a controversial topic. A detailed discussion of this topic must remain beyond the scope of this thesis. However, according to Fullerton the fact that i and u are not deleted from every third syllable in West Germanic constitutes evidence against the validity of Root Weight. He notes the following examples:

PG	hawbudu	West Germanic	hawbdu[9]	(NA Pl)
	riikiju		riikju	(NA Pl)

In fact, however, these examples further substantiate the role of Root Weight as outlined in Section 4.1. That is, elision occurs preferentially after Heavy Root

$$xxx(x)\_\_\_ \qquad \frac{\text{hawb udu}}{xxx} \qquad \frac{\text{riik iju}}{xxx}$$

relative to Light Roots

xx ___

Elision in the above examples occurs in the former environment.

Now consider his examples:

PG	twiifilidaa	West Germanic	twiiflidaa	(1st sg.
	hungaridaa		hungridaa	pret. ind.)

In these examples, although the i in third syllable position is not elided, as in the previous examples elision does occur in the environment:

Heavy Root ___

twiif ilidaa
xxx

hung aridaa
xxx

Fullerton is in fact correct in criticizing King's statement that i and u undergo elision in the third syllable of a word. However, this criticism does not justify Fullerton's own analysis nor does it justify his rejection of the validity of the concept of Root Weight.

4.2 Sievers' Law and its Converse

Gothic demonstrates an alternation of the following form:

First Class Weak Verbs: Present Indicative

	Heavy Root	Light Root
2nd pers. sg.	waúrkiis	bidjis
3rd pers. sg.	waúrkiiθ	bidjiθ
2nd pers. pl.	waúrkiiθ	bidjiθ

Infinitive	
waúrkjan	'do, work'
bidjan	'ask'

That is, the suffix appears as:

-iis/θ after heavy roots waúrk+iis/θ

-jis/θ after light roots bid+jis/θ

In order to account for this distribution, Fullerton (1977: 7) incorporates Sievers' law and its Converse into his analysis of Proto-Germanic and Gothic. Following Edgerton (1934), he interprets Sievers' Law as an epenthesis rule which inserts i into the environment: heavy root ___+jV-;

Proto-Germanic

/wurkjis/ → [wurkijis]

/wurkjan/ → [wurkijan]

The Converse of Sievers' Law, on the other hand, deletes i when following light root and preceding suffixal j plus a vowel:

/nasijis/ → [nasjis]

/nasijan/ → [nasjan]

Consequently, Fullerton claims that the presence of Sievers' Law (i epenthesis after heavy root) and its Converse (elision of i after light root) in Proto-Germanic represent counterevidence to the notion of Germanic 'vowel balance'. That is, in accordance with the study presented in Chapter 2, ELISION is expected to occur after

heavy root not EPENTHESIS. Also, it is not expected that elision would occur after light root but not after heavy root. In order to discuss Fullerton's claim, a brief outline of the development of the First Class Weak Verbs from their Indo-European (IE) origins into Proto-Germanic and Gothic is required.

In essence, the Germanic First Class Weak Verbs is the consequence of the collapsing of three different Indo-European verb types:

1. deverbatives, mostly causatives with present tense suffix IE -ej- and generally carrying an o-grade root vowel

IE gousej- Go. káusjan 'meet'

loghej- lagjan 'lay'

2. denominatives with suffix IE suffix -j-. Included in this Indo-European type are:

a) o-stem denominatives; ablaut of the o-stems results in a root ending in -e. ("Wurde solche Denominativa von o-Stämmen gebildet, so ging der Stamm auf ablautendes -e aus" (Kieckers 1960: 228)).

IE doomej- Go. (ga-)doomjan 'judge'

b) i-stem denominatives;

IE χrainij- Go. hranjan 'clean'

c) consonantal stem denominatives;

i. s stems: Go. rigizjan 'become dark'

ii. dental stems: weitwoodjan 'witness'

iii. n stems: namnjan 'name'

3. a small group of so-called Primary Members having suffix -j-.

IE wurgj- Go. waúrkjan 'do, work'

bidjan 'ask'

As a result of the raising of IE e to i when followed by j or i, only two types of First Class Weak Verbs need to be distinguished in Proto-Germanic:

Type I

Roots with suffix -ij-

Type II

Roots with suffix -j-

Type I represents a collapse of:

1. deverbatives (IE -ej-, PG -ij-)

IE gousej- PG kauzij-

2. o-stem denominatives (IE -ej-, PG -ij-)

IE doomej- PG doomij-

3. i-stem denominatives (IE -ij-, PG -ij-)

IE χrainij- PG hrainij-

Type I may be represented as:

root + ij + person suffix

Type II verbs, on the other hand, are formed:

root + j + person suffix

This type includes:

1. consonantal stem denominatives

PG namnj-

2. Primary Members

IE wurgj- PG wurkj-

Thus, in the study of subsequent developments, only these two Types need to be considered. In the following discussion, the deverbatives:

PG kausij- Go. káusj- (Heavy Root)

nasij- nasj- (Light Root)

represent Type I. Type II is represented by the Primary Members:

PG wurkj- Go. waúrkj- (Heavy Root)

bidj- (Light Root)

A comparison of the Proto-Germanic and Gothic forms listed above as examples of Types I and II indicates that although the distribution of the suffixes -ij- and -j- is independent of Root Weight in Proto-Germanic, in Gothic the following distribution is evident:

-jis after light roots

-iis after heavy roots

PG nasijis Go. nasjis

wurkjis wurkiis

Thus some means of accounting for the Gothic distribution must be offered.

Traditional studies such as Kieckers claim that the distribution of the suffixes according to Root Weight in Gothic is a consequence of the 'realignment' of the Proto-Germanic suffixes (ij, j) as regulated by Sievers' Law:

"Idg. -je-si, -je-ti, -je-te ergab urgerm. -jiz-i (-jis[i]), -jiə[i] (-jiθ[i]), -jeə[e] (-jeθ[e]), idg. -eje-si, -eje-ti, eje-te und -ije-si, -ije-ti, -ije-te urgerm. -ijiz[i], -ijiə[i], -ijiə[e]. Die Verteilung dieser beiden urgerm. Typen wurde urgerm. (unabhangig vom Indogermanischen) nach den Sieversschen Gesetz neu geregelt: bei vokalischen auslautenden Stämme und nach den kurzsilbigen (d.h. mit kurzer Stammsilbe versehenen), einsilbigen konsonantisch auslautenden Stämmen wurde der erste Typus üblich, bei den andern konsonantisch schliessenden Stämmen (d.h. den langsilbigen und den mehrsilbigen) kam der zweite Typus in Brauch" (Kieckers 1960: 232).

Kieckers' interpretation may be summarized as follows:

	Type I		Type II		
PG	Heavy	Light	Heavy	Light	
Stage I	kausijis	nasijis	wurkjis	bugjis	
Stage II	kausijis	nasjis	wurkijis	bugjis	'Realignment'
Gothic	káusiis	nasjis	waúrkiis	bugjis	

However, to state that this realignment took place as a consequence of Sievers' Law does not, in fact, account for this development. In its original formulation, this 'law' governed the distribution of i,j and u,w respectively in Vedic:
"unbetontes (nicht svaritiertes) i oder u vor einem vocal ist consonant nach kurzer, vocal nach langer silbe ohne rücksicht auf die

sonstige accentlage des wortes" (Sievers 1878: 89). This law, in its original formulation, does not explain the redistribution of PG -i- and -ij- on the basis of Root Weight.

Various interpretations of this law and its application in Germanic have been offered in subsequent studies. Edgerton (1934: 235) revises this law as:

"after a heavy syllable, Vedic post-consonantal y,v became iy, uv before a vowel".

It is this interpretation of Sievers' Law which is incorporated into Fullertons' study of the First Class Weak Verbs. He interprets Sievers' Law as an epenthesis rule which INSERTS i after heavy roots before suffixal j followed by a vowel. This interpretation may be formalized as:

$$\emptyset \rightarrow i / \text{heavy root} \_\_ +jV- \qquad \text{(Fullerton 1977: 7)}$$

This version of Sievers' Law is included in the Proto-Germanic and Gothic grammars as a synchronic rule. In essence, Fullerton proposes the following development:

PG /wurkjis/ /bidjis/

wurkijis - $\emptyset \rightarrow i / \text{heavy root} \_\_ +jV-$ (Sievers'

Go. waúrkiis bidjis (Fullerton 1977: 36)

On the basis of this interpretation of Sievers' Law, Fullerton makes the claim that the fact that i is INSERTED after a heavy root constitutes evidence against the validity of a concept of vowel balance

based on Root Weight. For example, in Section 2.4 of this thesis, it was noted that elision is more likely to occur following Heavy Root:

Heavy Root___

than following Light Root:

Light Root___.

Furthermore, assuming that as elision represents a process of phonological weakening of the type:

[+segment] → Ø

epenthesis must represent a process of phonological strengthening:

Ø → [+segment]

Given this interpretation, it would not be expected that epenthesis, a strengthening process, would occur following a Heavy Root and not following Light Root as Fullerton claims:

PG /wurkjis/ → [wurkijis]

/bidjis/ → [bidjis].

Another development of interest in this regard is the Converse of Sievers' Law. The Converse was first formulated by Edgerton (1934: 237) as:

"a weak-grade vowel (i, u and theoretically r̥, l̥, m̥, n̥) preceded by a consonant and followed by the corresponding semi-vowel plus a vowel, was lost after a light syllable, so that iy, uw became y, w (or v in traditional Sanskrit orthography) in this position."

Although initially Edgerton was "unable to show the application of

this converse of Sievers' Law outside of Indic" (1934: 40), subsequent studies have argued that this Converse also applied in Proto-Germanic (cf. Lehmann 1955). As an example of the Converse consider the following development:

Proto-Germanic

Type 1

heavy	light	
kausijis	lagijis	
-	lagjis	i → Ø/light root__+jV-

Gothic káusiis lagjis

However, the application of the Converse in Proto-Germanic (interpreted as an elision process) like the application of Sievers' Law (interpreted as an epenthesis process) is incongruent with the analysis proposed in Section 2.4. That is, it is not expected that elision, a weakening process, would occur in the position following Light Root:

light root___ PG lagijis Go. lagjis

but not following Heavy Root:

heavy root___ PG kausijis Go. káusiis

In addition, it should be noted that counterevidence to the application of the Converse of Sievers' Law in Proto-Germanic has been offered in Erdmann(1972: 409,10). The presence of the Converse can be indirectly tested by an examination of gemination in West Germanic. West Germanic gemination of a root final consonant

occurs preceding suffixal j:

Go.	bidjan	Old English	biddan	'ask'
	sitjan		sittan	'sit'
	skapjan		scieppan	'make'

Proto-Germanic forms:

light root+ij

which did not undergo gemination in Old English would represent counterexamples to the application of the Converse in Proto-Germanic. Erdmann (1972: 409) claims that the failure of Proto-Germanic:

PG	dan+ij+oo	'dane'	(genitive plural)
	win+ij+oo	'friend'	

to undergo gemination in Old English demonstrates that the Converse did not, in fact, operate in Proto-Germanic:

Old English Deni(g)a
wini(g)(e)a.[10]

Compare A and B:

A.	bidjan	danijoo	winijoo	PG
	-	danjoo	winjoo	Converse (i→Ø/light rt__jV)
	biddan	*danna	*winna	Gemination C → CC/__j

B.	bidjan	danijoo	winijoo	PG
	biddan	-	-	Gemination
	-	dania	winia	j → Ø/V_V
	biddan	Denia	winia	Old English

Erdmann concludes:

"However, both nouns violate Lehmann's claim that the 'Converse of Sievers' Law' applied in Germanic, whereby the suffix should have changed from -ij-$\bar{o}$ to -j-$\bar{o}$ in late Proto-Germanic, making *dan-j-$\bar{o}$ and *win-j-$\bar{o}$ undergo j gemination and loss of palatal suffix - which did not happen, as is apparent from the attested forms" (Erdmann 1972: 410).

In summary, it has been argued in this section that:

1. the traditional claim that the Proto-Germanic suffixes -j- and -ij- underwent a realignment as:

   -j- after light roots

   -ij- after heavy roots

   on the basis of Sievers' Law, does not, in fact, constitute an explanation for this development. Sievers' Law, in its original formulation, is a statement of the distribution of j and i which does not, in itself, account for this realignment.

2. both Sievers' Law (interpreted as an epenthesis rule) and its Converse (interpreted as an elision rule) are incongruent with the analysis presented in Chapter 2

of this thesis. In addition, there are Old English counterexamples to the application of the Converse in Proto-Germanic.

4.2.1 Sievers' Law and Gothic Syllabification

An interpretation of Sievers' Law as a consequence of Gothic syllabification is suggested by a statement in Prokosch(1939: 213). With reference to the alternation evident in Gothic:

1st Class Weak Verbs

(Present Indicative: 2nd person singular)

Heavy Root	Light Root
káusiis	nasjis
waúrkiis	bidjis

Prokosch states:

"the syllabic division was lag-jis but so̅-kjis [that is, soo-kjis RWM]. Therefore, j being initial was preserved after a short stem, but the syllable -kjis, with medial j, was equivalent to -kiis = -keis in Wulfila's spelling" (Prokosch 1939: 213).

In addition, Vennemann (1972) offers a synchronic version of Sievers' Law for Gothic incorporating syllable boundaries.

This Section interprets Sievers' Law and its Converse in terms of Gothic syllabification. The following syllabification rule is assumed:

Gothic Syllabification Rule (GSR)

$$\emptyset \rightarrow \$ / C_0^2 V \begin{Bmatrix} C \\ V \end{Bmatrix} \_\_$$

Go.	taujan →	tau$jan	'do'
	sookjan →	soo$kjan	'search'
	nasjan →	nas$jan	'save'

In accordance with this syllabification rule, Sievers' Law may be interpreted as:

$$\text{Contraction: } ji \rightarrow \bar{i}/\$C\_\_ \quad 10a$$

As an exemplification of the application of this rule, consider the following:

Heavy Roots				
Type I		Type II		
káusijan	káusijis	waúrkjan	waúrkjis	PG
káusian	káusiis	-	-	$j \rightarrow \emptyset/V\_V$ [11]
káu$sian [12]	káu$siis	waúr$kjan	waúr$kjis	GSR
-	-	-	waúr$kīs	Contraction (Sievers' Law)

That is, contraction takes place as the consequence of the failure of the glide to be maintained in the position $C__. Note that in strong syllable initial position the glide is maintained:

Light Roots	Heavy Roots	
Type II	Type II	
bugjis	waúrkjis	PG
bug$jis	waúr$kjis	GSR
-	waúr$kīs	Contraction (Sievers' Law)

Furthermore, the Converse of Sievers' Law may also be interpreted in terms of syllabification. The Converse is formalized as:

Glide Formation: $i \rightarrow j / \$\_\_V$

As an example of the application of this rule consider the following:

Light Roots

Type I		Type II		
nasijan	nasijis	bugjan	bugjis	PG
nasian	nasiis	-	-	$j \rightarrow \emptyset / V\_V$
nas$ian	nas$iis	bug$jan	bug$jis	GSR
nas$jan	nas$jis	-	-	Glide Formation

To conclude, the distribution of the Gothic suffixes:

-ji- after Light Roots

-ii- after Heavy Roots

may be interpreted as a direct consequence of Root Weight where contraction occurs after Heavy Root (that is, a weakening occurs and the separate identities of the two phonological elements are not maintained: assimilation) but not after Light Root. In the latter position, contraction does not occur and the separate identities of the phonological elements are maintained.

However, it is further noted in this thesis that the distribution of these suffixes is explicable in terms of the syllabification rule:

$$\emptyset \rightarrow \$ / C_0^2 V \begin{Bmatrix} C \\ V \end{Bmatrix} \_\_$$

allowing an explanatory statement of the variation in terms of syllable position, a concept also used in this thesis (p 13). In accordance with this syllabification rule, Sievers' Law is formulated as a contraction rule:

$$ji \rightarrow \bar{i} / \$C\_\_^{13}$$

and the Converse as a glide formation rule:

$$i \rightarrow j/\$\_\_V$$

The application of these rules is demonstrated in the following examples:

	Heavy Roots (Type II)		Light Roots (Type I)		
PG	wurkjan	wurkjis	nasijan	nasijis	
	-	-	nasian	nasiis	j → Ø/V_V
	wur$kjan	wur$kjis	nas$ian	nas$iis	GSR
	-	wur$kīs	-	-	Contraction
	-	-	nas$jan	nas$jis	Glide Formation
Go.	waúrkjan	waúrkiis	nasjan	nasjis	

It must be concluded then that the suffixal alternations in Gothic, -ii- after Heavy Root and -ji- after Light Root in the First Class Weak Verbs, do not provide evidence against the notion of vowel balance based on Root Weight.

Footnotes

[1] The term SYLLABLE WEIGHT is not used in this thesis since there is contradiction evident in the use of the term heavy (long) syllable if one considers Gothic syllabification. For example, Prokosch states that Go. sook- (sookjan) is a long syllable but on the other hand he places a syllable boundary after the geminate vowel: Go. soo$kjan (Prokosch 1939: 92). Two concepts are implicit here.

[2] In fact, this extension includes two types of disyllabics:
1) those with an obvious morpheme boundary
nim+it (root + pers./no. suffix)
2) those with no obvious internal boundary
ubil (PG ubilu)
The internal morpheme boundary does not appear to be relevant. See also footnote 5 below.

[3] The elision of word final u but not medial syllable u is in accordance with the positional hierarchy p. 22.

[4] The failure of i to be elided following Heavy Root in this example could be attributed to the fact that this i was originally long (ie. geminate: *haaliigu/oo) or to the influence of the following palatal consonant (cf. Wright 1934: 324, 99).

[5] It should be noted that the terms Heavy and Light Root have now been defined as colligations of xxx(x) and xx respectively where elision is more likely to occur after the former environment. Morphological boundaries play no role in these definitions and in fact a morpheme boundary may be included in the colligation xxxx as noted in footnote 2 above. In effect, the weight of the Root of the word is irrelevant:

PG	√bud / xx	in / xx u	OE byden
	√lirn / xxx	ung u	leornung
	√haal / xx	ig u	haaligu

the relevant factor is whether the preceding colligation is xxx(x) or xx beginning with the syllabic peak. Thus although it is technically inappropriate to label these colligations Roots, this term is maintained in order to facilitate the discussion of Fullerton's objections to the notion of vowel balance in Section 4.2. Finally, in terms of the concept of 'morphological strength' (FTP: 86) in which units such as words and syllables have an inherent strength value, the units discussed here consist of {light / heavy} root plus the following vowel. Finally, note that final u in these forms is from earlier oo. This u and original u undergo elision in the same manner in Old English (Wright 1934: 94).

6 Fullerton uses the term syllable length. This term is not used in this thesis for the reasons expressed in footnote 1 of this Chapter. In the terminology of this thesis
long syllable = heavy root of the type xxx
short syllable = light root (xx).

7 That is, there is no evidence that in final syllable the elision of a after Heavy Root occurred before the elision of a after Light Root as this development occurred early in the history of Proto-Germanic. However, in medial syllable the elision of a follows the same trend as the elision of i and u. See quote from Streitberg on p 24.

8 The failure of a to be elided in final syllable in Þegnas is a likely consequence of the fact that the genitive ending was originally -eso. The change of e to a was a subsequent development (Braune-Eggers 1975: 182).

9 It is unclear whether examples such as hawbudu indicate that the position following Heavy Root__$ is weaker than the position following Light Root__# thus accounting for the maintenance of u in word final position but not in medial syllable (hawbdu) or whether other factors are involved.

10 Orthographic 'g' in these forms represents a palatal spirant from earlier PG j (Wright 1934: 144).

10a cf. Vennemann 1971: 107 for synchronic formulation.

11 This rule is assumed:
"Geschwunden ist idg. i̯ im Gotischen:
1. Intervokalisch nach unbetonten Vokalen, vgl. etwa die Entstehung der got. Optativendung der 1. Sing. Praes. aus idg. *-oi̯-m germ. *-ajun got. -au...
2. Vielleicht auch in der haupttonigen Gruppe germ. -íji-, doch können die einschlägigen Beispiele auch anders (Schwund des Endsilbenvokals) erklärt werden" (Krahe 1965: 65).

It could also be the case that contraction of -ij- occurred (ī) with subsequent weakening to(i) (cf. Lehmann 1961). This possibility however is not crucial to the discussion at hand.

12 The formation of the glide in káusjan (from káusian) is a likely indication of a general glide formation rule: i → j/__a. However, the essential point here is to demonstrate that the Type II Heavy Root verbs develop the Gothic suffix -ii- as a consequence of the contraction rule (Sievers' Law) based on Gothic syllabification.

[13] For expository purposes, contraction is represented as ji → ī But recall that in subsequent phonological processes, this ī is in fact a geminate ii. Contraction is a phonological process which is dependent on the similarity of phonological elelments (FTP: 20). Similar elements are more likely to undergo contraction than unlike elements. Thus ji contracts to ī but ja does not contract.

Chapter 5

CONCLUSION

This thesis presented a study of the elision of the unstressed Proto-Germanic short vowels developed within the framework of J. Foley's Foundations of Theoretical Phonology. An essential characteristic of this framework is the concept of relative phonological strength. Three types of phonological strength and their relevance to an analysis of elision were considered:

1. the inherent strength of phonological elements
2. positional strength
3. morphological strength

The relative inherent strength of phonological elements can be determined by a study of the behaviour of these elements in phonological processes. The subject of this thesis, vowel elision, represents the consequence of an extreme phonological weakening process of the type:

[+segment] → Ø

Weakening processes first affect the weakest phonological elements and may or may not generalize to include other stronger elements. Thus the fact that Proto-Germanic a is elided in word final position but i and u sometimes remain:

PG waita	Go. wait	'I know'
mari	OHG meri	'sea'
fihu	OHG fihu	'cattle'

indicates that a represents a weaker phonological element than do i or u. On the basis of a study of elision, the following strength parameter was posited:

a	e	i	u
1	2	3	4

The determination of strength parameters enables the various phonological processes evident in a language or language group to be compared. It was noted that the same relation between Germanic a and u was proposed in Foley (1970) where the parameter

a	o	u
1	2	3

was determined on the basis of a study of phonological strengthening and weakenings (other than elision) of the Germanic vowels. This study is congruent with the scale of relative strength for the Germanic vowels proposed as a working hypothesis in this thesis:

a	e	o	i	u
1	2	3	4	5

A study of elision must also take into account relative positional strength. For example, although u is elided in word final position (__#), it is maintained in final syllable when ending in a consonant (__C#):

PG	burgu	Go.	baúrg
	dauθus		dáuθus

As elision is a weakening process, it occurs more extensively in relatively weak position. The following positional hierarchy was proposed (beginning with the weakest):

1. word final (__#)
2. final syllable ending in a consonant (__(C)#)
3. medial syllable (__(C)$)
4. stressed position (__́__)

As in the case of the parameter of inherent relative strength, it is expected that the same positional hierarchy will be eflected in a study of other phonological processes. For example, it was noted that the development of the Indo-European long vowels in Gothic and Old High German demonstrates the same relation between final syllable, medial syllable and stressed position. Assuming the vowel strength parameter:

a	o	u
1	2	3

it was noted that Indo-European aa appears as oo in Gothic in stronger stressed and medial position:

Go. brooθar
salbooda

Go. oo < IE aa

but as a in weaker word final position:

Go. giba

Go. a < IE aa

In Old High German, although Indo-European aa strengthens further to uo in stressed position, in weaker medial syllable it remains as oo:

Go.	brooθar	OHG	bruoder
	salbooda		salboota

The final factor to be considered in the study of elision was what is traditionally referred to as the weight of the root or stem. In this thesis a light root was defined as a colligation of xx (or light syllable) where the initial x represents the syllabic peak:

PG mar i
xx

A heavy root consists of xxx (or heavy syllable):

PG gast iz
xxx

or of two light syllables:

PG nem et i
xx xx

Elision of i and u, particularly in West Germanic, as demonstrated with Old High German data, occurs after heavy root but not after light:

PG	mari xx	OHG	meri
	gastiz xxx		gast
	nemeti xxxx		nimit

This thesis proposed that elision occurs after a Heavy Root but not after a Light Root as a consequence of the distribution of morphological strength; that is, as a consequence of the distribution of morphological strength over a larger number of phonological elements, elision occurs preferentially after Heavy Roots relative to Light Roots.

After presenting the above study of elision, a recent study of Short Vowel elision which is included in an analysis of the development of the Germanic First Class Weak Verbs was criticized (Fullerton 1977). The following criticisms were made:

1a. Relexicalization was applied in an inconsistent way

b. The occurrence of Rule Loss does not follow from any theoretical principles

2. An unacceptable case of leveling is introduced into the analysis as a consequence of a Proto-Germanic deletion rule which deletes all word final vowels without regard for Root Weight. It was demonstrated that an analysis which did include reference to Root Weight does not require the introduction of Proto-Germanic leveling and accounts for the same developments as being the consequence of rule generalization

3. The fact that it is simpler in terms of distinctive feature notation to write a rule which applies to all

members of a natural class rather than to only certain members of this class does not have any role in historical reconstruction. In Fullerton's analysis, this simplicity criterion plays a central role in his reconstruction of PG mar, a reconstruction which is shown to be false by a study of subsequent developments in Germanic.

Finally, the notion of 'vowel balance' was discussed. This notion is integrally related with the concept of Root Weight. In the approach developed in this thesis, one manifestation of vowel balance may be interpreted as the preferential elision of Short Vowels after Heavy Roots. Four factors which Fullerton suggests are counter to the notion of vowel balance were considered and demonstrated to be false.

Bibliography

Anderson, Stephen (1974). The Organization of Phonology, Academic Press, New York.

Antonsen, Elmer H. (1972). 'The Proto-Germanic syllabics (vowels)', in van Coetsem 1972, 117-140.

Braune, Wilhelm and Hans Eggers (1975). Althochdeutsche Grammatik, Max Niemeyer Verlag Tübingen.

Bynon, Theodora (1977). Historical Linguistics, Cambridge University Press.

Chomsky, N. (1978). 'On Binding', (unpublished version).

Derwing, Bruce L. (1973). Transformational Grammar as a Theory of Language Acquisition; a Study in the Empirical Conceptual and Methodological Foundations of Contemporary Linguistics, Cambridge University Press.

Edgerton, Franklin (1934). 'Sievers' Law and IE. Weak-Grade Vocalism', Language 10, 235-265.

Erdmann, Peter H. (1972). 'Suffixal j in Germanic', Language Vol. 48, No. 2, 407-415.

Foley, James (1970). 'A Systematic Phonological Interpretation of the English Vowel Shift' Glossa 5:1.

(1977). Foundations of Theoretical Phonology, Cambridge University Press.

Fullerton, G. Lee (1977). Historical Germanic Verb Morphology, Walter de Gruyter (Studia Linguistica Germanica 13).

Grundt, Alice Wyland (1976). Compensation in Phonology: Open Syllable Lengthening, Indiana University Linguistics Club reproduction.

Hirt, Hermann (1931). Handbuch des Urgermanischen Teil I: Laut- und Akzentlehre, Heidelberg Carl Winters Universitätsbuchhandlung.

Hooper, Joan B. (1976). An Introduction to Natural Generative Phonology, Academic Press New York.

Keller, R.E. (1978). The German Language, Faber and Faber.

Kieckers, Ernst (1960). Handbuch der vergleichenden gotischen Grammatik, Max Hueber Verlag München.

King, Robert D. (1969). Historical Linguistics and Generative Grammar, Prentice-Hall, Inc.

(1971). 'Syncope and Old Icelandic i-Umlaut', Arkiv for Nordisk Filologi 84, 1-18.

Krahe, Hans (1967). Historische Laut- und Formenlehre des Gotischen, Heidelberg Carl Winter.

Lehiste, Isle (1970). Suprasegmentals, The M.I.T. Press.

Lehmann, Winfred P. (1955). 'The Proto-Indo-European resonants in Germanic', Language 37, 67-74.

(1961). 'A Definition of Proto-Germanic; a study in the chronological delimitation of languages', Language 37, 67-74.

Newton, B.E. (1971). 'Ordering Paradoxes in Phonology', Journal of Linguistics 7, 31-53.

(1972). 'Interdigitation in French Phonology', Language Sciences February 1972, 41-43.

Prokosch, E. (1939). A Comparative Germanic Grammar, Linguistic Society of America.

Schmitt, Ludwig Erich (1970). Kurzer Grundriss der germanischen Philologie bis 1500 Band 1, Walter de Gruyter.

Sievers, Eduard (1878). Zur Accent- und Lautlehre der germanischen Sprachen, Halle Max Niemeyer.

Streitberg, Wilhelm (1963). Urgermanische Grammatik, Heidelberg Carl Winter.

van Coetsem, Frans (1970). 'Zur Entwicklung der germanischen Grundsprache', in Schmitt 1-93.

(1972). 'Proto-Germanic morphophonemics', in van Coetsem and Kufner 1972, 175-209.

van Coetsem, Frans and Herbert L. Kufner (1972). Toward a Grammar of Proto-Germanic, Max Niemeyer Verlag.

Vennemann, Theo (1971). 'The Phonology of Gothic Vowels' Language 47, 90-132.

Vennemann, Theo (1972). 'Phonetic Analogy and Conceptual Analogy' in Vennemann and Wilbur 1972.

Vennemann, Theo and T.H. Wilbur (1972). Schuchardt, the Neogrammarians and the Transformational Theory of Phonological Change, Athenäum Verlag.

Vennemann, Theo and Peter Ladefoged (1973). 'Phonetic Features and Phonological Features', Lingua 32, 61-74.

Wang, William S-Y. (1969).'Competing Changes as a Cause of Residue', Language Vol. 45, No. 4.

Wright, Joseph (1934). Old English Grammar, Oxford University Press.

(1962). Grammar of the Gothic Language, Oxford University Press.