RESOLUTION IN MODERN METERS

A DISSERTATION
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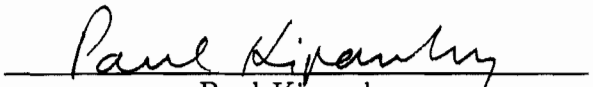
DOCTOR OF PHILOSOPHY

By
Kristin Hanson
December 1991

I certify that I have read this dissertation and that in my opinion it is fully adequate, in scope and in quality, as a dissertation for the degree of Doctor of Philosophy.



Paul Kiparsky
(Principal Adviser)

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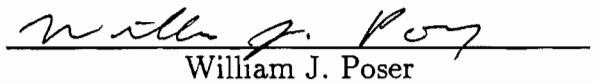

William J. Poser

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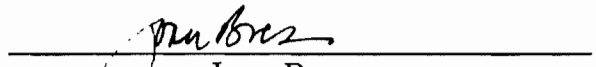


Joan Bresnan

Approved for the University Committee on Graduate Studies:

Abstract

This dissertation provides support for an idea of Jakobson (1960), articulated by Kiparsky (1973, 1987), that the underlying structures of poetry derive from universal grammar. The argument takes the form of identifying a meter not previously discussed in English, and showing that what underlies it is a linguistic structure which plays a role in the metrical phonology of several langauges.

The meter is one that became popular in the nineteenth century in both English and Finnish, and is characterised by a mixture of surface iambic feet with surface anapestic feet. Following Leino (1986) who identifies such a meter in Finnish, I call the meter "iambic-anapestic", but argue that it is distinguished from either iambic or anapestic meter by three properties. First, strong positions require stressed syllables, which is not true of iambic meter, where strong positions are free. Second, lexical monosyllables are disfavored in weak positions of the anapestic feet of the meter, which is not true of true anapestic meter, where lexical monosyllables occur freely in all weak positions. Third and most important, stressed syllables of polysyllabic lexical words are allowed in weak positions of the meter just in case they are light and followed by an unstressed syllable within the same word which is also in the weak position. Iambic meter, in contrast, categorically excludes stressed syllables of polysyllabic words from most weak positions, while anapestic meter allows them without any comparable constraint on their quantity.

These properties of iambic-anapestic meter are attributed to its being based on a linguistic equivalence class well known in traditional grammar and metrics through the phenomenon of resolution, whereby a light stressed syllable followed by another

syllable is equivalent to a heavy syllable. This equivalence class is formalized within the current theory of metrical phonology by expanding the class of moraic trochees, linguistic feet consisting of either a heavy syllable or a sequence of two light syllables, to include a sequence of a light syllable followed by a heavy syllable, which is claimed to surfaces in languages with moraic trochees which also have initial stress, such as Old English and Finnish. Such feet can then be seen to define the maximal realization of each position of iambic-anapestic meter.

A consequence of this analysis is that since foot structure depends on syllable quantity, syllable quantity is governed indirectly by this meter; and it is further shown that in meters based directly upon syllable quantity, the same structures found in iambic-anapestic meter are not only possible, but favored. For example, in English adaptations of Classical dactylic hexameters, lexical monosyllables are likewise disfavored in weak positions of dactylic feet, and light stressed syllables occur in weak positions only when they are followed by an unstressed syllable within the same word which is also in the weak position. The similarity between the two meters is particularly strong in English, because processes of resyllabification in English phonology mean that almost any syllable which is stressed can count as heavy and occupy a strong position. Thus the favored cadences of two distinct meters both seem to derive from the linguistic equivalence class given by resolution, supporting the idea that the structures that make for aesthetically satisfying poetry derive from language itself.

Acknowledgements

In his article "The Rhythmic Structure of English Verse" Paul Kiparsky quotes as an apology for the minutiae of metrics a comment of Jespersen that "life consists in little things; the important matter is to see them largely." That quotation has hovered in my mind throughout the time I've spent with him working on this dissertation, because he demonstrates its lesson at every turn, combining expansive contemplation of the world around him with disciplined consideration of how the tiniest of observations might help reveal its truths. To have had the opportunity to see that and learn from it has been a wonderful experience. Beyond that I wish to thank him for his criticisms, help, inspiration, charm, patience, encouragement and kindness, all of which made the time spent on this a true and deep pleasure.

Among the other members of my committee, I owe a special debt to Bill Poser. He has given me extraordinarily generous help in every way imaginable, untangling complex theories and arguments with his penetrating mind, computer catastrophes with his expertise and fleet of equipment, and flagging spirits with his hot tub and whiskey. He has done this out of a friendship which it is an honor to acknowledge. I would also like to thank Joan Bresnan for serving on my committee. Early on in my time at Stanford I had the privilege of working with her and experiencing firsthand her formidable talent for and pleasure in argumentation, her understanding of what makes for successful presentation of ideas, her enthusiasm and her gift for motivating students. The value I place on her judgment and interest is the highest possible, and I am grateful for her willingness to indulge that by reading and responding to a dissertation off her beaten path.

I would also like to thank Geoff Nunberg for the fun I had working with him on another project, and for his willingness to lend the literary taste and judgement I enjoyed there to this one by serving on my examination committee. Elizabeth Traugott gave me my first opportunity to work in linguistics and literature, and constant encouragement thereafter. And Rene Kager provided invaluable assistance in a blitzkrieg of meetings during the brief time we overlapped at Stanford.

My fellow students at Stanford have provided an atmosphere of intellectual challenge, mutual respect and moral support without which I would have given up long ago; among them I would particularly like to thank Kathie Carpenter, Carolyn Coleman, Cleo Condoravdi, Tony Davis, Jeff Goldberg, Kathryn Henniss, Sharon Inkelas, Stephen Wechsler and Draga Zec. I owe special debts to Draga Zec for persuading me one sunny afternoon that I should write a dissertation on metrics, and to Cleo Condoravdi and Tony Davis for last-minute heroics that enabled me to finish one. And I owe the entire physical existence of my dissertation to Kathryn Henniss, who formatted it beautifully with her customary competence, good judgement and taste, and with sympathetic helpfulness in the face of myriad crises first from too much distance and later from too little time. I hope that the fact that she had first seen many of its ideas in an infant and bedraggled state on our shared kitchen table lent the work a special satisfaction.

I would also like to thank several others whose help was indispensable in more private ways, among them Gianluigi Bellin, Susan Castagnetto, Therese McCarty, Marty Ross, Leslie Saxon, Paul Seppala, my sister Elizabeth and my brother Erik. Most of all I would like to thank my parents, Ross and Muriel Hanson, whose intellectual liveliness gave me the desire to write this, and whose loving support made it possible to do so.

Contents

Chapter 1

Introduction

It is a commonplace that poetry is a linguistic art. But it is not always entirely clear what this means. Kiparsky (1973, 1987), articulating ideas suggested in Jakobson (1960), suggests that the claims of modern linguistics of a universal basis for the structure of human language in fact make available a very precise meaning. He proposes that the units that are treated as equivalent for purposes of creating patterns in poetry are precisely those that could be treated as equivalent by a potential grammatical rule of a language, though not necessarily an actual rule of the grammar of the particular language in which the verse is written. Of course convention, experimentation and deliberate artificiality will always play a role in poetry, giving rise to some patterns of which this may not be true. But patterns that do derive from language in this way might be expected to have a different status, manifest in subtle preferences, in endurance, in recurrence in unrelated forms and perhaps most of all in a high degree of independence of their creation and appreciation from conscious articulation of their properties. This linguistic theory of poetic forms as basically natural thus stands clearly opposed to theories of poetic forms as either governed solely by cultural conventions, or unlimited except by the imagination of a poet.

Here I will provide support for this theory by showing that it can illuminate two metrical practices whose governing principles have hitherto been rather obscure. The first of these is a very free mixture of ternary with binary feet which became popular in the nineteenth century in stressed-based verse in at least English and Finnish. The use

of ternary feet in binary meters was of course nothing new; "trisyllabic substitution", for example, had figured in the practice and theory of the English iambic pentameter since the beginning of that tradition, and the equivalence between one long syllable and two short fundamental to the Classical hexameter produces just such a mixture there too. But in these cases it nonetheless remains clear that the basic metrical pattern is a binary one. In many nineteenth century poems, in contrast, ternary feet loom so large – in more than one sense, as we shall see – that it becomes unclear whether the basic metrical pattern can be identified at all as either binary or ternary (Weismiller 1989), and in many cases it is taken to be actually ternary.

Either of these characterizations raises interesting theoretical questions. For it to be truly unclear (as opposed to simply not consciously known) whether a basic metrical pattern is binary or ternary is for there to be no metrical pattern at all. On anyone's definition, meter, which comes from Greek *metron* 'measure', implies that certain units of the verse are in some sense equivalent to others; and at the very least the poet who writes the verse must perceive that equivalence. This is not to say that there are not poems whose meter is ambiguous, nor that there are not poems that are rhythmical without being metrical. But if a poem is metrical it ought in principle to be possible to characterize its metrical pattern in terms of some basic structure which is repeated.

Moreover, on the theory under consideration here, it ought to be possible to characterize that structure in turn as one made available by universal grammar. For this claim mixed binary and ternary and especially actual ternary meters are particularly interesting, since most current theories of metrical phonology treat ternary metrical structures as highly restricted. There is only one language, the Bolivian language Cayuvava (Levin 1985, Key 1961), which is currently known to have stress fall regularly at ternary intervals; and rather few, including English (Hayes 1981), Finnish and Estonian (Carlson 1978, Prince 1980), the Chugach dialect of Aluutiq (Rice 1987, Leer 1985), Winnebago (Hale and White Eagle 1980, Miner 1979), and the Australian languages Mantjiltjara, Walmatjari and Kitja (Davis 1985, Marsh 1969) in which ternary feet are known to mix regularly with binary ones. These systems have been accommodated with only limited success within theories of metrical phonology,

and many continue to be the subject of considerable debate. But if the theory of poetics considered here is correct the meters making significant use of ternary feet should have properties in common with these metrical systems of natural language.

The second metrical practice which will be discussed here concerns the experiments with quantitative verse in English that flourished in the Renaissance. Most modern English verse is of course based on stress, but there also seems always to have been some continuing interest in the possibility of verse based on quantity; and for a brief time in the late sixteenth century that possibility occupied the attention of virtually every major poet. Yet no sustained tradition evolved from those attempts. This lack of success is generally attributed to the salience of stress in English, which is held to have confused the classification of syllables according to their weight on which the verse depends and led it to be based on arbitrary choices, precedent, and spelling. Indeed, the most thoroughgoing and sympathetic study of this verse (Attridge 1974) takes the fact that verse which is unnatural in these ways could nonetheless have been practiced and admired by some of the best poets of the time as a testimony to the strength of the influence of Renaissance cultural ideals of artifice, scholarship and the pre-eminence of written over spoken language – a direct challenge to the linguistic approach to poetic forms sketched above.

Here I will argue that the key to both of these puzzling metrical practices lies in the phenomenon of *resolution*, which will be shown to belong to the phonology of natural languages. Roughly, resolution is the equivalence of a heavy syllable and a sequence consisting of a light stressed syllable followed by another syllable. Some such equivalence is already known to play a role in Classical Greek and Latin metrics, in Old English metrics, and in the English iambic pentameter. It is also known to play a role in the phonology of Latin and Old English, though just how is a subject of current study. In addition it seems to play a role in Finnish in both phonology and metrics. Here I will try to refine our understanding of the role it plays in the phonology of Old English and Finnish. I will then show that that understanding can shed light on the properties of the mixed binary and ternary stress-based meters in Finnish and, perhaps more surprisingly, on both the mixed binary and ternary stress-based meters and the quantitative experiments in modern English, a language

in which resolution does not play any obvious role in the phonology.

Chapter 2

Background Assumptions

Any question of metrics can be taken to be a question of matchings between the metrical structure of the actual language constituting verse and an abstract metrical pattern. Hence preliminaries are required regarding the nature of the metrical structure of language in general and of the particular languages of the verse to be explored, the nature of metrical patterns, and the nature of the relationship between these.

2.1 The Theory of Metrical Phonology

The assumptions about metrical phonology that I will make are for the most part drawn from Hayes (1991), a work which brings together and builds on much of the work which has been done in that area since the original proposals of Liberman (1975) and Liberman and Prince (1977). Although the proposals presented by Hayes are by no means the only ones current or plausible, they are for the most part adequate to the task of capturing the generalizations to be discussed, and are favored beyond that by their sheer comprehensiveness and widespread familiarity. My main departure from them will be in retaining an older tree-based formalism for the representation of metrical structure above the level of the syllable, instead of adopting the newer grid-based formalism Hayes uses, for reasons to be discussed further below. I should note at the outset that this choice will not be without theoretical consequences.

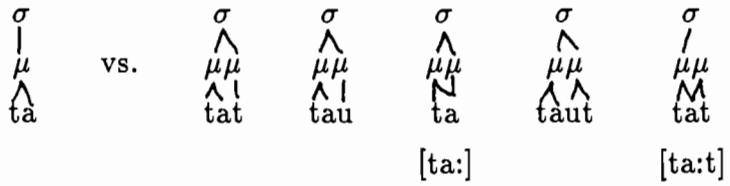
The theory of metrical phonology takes stress to be the linguistic manifestation

of a rhythmic structure which organizes the phonology (Hayes 1991, p. 1). The basic unit of that rhythmic structure is the syllable, which functions like a rhythmic beat. Within the rhythmic structure, the beats are organized hierarchically into groups, with there being one strongest beat for any group. The syllables functioning like strong beats are interpreted as stressed, with that which is strong in the largest group being interepreted as bearing primary stress. Particulars of this rhythmic structure of course vary from language to language, and in some cases depend on the internal structure of the language's syllables. Here I will summarize relevant portions of the theory of the possible internal structure of syllables, and then those of the theory of the possible structures into which syllables may be organized.

The principal aspect of syllable structure which is metrically relevant is syllable weight. Many languages make a phonological distinction between light syllables and heavy syllables, and some a further distinction between these and superheavy syllables, though they differ in exactly what constitutes a light, heavy, or superheavy syllable. This is captured in the idea that the constituents of syllables (σ) are moras (μ), with a light syllable containing one mora while a heavy syllable contains two. Minimally a syllable consists of one mora which is its head; this contains as its head in turn the sonority peak of the syllable, together with any onset segments there may be. If the syllable is light, any segments following the peak will also belong to that same mora. But if the syllable is heavy, any segments following the peak will belong to a second mora, containing as its head the segment which makes the syllable heavy, together with any other coda segments there may be.

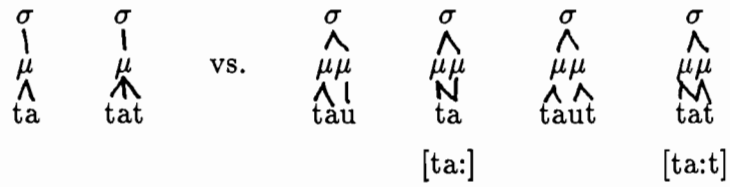
For example, in one common pattern shared by all the languages to be considered here, open syllables with short vowels are light while closed syllables with short vowels and syllables with long vowels or diphthongs are heavy. The former will contain only the head mora, while the latter will contain that plus an additional mora, linked to the final consonant or vowel or, in the case of long vowels, the same vowel which heads the syllable:

(1) Open syllables with short vowels light; all others heavy:



This contrasts with another common pattern which we will also find playing a limited role in the languages and verse considered here, in which syllables with short vowels are light whether they are open or closed, while syllables with long vowels or diphthongs are heavy. In this case only the latter type will contain an additional mora linked to the vowel; the former will both have one mora only, with any segment closing the syllable linked to that mora:

(2) All syllables with short vowels light; syllables with long vowels heavy:



It will be important for our purposes to note that while there are languages of the two types just described, there are almost[1] no languages in which syllables with long vowels or diphthongs are light while closed syllables with short vowels are heavy. On the theory of Zec (1988), this follows from language-particular choices of which segments can head a mora ('moraic segments') and of which can head a syllable ('syllabic segments') in the structures proposed above being constrained by a universal sonority hierarchy. Roughly speaking, low vowels are the most sonorous segments, then high vowels (the same segments as are described as glides when they are not syllabic), then liquids, then nasals, and finally obstruents. The head of a syllable is always the most sonorant segment in it; other segments must fall in descending

[1]Dutch may be a rare example of a language in which closed syllables with short vowels are heavy while open syllables with long vowels are light (Lahiri and Koreman 1988).

sonority from the peak. This can be accounted for by the assumption that each language defines from the top of the sonority hierarchy down a continuous subset of segments which are syllabic, and a subset in which that one is included of those that are moraic. For example, segments in English might be classified as follows:

(3)

most sonorous	vowels	syllabic	
↑	liquids	in	moraic
↕	nasals	English	in
least sonorous	obstruents		English

It follows that in a given language a segment can only be moraic if all more sonorous segments are likewise moraic; thus a consonant following the sonority peak of a syllable can make a syllable heavy only if a vowel also would. Given this approach, within a language syllable weight is an absolute property: a syllable closed with a given segment will be either heavy or light. But across languages there is also a sense in which syllable weight is gradient: a syllable closed with a more sonorous segment is heavier than one closed with a less sonorous one, in the sense that universally the former is more likely to be classified as heavy by a given language. We will see that this gradient weight seems to play a role in metrical preferences.

Syllables are themselves grouped into feet (ϕ), each of which has exactly one syllable as its head. A syllable which heads a foot is interpreted as stressed. Feet may in turn be grouped into higher-level constituents, each likewise having a unique head. The most important of these higher-level constituents is the prosodic word (λ), whose head determines which syllable will be interpreted as bearing primary stress.

Hayes represents this structure by means of a bracketed grid. Each syllable defines a column of the grid, indicated minimally by a dot. Brackets define the groupings of the syllables into feet, and a mark on the grid ('x') defines the head of each foot:

(4)

	x	.	x	.
	σ	σ	σ	σ
	|	|	|	|
	μ	μ	μ	μ
	(ta	ta)	(ta	ta)

Higher-level constituents are likewise defined by brackets, and the head is indicated by an additional mark on one column.

(5)

	x			
	x	.	x	.
	σ	σ	σ	σ
	μ	μ	μ	μ
((ta	ta)$_\phi$	(ta	ta)$_\phi$)$_\lambda$	

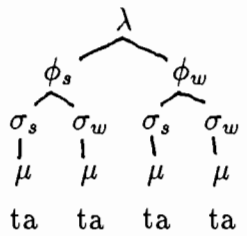
A constraint that the only column eligible to receive an additional mark is one which already has a grid-mark encodes a generalization that the head of any such higher-level constituent will always be the head of a lower-level constituent:

(6) Continuous Column Constraint:

> A grid containing a column with a mark on layer *n+1* and no mark on layer *n* is ill-formed. Phonological rules are blocked when they would create such a configuration.

It is with respect to this formalism that I will diverge from Hayes, encoding (with one exception to be discussed below) the same relations in trees rather than grids, as follows:

(7)



In very general terms, what has been at issue in the debate about the two formalisms is whether trees encode too much information, particularly about degrees of metrical strength, while grids encode too little, particularly about constituent structure. The formalism of bracketed grids described above represents a kind of a compromise, in which grids represent the degrees of stress but are supplemented with information

about constituency; and for the most part this means that whatever can be expressed in trees can be translated into bracketed grids. But there seems to be one kind of information relevant to the metrical analysis which follows of which this is not true: trees can encode strength relations between metrical constituents above the level of the foot, while bracketed grids as Hayes constructs them encode only strength relations between syllables, even though those may of course be the consequence of constituency at higher levels. No linguistic argument is given in support of this property of bracketed grids, and there seems to be a metrical argument against it.

Briefly, we will consider below a metrical rule that excludes the first syllable of a word like *cónflict* from a weak position of a meter while allowing an entire word like *level* or *man* there. Now in the next section we will see that metrical rules generally take the form of excluding from a weak position of a meter some constituent which is strong in virtue of having a weaker neighbor within some specified domain. On bracketed grid notation, no matter what the domain under consideration, the only kind of constituent that can be described as having a weaker neighbor or being a weaker neighbor is a syllable, since metrical strength is defined by grid column height, and what each grid column is associated with is the syllable. This reflects the fact that when higher-level constituents are created, it is syllables and their associated grid columns which are assigned directly to be the heads of those constituents. But it is not syllables which seem to be the relevant weak neighbors in the case of this metrical rule, but feet. Consider a plausible representation in bracketed grid notation of the words in question:[2]

(8)

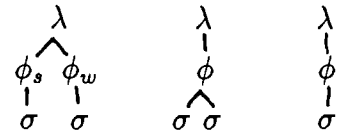
x	x	x
x x	x .	x
$((\text{con})_\phi(\text{flict})_\phi)_\lambda$	$((\text{level})_\phi)_\lambda$	$((\text{man})_\phi)_\lambda$

The excluded syllable of *conflict* has a weak neighbor within the word, but that cannot distinguish it from the allowed first syllable of *level* which likewise has a weak neighbor within the word in consequence of having one in the foot. The excluded syllable of *conflict* also has the property that it constitutes an entire foot, but that

[2]Some background to these representations will be given in section 2.2.

cannot distinguish it from the allowed syllable of *man*, which likewise constitutes a foot. The relevant property that does distinguish it, it will be proposed, is that the foot it constitutes is strong relative to another weaker foot in the same word, while the feet of *level* and *man* do not have this property, being the only feet in their respective words. The metrical rule should thus exclude from a weak position a foot which is strong relative to a weak neighboring foot within the word. But it is not readily apparent how such a foot can be identified within the grid formalism, since metrical strength there is not a property of feet, but rather of syllables. In contrast, if we examine conventional tree-based representations of these words we can see that the relevant distinction is readily available:

(9)



conflict level man

The first syllable of *conflict* constitutes a foot with a weak sister while *level* and *man* constitute non-branching feet.

Henceforth, therefore, I will represent the constituency Hayes represents through bracketing through trees; and I will represent the heads he represents through grid-marks through the standard assumptions that if a tree branches exactly one branch must be labelled S(trong) and the others W(eak), and that the head of a constituent is defined as the strong or only branch of that constituent. At the level of the foot, the relations thereby encoded will be exactly the same as those posited by Hayes. At levels above that, they will differ in that such a constituent will, like the syllable which has as its head a mora and the foot which has as its head a syllable, have as its head one of its own constituents, and not a constituent one or more levels down.

It is worth noting that this formal choice may also make available a more straightforward definition of poetic meter. Moras, syllables, feet and prosodic words seem to be exactly the elements of linguistic structure which are relevant to meter. On the assumption adopted here that these form a formally unified metrical hierarchy, meter can be defined as a type of poetic structure based on the metrical structure of

language. In contrast, Hayes refers to moras, syllables, feet and prosodic word-level constituents as constituting a prosodic hierarchy; but his representation of the first two elements of this is formally different from that of the latter two, with the former represented by trees and the latter by grids, and only the latter referred to as constituting metrical structure. It is thus less obvious which of these structures poetic meter should be related to.

A final comment is in order regarding some formal differences from Hayes' claims that this choice necessitates. On bracketed grid theory the Continuous Column Constraint ensures that a syllable which is the head of a higher-level constituent will also be the head of any lower- level constituents. What serves essentially the same function in the tree-based theory used here is the interaction of the assumptions that metrical constituents form a hierarchy, that a constituent at a given level has as its constituents elements at the next level down in the hierarchy, and that each constituent has a head.[3] The idea that it will always be a syllable that is interpreted as bearing stress even when that results from relations between higher-level constituents is conventionally supplied by the notion of the Designated Terminal Element, the syllable which concludes an unbroken line of headship from the highest-level constituent down, such as the initial syllable in (7). More formally, we can define an indirect head as follows, and define the Designated Terminal Element as the indirect head of the word or other higher-level constituent.

(10) Indirect head: A constituent α is an indirect head of a constituent γ if it is the head of γ or if α is the head of β and β is the head, direct or indirect, of γ.

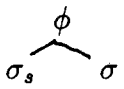
With these changes to the formalism, we can return to Hayes' most central claims regarding the limited ways in which languages may vary in the particular rhythmic structures they create. Most important, there are three different types of feet into which syllables may be grouped. Hayes proposes that languages may form either feet which are insensitive to the quantity of the syllables in them, or feet in which the quantity of the syllables in them is regulated. Quantity-insensitive feet always take

[3]Although tree-based theories making claims about syllable structure other than those adopted here make these assumptions about word and feet only, the difference is not relevant here.

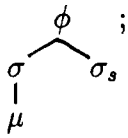
the form of syllabic trochees, in which any two successive syllables form a trochaic foot. Quantity-sensitive feet may be either iambs, in which two successive syllables form an iambic foot if the first is light, and otherwise a heavy syllable forms a foot on its own, or moraic trochees, in which two successive syllables form a trochaic foot if both are light, and otherwise a heavy syllable forms a foot on its own. Translated into tree notation these foot types are as follows:

(11) Foot typology:

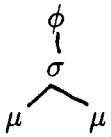
a. Syllabic trochee:



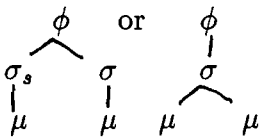
b. Iamb:



; otherwise



c. Moraic trochee:



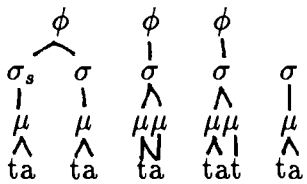
or

This inventory of possible foot types in language is as Hayes notes strangely asymmetric, in that it excludes such logical possibilities as quantity-insensitive iambs, in which any two syllables would form an iambic foot regardless of their weight, or a type of quantity-sensitive trochee in which two syllables could form a trochaic foot only if the second were light. But such groupings simply do not normally occur in language, and Hayes (1987) suggests that this may reflect a general principle in the psychology of rhythm whereby iambic rhythms are associated with uneven duration, with longer elements occurring last, and trochaic rhythms are associated with even duration. If syllable quantity is taken to provide the linguistic equivalent of duration contrasts the asymmetry can be taken to reflect these rhythmic preferences.

Beyond differences in foot type, languages may differ in whether the organization of syllables into feet is initiated at the left or the right edge. In either case, an important constraint on these rules of foot construction is that all the constituents of a syllable must be assigned to the same foot; moraic trochees can thus be seen

as forming regular bimoraic feet subject to this condition. A sample left-to-right parsing into moraic trochees, the foot type that will be most important in what follows, is illustrated below. Note that the rightmost syllable does not make up a moraic trochee since it is neither heavy nor followed by another monomoraic syllable. This phenomenon will be taken up below.

(12)



Languages will also differ as a result of the effects of the End Rule, which designates the head of the prosodic word. On Hayes' theory, the End Rule creates a new metrical constituent at the top of the existing structure and places a grid mark forming the head of the new constituent in the rightmost/leftmost available position. Hayes tentatively allows that metrical structure may be created either from the bottom up or from the top down, that is, with the End Rule either following or preceding foot construction, so long as the Continuous Column Constraint is satisfied; and this possibility will be important to what follows. On tree notation, however, the effect of the End Rule is standardly assumed to be to group feet at either the right edge or the left edge, designating one as the head, and so to to allow for the possibility that metrical structure is created from the top down is trickier. I will assume following a suggestion of Kiparsky (p.c.) that in fact the rules of foot and word construction are not ordered at all, and instead take the form of simultaneous conditions on metrical structures. On that view, the End Rule could take the form of requiring that the rightmost/leftmost specified metrical constituent must head the word, as follows:

(13) End Rule (Left/Right): The leftmost/rightmost metrical constituent (mora, syllable, foot) is the head of the prosodic word.

Languages may also treat certain peripheral constituents as extrametrical, which means that rules may act as if those constituents were not present, and that somewhat anomalous phenomena may occur at the edges of various constituents. Extrametricality will be indicated by enclosing extrametrical constituents in angled brackets

(⟨ ⟩). Although there is debate about the exact nature of extrametricality and about certain of its properties, on all accounts it has the following two properties which will be relevant to what follows:

(14) Extrametricality:

- Only constituents (e.g. segment, mora, syllable, foot, phonological word) are extrametrical.
- Only constituents at edges (left or right) of domains are extrametrical.

It should also be noted that a failure of constituents to be extrametrical where that might otherwise be expected seems to be one of several strategies languages use to avoid disfavored or illicit structures (Hayes 1991).

Languages may also have rules which change as well as construct metrical structure. Important among these are rules of stress shift, and rules of destressing. The former principally arise as resolutions of stress clash, or adjacent stress.

Finally, languages may differ in whether they permit the construction of degenerate feet. Each of the foot types above requires a minimal amount of structure for its construction: a moraic trochee, for example, requires two moras. Moreover, these must occur in the form of either one heavy syllable or two light ones in succession. Thus sometimes the the configuration of syllables in a string will not make appropriate material available for a foot to be constructed. In example (12) above, for example, the left-to-right parsing into moraic trochees leaves at the right edge a single light syllable, less than the minimal requirement for a moraic trochee. For a language to permit the construction of degenerate feet is to allow it in such cases to construct a foot anyway over what it can: a degenerate moraic trochee, for example, would consist in a single monomoraic syllable. Hayes proposes that languages either have a strong prohibition on such constructions, absolutely disallowing them, or a weak prohibition on them, allowing them just in case they head a constituent at a higher level. In the latter case, degenerate feet would be permitted to be constructed, but eliminated at some stage after the application of the End Rule if they fail to receive stress by that rule.

This is a controversial aspect of the theory, and it has been proposed that the possibility of degenerate feet should be eliminated entirely (Kager 1989). However, the controversy need not be gone into here, because Hayes' weaker proposal is buttressed by a claim which suggests that the strong prohibition should in any case be adopted for purposes of analyzing the languages which will figure here. Many languages, but not all, require that a word be of a certain minimum size. Hayes notes that in languages with syllabic trochees as their feet it is monosyllabic words that are excluded, and in languages with moraic trochees or iambs as their feet it is monomoraic words that are excluded; that is, in both cases it is a word which constitutes a degenerate foot which is excluded. He proposes therefore that language-particular minimal word requirements can be derived from a universal requirement that a word have metrical structure[4] together with the two options available regarding degenerate feet: if a language absolutely disallows degenerate feet, it will appear to have a minimal word requirement, since the minimal unit of metrical structure, the foot, will be unable to be constructed on strings that can't be parsed by proper feet. If a language permits degenerate feet, in contrast, any syllable will be able to be parsed as a foot, and no minimal word requirement will arise from this source. The correlation is not absolute since a language might have a minimal word requirement independent of foot structure requirements, but it is sufficiently strong that it is reasonable to assume that a language with a minimal word requirement disallows degenerate feet, unless there is evidence to the contrary. Thus I will assume the following adaptation of Hayes' strong prohibition on degenerate feet:

(15) Degenerate Foot Parameter:

> If a language disallows degenerate feet, it will exhibit a minimal prosodic word constraint; if a language exhibits a minimal prosodic word constraint, it disallows degenerate feet in the general case.

Since all of the languages which will be considered here—Finnish, Old English and

[4]The constraint that a word have metrical structure must here become an explicit constraint that it have foot structure, since Hayes' restriction of the term 'metrical' to structure at the foot level and above has not been adopted.

modern English—have minimal word requirements, they will all be assumed to be languages which disallow degenerate feet.

Where a syllable is not incorporated into a foot, Hayes leaves open the possibility that it may always remain stray, in contrast to most earlier theories that assume that stray syllables will be adjoined as weak daughters of adjacent feet. While this strong view need not be adopted here, it will be necessary to assume that if there is stray syllable adjunction, it will not yet have taken place at the point where certain rules to be discussed below apply.

A final theoretical assumption I will make is that phonological rules are organized into sets applying at certain morphological and syntactic stages, as in the model of lexical phonology (Kiparsky 1982, Pesetsky 1979). The most important distinction is between lexical rules, which affect the structure of individual words, and post-lexical rules, which affect the structure of syntactic combinations larger than the word. There may also be distinctions within these components; in English, for example, it will be assumed that there are two distinct sets of lexical rules, applying at two different morphological stages.

What count as words in the sense that they undergo the lexical rules are roughly open-class content words like nouns, verbs and adjectives, here referred to as 'lexical words', in contrast to closed-class grammatical or function words like prepositions, conjunctions, and complementizers, here referred to as 'non-lexical words'. The minimal word constraints just discussed provide an example of this distinction: in the languages to be considered here, the requirement that a word contain a foot can be seen to be a requirement within the lexical phonology, in that lexical words must bear stress, and consequently be of sufficient size to license a foot, while non-lexical words need not.

I will also assume with Hayes that the constituents relevant to post-lexical metrical phonology form a prosodic hierarchy. Post-lexical prosodic constituency is derived from but not identical to syntactic structure. Although the internal composition of those constituents will thus be quite different from language to language, the constituents themselves will normally be groupings of words into phonological phrases, and of those phrases into intonational phrases.

2.2 English Metrical Phonology

English metrical phonology is riddled with exceptions and unsolved problems, and in some respects proves difficult to analyze on the assumptions outlined above. It is not my intention here, therefore, to give any sort of complete account of English metrical phonology, but only to describe the properties that will be relevant to the discussion of meter which follows and to give sufficient suggestion as to how they might be accounted for within the theory sketched above that the representations of them will not appear entirely arbitrary. The discussion will be drawn mainly from Hayes (1982) and Kager (1989).

English makes a distinction between short and long vowels, with those in the words in (16)a being short and those in (16)b being long or diphthongal (adapted from Liberman and Prince (1977), Chomsky and Halle (1968)):[5]

(16) a. Short vowels:

pit /ɪ/, pet /ɛ/, pat /æ/, put /ʊ/, putt /ʌ/, pot /ɒ/

b. Long vowels and diphthongs:

obscene /i/, vane /e/, balm /ɑ/, pawn /ɔ/, vote /o/, moon /u/,

divine /ɑɪ/, pounce /ɑʊ/, point /ɔɪ/

It is a quantity-sensitive language, though by no means in a straightforward way. With respect to two important metrical phenomena, open syllables with short vowels are light while closed syllables and syllables with long vowels or diphthongs are heavy. First, this is manifest in a minimal prosodic word constraint: English has monosyllabic lexical words consisting of syllables with long vowels and of closed syllables with short vowels as in (17)a and b, but none consisting of open syllables with short vowels as

[5]This classification differs from that in Liberman and Prince (1977) but resembles that of Chomsky and Halle (1968) in treating the vowels of the second syllables of words like *impudent* and *Bermuda* as just those of *put* and *moon*, respectively, but with glides in the onsets preceding them, that is, as /jʊ/ and /ju/. The vowels in these words are perplexing in that their quality seems the same, yet the stress patterns of the two words suggest that the vowel is short in *impudent* but long in *Bermuda*. Where stress does not provide evidence one way or the other I will treat the length of such vowels as undetermined.

in (17)c, although it does have non-lexical words which may be of that type, such as *a* and *the*:

(17) English minimal word constraint:

a. tea /ti/ b. tip /tɪp/ c. *ti /tɪ/

Second, this quantity-sensitivity is manifest in stress placement at the right edge of words. If final consonants are ignored, it can be seen that in verbs (and also underived adjectives) stress falls on the last syllable if it is heavy according to these criteria and otherwise on the second-to-last syllable:

(18) Latin stress rule in verbs:

a. devélop, astónish, embárrass

b. appéar, allów, eráse

c. torménт, usúrp, collápse

In nouns, if final syllables are ignored (and in derived adjectives if final suffixes are), the same pattern can be seen:

(19) Latin stress rule in nouns:

a. América, génesis, metrópolis, aspáragus, lábyrinth

b. horízon, aréna, Minnesóta, hiátus

c. ellípsis, agénda, synópsis, veránda

In addition, in long words with all light syllables, stress falls on every other syllable to the left of this stress, with the rightmost of the stressed syllables discussed so far bearing the primary stress:

(20) Àppalàchicóla

Within the theory outlined above, these patterns can be accounted for by the following rules. Final consonants are extrametrical in general; final syllables are extrametrical in nouns, although there are a considerable number of exceptions to that; and certain final suffixes are extrametrical in adjectives. English feet are moraic trochees, assigned from right to left. The rightmost foot bears the primary word stress. Finally, degenerate feet are absolutely disallowed.

These rules belong to the earliest of English's two sets of rules of the lexical phonology, Level I. Level II affixes such as *-able*, *-ness* and *-ed* are added after the assignment of stress and do not affect it. More important, these rules always assign stress to lexical words but not to non-lexical words, as will be discussed further below. The particular way in which they succeed in assigning stress to lexical monosyllables with short vowels and single final consonants involves the kind of exception to extrametricality discussed above: the final consonant will be unable to be extrametrical in the usual way since together with the prohibition on degenerate feet such extrametricality would prevent any foot at all from being assigned to such a word.

The foregoing generalizations represent a considerable oversimplification; and some of the complications which arise, particularly some pertaining to syllable quantity, will be relevant to what follows. First, even in nouns final syllables containing long vowels are always stressed as in (21)a, while closed syllables, which consistently pattern with syllables with long vowels for the purposes of the above rules, often are not, as in (21)b. Hayes (1982) accounts for this with a rule which foots final syllables containing long vowels before final syllables become extrametrical.

(21) Final long vowel stressing:

a. húrricàne, ártichòke, tíràde, mángròve

b. élephant, órchard, hónest

Similarly in long words containing syllables other than light ones, medial syllables with short vowels closed by sonorants are generally unstressed, even though if feet are moraic trochees and closed syllables are heavy they would be expected to be stressed; Hayes (1982) deals with this through a rule of sonorant destressing that

deletes a medial foot consisting solely of a syllable with a short vowel closed by a sonorant. [6]

(22) Sonorant destressing:

a. cóncentràte, éxercìse

b. sáturnìne

Now Kager (1989) notes that the patterns in both (21) and (22) suggest that not one but two classifications of syllable weight obtain in English, since closed syllables with short vowels are treated as heavy with respect to word minima and the Latin stress rule, but seem to be allowed in configurations normally restricted to light syllables under the rules responsible for these patterns. His proposal is very roughly that heavy syllables of both kinds actually initially receive stress in the case of the final syllables in (21) and the medial syllables in (22), but closed syllables with short vowels are then destressed, subject to various conditions. The actual formulation of the rule raises major theoretical issues and will not be gone into here; the important point is that English exhibits some ambivalence regarding the weight of closed syllables with short vowels.

Moreoever, the possibility that in nouns final syllables which are closed but have short vowels could be stressed at one stage and destressed later has implications for the metrical analysis to follow. We will see in Chapter 5 that the final syllable of a word like *Margaret* can occur in metrical positions normally occupied only by stressed syllables. Now Ross (1972) observes that even when final syllables with short vowels are closed with just single consonants, those syllables are sometimes obligatorily stressed, depending on what the final consonants are. If the consonant is a non-dental obstruent the syllable will always be stressed, as in (23):

(23) hándicàp, shíshkabòb, scálawàg, Jáckendòff, bóomeràng

The only exception to that generalization is that in disyllabic words, if the initial syllable is stressed and light, the final syllable may be unstressed even if it is closed

[6]Note that such a rule is inadequate here since on our assumptions about degenerate feet there wouldn't be expected to be a foot on the initial syllable of a word like that in (22)b.

with one of the consonants normally patterning as in (23), producing such contrasts as between the words in (24)a and those in (24)b:

(24) a. Áhàb, kópèk, Smírnoff

b. Árab, stómach, shériff

If the final consonants are dentals or sonorants, in contrast, whether the final syllable is stressed or not is subject to lexical variation, as shown by the contrasts between the words in (25)a and those in (25):

(25) a. sámovàr, ámazòn, átòll, blúnderbùss, ópsimàth, Éndicòtt, dáffodìl

b. vínegar, cínnamon, sýmbol, sýllabus, Elízabèth, cháriot, códicil

Ross' proposal, reflected in that of Kager, is that stress is always assigned to final syllables ending in the consonants in (23), but deleted by rule (the 'Arab rule') if the conditions characterizing the words in (24)b are met. For final syllables ending in the consonants in (25) he suggests simply that stress is lexically determined.

In light of the fact that the last syllable of a word like *Margaret* appears to pattern with stressed syllables, however, it is worth considering the possibility that the assignment of stress to final closed syllables and its subsequent deletion could be more general, with all heavy final syllables of nouns being assigned stress by rule, and that not only in the words in (24)b but also in those in (25b deleted by rule. One difficulty, of course, would be how to maintain the stress on the final syllable of the words in (23)a, if stress were deleted by rule in final syllables closed by dentals and sonorants even without the conditions of the Arab rule being met. One possibility suggested by Paul Kiparsky (p.c.) is that exactly those words that retain final stress have it underlyingly, with underlying stress being invulnerable to deletion rules because of the Strict Cycle Condition, which restricts the application of rules to derived environments. The problem is a difficult one whose solution is beyond the scope of this dissertation, but the idea that there is stress on all closed final syllables of nouns at some stage will be assumed to be not implausible.

A second complication in the role of syllable quantity in English which will be important in what follows is that the quantity of syllables may change if they are

stressed. Although as described above open syllables with short vowels are certainly treated as light by the principal rules of initial stress assignment, there is evidence that if they are stressed by those rules, they may under certain conditions become heavy through processes of resyllabification.

Myers (1987), Gussenhoven (1986), Hoard (1971) and Borowsky (1986) all provide abundant evidence that the onset of a stressless syllable will be resyllabified into the coda of a preceding stressed light syllable. One example is that for a /t/ in American English to be pronounced as a flap it must be not only intervocalic but also syllable-final, as shown by the possibility of a flap in the configurations in (26)a but not those in (26)b:

(26) a. (i) a[ɾ] a Macy's near you
(ii) ge[ɾ] a map
(iii) a[ɾ] Anne's

b. (i) a [t]omato
(ii) a [t]omahawk

This distribution suggests that within words, the possibility of a flap in (27)a means that the /t/ is actually syllable-final there:

(27) a. a[ɾ]om b. a[t]omic c. ro[t]ate d. main[t]ain

Similarly, for an /h/ to be silent it must be syllable-final: the initial *h* is pronounced in (28)a and b, but there are no English syllables pronounced as shown in c:

(28) a. Helen [h] b. Heléna [h] c. *[roh], *[kih], etc.

The possibility of the silence of the /h/ in the words in (29)a in contrast to the obligatory pronunciation of the /h/ in their counterparts in (29)b thus points again to the /h/ being in the coda of the stressed syllables in (29)a:

(29) a. (i) vé[Ø]icle (ii) prò[Ø]ibítion
b. (i) ve[h]ícular (ii) pro[h]íbit

At the same time, however, as noted above, considerations of stress assignment suggest that syllables of the type in (27)a and (29)a are open. The apparent contradiction is accounted for on the assumption that English has a rule of resyllabification, which has the effect depicted informally in (30):[7]

(30) Resyllabification (Adapted from Myers 1984):

$$\acute{V}]_{\sigma}C\overset{x}{V} \rightarrow \acute{V}C]_{\sigma}\overset{x}{V}$$

Now Myers gives an argument that relates such resyllabification explicitly to a change in syllable weight, and locates it at a very early phonological stage. He argues that a variety of vowel shortening rules can be seen to involve a single process if it is assumed that such resyllabification is present at the earliest level of the lexical phonology. When consonant-initial suffixes at Level I are added to words ending in consonants, any long vowels in the final syllables of those words are shortened, producing alternations such as those in (31):

(31) Closed Syllable Shortening:

a. keep/kept, leave/left, deal/dealt, dream/dreamt, mean/meant

b. heal/health, wide/width, deep/depth

c. perceive/perceptive, prescribe/prescriptive, induce/inductive

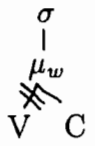
This shortening, he argues, is a reflex of the syllables' becoming closed. He observes that with very few exceptions (such as the first syllable of *angel*) English lacks

[7]On the analysis of Gussenhoven (1986), the resyllabification conditioning flapping also allows an unstressed coda-less syllable to be closed by an onset consonant from a following stressless syllable; the argument for this is that flapping may affect the *t* in a word like *laity* as well as the one in a word like *lateral*. This is somewhat problematic because as we will see, in certain verse stressed syllables closed by resyllabification are treated as heavy, but unstressed ones never are. However, flapping is a post-lexical rule, and there is therefore no necessary reason to suppose that unstressed syllables are already affected by resyllabification at the stage on which the verse in question is based.

underived syllables which both contain long vowels and are closed.[8] This suggests that underlyingly the maximum syllable structure in English is CVX; or, in the formalism used here, that underlyingly weak moras do not branch.

Now before the addition of the suffix, the final consonant in each original word in (31) is extrametrical. After the addition of the suffix, that consonant is no longer peripheral and therefore no longer extrametrical, and must be syllabified. But it cannot become part of an onset of the syllable following it; in (31)a and b there is no such syllable, and in (31)c the result would violate constraints on possible onset clusters in English, not to mention the fact that the relevant syllable is itself extrametrical at that point. Its only option is therefore to become a coda to the preceding syllable. But that syllable, since it contains a long vowel, already realizes the maximum structure for an English syllable. It can only accommodate the addition of a coda by creating some space, as it were; and it accomplishes this by shortening the vowel. Formally, this consists in a well-known rule of Closed Syllable Shortening, formalized here as the delinking of vowel segments from weak moras in closed syllables:

(32) Closed Syllable Shortening:



Now shortening also occurs in the following cases in which the suffix is not consonant-initial:

(33) Trisyllabic shortening:

a. sincere/sincerity, saline/salinity, profane/profanity, chaste/chastity

b. derive/derivative, compete/competitive, provoke/provocative

c. type/typify, code/codify, clear/clarify

[8] He notes that since final consonants are extrametrical in English words like *keep* and *bait* are in conformity with this description. However, it should be noted that this explanation is somewhat incompatible with the idea mentioned above that the stress patterns of words like those in (23) could derive from stress being assigned to final closed syllables—if final consonants are extrametrical, those syllables are not in fact closed for purposes of the stress rule.

(34) Exceptional cases involving shortening but without either the trisyllabic or the closed syllable environment:

cone/conic, satire/satiric, meter/metric

But in each of these cases, the syllable in which the shortening occurs is a stressed one followed by an unstressed one—just the configuration described above as inducing the resyllabification of the onsets of unstressed syllables into codas of the preceding stressed ones. Therefore, if this resyllabification is assumed to take place at this stage, the shortenings in (33) and (34) can be seen to take place for exactly the same reason as those in (31), namely, the affected syllables become closed and the vowels shorten to accommodate this addition of a coda. Thus multiple shortening processes can be unified on the assumption that they are fed by resyllabification.

As Myers observes, this shortening process does not affect Level II suffixation: at that level, long vowels seem to be tolerated in closed syllables:

(35) loud/loudness, deep/deeply, beep/beeped

Therefore, the resyllabification of onsets of stressless syllables into codas of preceding stressed ones must be a Level I process. Thus another ambivalence in English syllable quantity is established at a relatively deep level: open syllables with short vowels are light at the time of the application of the stress rule, but if they are stressed by that rule, they will be rendered heavy by resyllabification if they are followed by a consonant-initial unstressed syllable.

It should be noted that alternations like that in (36)a suggest that vowel shortening and hence resyllabification apply equally in the case of syllables assigned secondary stress, provided that they are followed by unstressed syllables and hence meet the description of resyllabification; if they are followed by stressed syllables, in contrast, as in (36)b, resyllabification will not apply and the vowel of the secondary stressed syllable will remain long.

(36) a. refúte ~ rèfutátion

b. ìdéa

At the same time a handful of words with main stress on a short light syllable and secondary stress on a following heavy one, as in *Hittite* or *satire*, will fail to meet the description of resyllabification, and hence remain light. But such words are rare in English, and in fact are exceptions to the stress rules described above.

One final rule of English phonology suggests that even an open syllable with a short vowel may be heavy if it is stressed. Chomsky and Halle (1968) observe that a stressed vowel before another vowel is always long, even when corresponding forms suggest that the vowel is underlyingly short:

(37) a. váry ~ varíety b. álgebra ~ algebráic

Of course, from the fact that the vowel is phonetically lengthened it doesn't follow that the syllable becomes phonologically heavy, but in light of the foregoing patterns the connection is suggestive.

In any case, taken together with the minimal word constraint for English noted in (17) above, the analysis of the role of resyllabification means that in English, at the level of the output of the lexical phonology, there is a generalization with very few exceptions that if a syllable is stressed, it is heavy. This does not go the other way, however: if a syllable is unstressed, it need not be light. This is true of closed syllables in lexical words in the somewhat ambivalent way discussed above. More important, it is also true of syllables constituting non-lexical words, since non-lexical words do not undergo the rules of the lexical phonology at all.

That non-lexical words do not undergo the rules of the lexical phonology has two consequences that will be relevant here. First, properties relevant to meter such as syllable quantity are diagnosed to a large extent on the basis of rules of lexical stress assignment, and may be different from what would be thought on superficial inspection of properties such as vowel quality; these tests are not available in this case, and quantity is consequently sometimes more difficult to determine. More important, as we will see, the fact that non-lexical words do not undergo lexical assignment of stress allows them to be treated very differently within meter, and it will be important to be clear about which words are indeed non-lexical, as far as possible on independent grounds.

Exactly which categories of words are non-lexical varies from language to language, but in English non-lexical words are uncontroversially taken to include prepositions, auxiliaries, pronouns, determiners, conjunctions and complementizers. Several phonological properties are confined to these categories, providing evidence for the claim that these words do not undergo the rules of the lexical phonology. One such property is that the phoneme /þ/ does not occur initially in lexical words in English: while there are pronouns like *them*, determiners like *the* and conjunctions like *than* there are no nouns, verbs or adjectives of that type. A property more germane to the study here is that among monosyllables only non-lexical words may have reduced vowels: while there are prepositions like *at*, auxiliaries like *was*, pronouns like *him*, determiners like *a* and conjunctions like *and* all able to be realized with [ə] as their only vowel, there are no lexical monosyllables which can be realized with [ə]. A final property is that non-lexical words generally do not bear phrasal stress. Phrasal stress, as will be discussed further below, is normally assigned to the final stressed syllable in a phrase, but unless special circumstances obtain words in these categories do not receive it (Zec and Inkelas 1988):

(38) a. That's the chair Fred sát on (bróke).

b. That's the kind of guy Fréd was (Fred líkes).

c. That's the kind of ring Fred bóught her (bought Súe).

While only non-lexical words have these properties, however, not all non-lexical words have them, and none of them can therefore be taken as a criterial. Obviously not all words in these categories begin with /þ/. More important, not all can have reduced vowels; for example, neither the preposition *through* (*[θrə]) nor the modal *might* (*[mət]) can. Finally, for syntactic reasons not all putative non-lexical words can occur in phrase-final position, so their behavior there cannot necessarily be tested. On the model of lexical phonology and morphology, however, where applicability of phonological rules is a consequence of morphological class and structure, syntactic evidence can also help establish a word's membership in a class which would be expected to not undergo the rules of the lexical phonology. Here, therefore, I will try to motivate a list of non-lexical words sufficiently comprehensive to include the

words which behave in the way expected of non-lexical words on the metrical analysis to follow, by beginning with a list that is generally agreed on, and adding words in question to it if there seems to be some evidence from either phonological or syntactic behavior that would make their non-lexical status plausible.

I will begin with the list of such words given in Selkirk (1984), and make certain modifications resulting in the list in (50). Changes in the categorization of the words according to their phonological properties will be taken up below. As for changes in which words are included, first I have made some additions (shown below a line, to keep which words they are clear) which I take to be uncontroversial. These include a few words whose original omission seems merely inadvertent, such as *have* and *them* and *though*. They also include words clearly belonging to paradigms already included here but confined to poetic dialects of English, such as the old second person singular forms such as *thou* and *art*. I have also made some minor changes in syntactic classification. I have set the *wh-words* classified by Selkirk as pronouns a little apart, since they form a subset of their own and in many cases could equally well have been classified otherwise, for example, as complementizers. More generally, I have always omitted to show duplicate membership in these categories; a word like *since* which could equally well be classified as a preposition or as a conjunction is only listed as one of these. This is motivated by the limitation of the concern here to distinguishing words which may be exempted from the rules of lexical phonology from words which may not, in order to suggest that there is a principled basis for an assumption made in what follows that their metrical behavior follows from their non-lexical status.

Now on the basis of metrical evidence,[9] I would suggest the following further additions, shown in each case under a double line to indicate their somewhat more tentative status. I would propose first that the reflexive pronouns like *myself* should be added, and also *own* in constructions like the following:

[9]The nature of the metrical differences between lexical and non-lexical words will be discussed in chapters 5 and 6; briefly, the two main differences are that for monosyllabic words, only one lexical word would be permitted between two strong metrical positions (marked here with 'S'), and that for disyllabic words, a lexical word would only be permitted between strong positions if it had initial stress on a light syllable.

(39) a. Must I too creep to the hollow and dash myself down and die?
s s

b. Of my owne harte, where thoughts be the temple, sighte is an aultar.
s s

This fits with their syntactic distribution as the forms of pronouns required in certain anaphoric configurations. Numerals might possibly be added; certainly *one* in constructions like the following patterns metrically with non-lexical words, and more generally numerals have the syntactic distribution of determiners:

(40) Come to one mark, as many ways meet in one town.
s s

An entire category of interjections has been added; interjections of course often show non-lexical properties such as permitting segments not normally in the lexical inventory, such as the /ʔ/ in *uh oh.*

Most important, I would add a category of words all traditionally classified as adverbs, a classification which has long served as a repository for a hodge-podge of intractable particles at the same time that it includes patently lexical words such as *patently.* This category would include all adverbs which do not head phrasal projections.[10] These fall into two classes: those like determiners which would be specifiers rather than heads; and those like pronouns which although they constitute entire phrases do not function like heads within those phrases with respect to permitting modification and complementation.

The first class would include words like *so*, *too*, *very*[11] or *enough* which pattern with non-lexical words in lines in which they modify adjectives or adverbs, such as the following:

[10]Paul Kiparsky (p.c.) points out that this syntactic criterion might underlie the distinction between lexical and non-lexical words more generally, with all lexical categories being heads of phrasal projections. Note that it cannot be only lexical categories which are heads of phrasal projections, however, because prepositions are clearly non-lexical by other criteria yet head phrasal projections, and the same is true of auxiliaries on analyses that take them to be verbs.

[11]Although *very* would clearly be expected to fall into this group, because of its phonological shape there is no metrical evidence either way.

(41) Unto the heav'ns? Our wings be <u>too</u> short; th'earth thinks us a burden;
s s

Nor yet fancy <u>so</u> drest, do receive more plausible hearing
s s

So many thousands that if they be bold <u>enough</u> who shall escape?
s s

Among these *too* and *very* do not constitute adverbial phrases on their own as shown in (42)a, but can modify adverbs or adjectives and are most plausibly treated as specifiers within phrases headed by words in those categories as in (42)b:

(42) a. She sang { wonderfully / *too / *very. }

b. She sang { too wonderfully / so wonderfully / very wonderfully / wonderfully enough. }

So and *enough* are a little different in that in addition to acting as specifiers as in (42)b and (41) they are more capable of standing on their own in constructions like those in (42)a; but where they do they are incapable of taking specifiers themselves, and thus fall into the second class of non-lexical adverbs described above.

This second class of non-lexical adverbs includes those which even if they can be taken to constitute phrases do not admit any modification or complementation. This class would include the locatives *here* and *there*, the wh-words *where, when* and *how*, negative particles such as *not* and *never*, the temporal adverbs *yet, then* and *now*, and words like *before* and *behind* when they are functioning in ways traditionally classified as adverbial rather than prepositional:

(43) And high in the heaven above it <u>there</u> flickered a songless lark,
s s

(44) Where a silent ocean always broke on a silent shore,
s

And setting, when Even descended, the very sunset aflame;
s s

But in a palme when I marke, how he doth rise under a burden ,
s s

(45) None can speake of a wound with skill, if he have not a wound felt.
s s

(46) Then I bad them remember my father's death, and we sailed away:
s

While traditionally classified as adverbs, clearly none of these project phrases with the internal structure of canonical adverb phrases such as 'very wonderfully' above. This classification is further supported by the fact that in Finnish, the other language whose metrics will be considered here, the one word which does not conform to the lexical minimal word constraint is an adverb which admits no modification or complementation: *jo* 'already'.

Additional support for the treatment of these as non-lexical comes from several other sources. Some are already included in Selkirk's list, but under categories which don't seem to describe their behavior in the metrical examples—*so* and *too* as determiners, *here* as an auxiliary, or *when* as a pronoun. *There* and *then* begin with the telltale /þ/. *Enough* resists phrasal stress:

(47) a. The suspect is now sufficiently wéak.

b. The suspect is now wéak enough.

The limited distribution of *there* with respect to unaccusative constructions is characteristic of non-lexical words. And the temporal adverbs in (46) all also function as conjunctions, patterning metrically as non-lexical in either case:

(48) If then a boddily evill in a boddily gloze be not hidden,
s s

Sweete Juniper saith this, thoh I burne, yet I burne in a sweete fire
s s

Now the other was brass bold
s s s

Finally, it should be noted that there seems to be some general tendency for special properties which a word may have as a member of one category to be manifest in its use in another category even if members of the latter might not generally be expected to show those properties. This is seen in other domains, for example, in the fact that with respect to subject-verb inversion *be* (and also *have* in British English) will behave as it would when it is an auxiliary even when it is in fact functioning as a main verb. Analogously, whether *be* (or *have*) is functioning as a main verb or as an auxiliary does not seem to be relevant to its metrical behavior; in the line in (49), for example, *is* patterns like a non-lexical word, even though it is the main verb there, taking a complement.

(49) Pine is a maste to a shippe, to my shippe shall hope for a maste serve?
s s

Thus it would not be entirely surprising to find any of the words in (50) pattering with non-lexical words as categories not listed there.

In sum then, in what follows I will assume the following words to be non-lexical:[12]

[12]† Alternatively CVC. ‡ Alternatively CV.

(50) Non-lexical words of English (adapted from Selkirk 1984):

A. Monosyllables	CV	CVC		CVCC	CVV	CVVC
Prepositions:		for	at	since	by	down
		from	of		through	out
		in	with		to†	round
		on	as			like
		till	up			
Conjunctions and		than	and		——	
complementizers:		or	but		though	
		nor	if			
Pronouns:		him	it	its	I	our
		her	us		you†	——
		their	his		she†	thine
		one			he†	═══
		your			we†	
		——			they	own
		them			me†	
		none			my	
					——	
					ye†	
					thee†	
					thou	
					thy	
		when	what		who	whom
					why	whose

	CV	CVC		CVCC	CVV	CVVC
Auxiliaries		am	is	must		
and modals:		are	was	can't		
		were	has	——		
		been	had	hast		
			does	didst		
			did	art‡		
		——	——	wert‡		
		can	have	wilt‡		
		will	doth			
		shall	hath			
		done				
Determiners:	a	an	that			these
	the	some	this			those
			such			each
						both
						all
Interjections:		yes			O	
					Ah	
					lo	
					nay	
					yea	
Adverbs:		where	not		so†	more
		there	yet		too	most
		here			now	
		then				

B. Disyllables					
		$\acute{\sigma}$	σ	σ	$\acute{\sigma}$
	Prepositions:	during	after	among	against
			over	along	behind
			under	across	beyond
				above	towards
				before	about
				within	beneath
					between
					until
					below
					around
					except
	Auxiliaries	having	being		
	and modals:	haven't	hadn't		
		isn't	going		
		couldn't	etc.		
	Pronouns:				myself
					thyself
					⋮
					etc.
	Conjunctions and Complementizers:	whether			because
	Determiners:	any	every		
		many	either		
			neither		
	Adverbs:	never		enough	
		very			

With this list in hand, we are in a position to consider the phonological properties of these words relevant to metrics: their stress and quantity. The above classification of the monosyllabic non-lexical words into syllables with short vowels which are open (CV), closed by single consonants (CVC), or closed by multiple consonants (CVCC), and ones with long vowels are open (CVV) or closed (CVVC) is largely as given in Selkirk (1984). Where I have added words I have relied on the transcriptions of

Kenyon and Knott (1953) to determine the vowel, which together with the classification of vowel lengths in (16) gives the classification here. In a couple of cases I have changed Selkirk's classification in accordance with this procedure: for *your* and *their* Kenyon and Knott give only short vowels (and moreover possible reduced forms, whose significance will be taken up below) so I have changed them from Selkirk's classification as long to short, in spite of their relation to words with long vowels like *they* and possibly *you*; conversely for *all* Kenyon and Knott give the long vowel /ɔ/ (and no possible reduced form), so I have changed it from Selkirk's classification as short to long.

In several cases the proper classification is not at all clear. I have put a double dagger (‡) by words like *and* and *art* which are somewhat ambivalent in that while in their full forms they are closed by two consonants, they have reduced forms in which thier nuclei are syllabic sonorants and so they can be treated as being closed by single consonants. The other words in that column do not have reduced forms. This behavior could related to the patterns discussed above: the cluster closing *art* and *wert* is one that Ross (1972) notes sometimes results in final destressing in the same way that final single dentals and sonorants do; he gives the contrast between *dávenpòrt* and *cómfort*. The cluster closing *wilt*, though not described that way by Ross, seems to be similar: compare *Vánderbilt* and *cátapult*. That closing *and*, however, he describes as resisting destressing, as in *ámpersànd*. In any case, while a satisfying phonological explanation of the fact may be elusive, the fact is that these have reduced forms; and we will see that poets allow them to occupy metrical positions normally restricted to stressless syllables.

I have also put a dagger (†) by several words consisting of open syllables containing high or mid vowels such as *you*, *she* and *so* classified by Selkirk as having long vowels but which also seem to be somewhat ambivalent in that it is unclear whether the vowels are actually long phonologically, or only phonetically. English seems to require lengthening of word-final high or mid vowels, since they are always phonetically long, at the same time that the phonology makes a distinction between long and short vowels of that type. For lexical words, there are phonological processes which can help determine which such a vowel is underlyingly. For example, if it is true that as

discussed above final heavy syllables are stressed in nouns, then the stress contrast between *Máry* and *Marie* will follow from an assumption that only *Marie* contains a phonologically long final vowel, even though both final vowels are phonetically long. Similarly, if it is true that as discussed above stress on the second syllable of a word like *rotate* will block the resyllabification that feeds flapping in a word like *atom* where the second syllable is unstressed, then the possibility of a flap in such words as *Plato* and *Haiti* compared to the impossibility of a flap in such words as *veto* and *emeriti* will follow from an assumption that only the latter two contain phonologically long final vowels, even though those of all four are phonetically long.[13] For non-lexical words, however, it is difficult to find such criteria on which to base a determination of vowel length. But there is a relevant distinction noted by Kenyon and Knott: the words marked with the dagger (e.g. *so*) are actually listed by them as having either short or long vowels, while those not marked with a dagger (e.g. *though*) are listed as having only long ones. The daggers thus indicate that the phonolgical length of these words is in some doubt, and we will see that there is evidence that they are in fact treated as metrically ambiguous by poets demonstrably respectful of English syllable quantity elsewhere.

For a few forms with long vowels which Kenyon and Knott give as occasionally occuring with shorter ones I have indicated the short variants in parentheses, but because they have no reduced forms have not listed them as potentially having short vowels. Implicit in this decision is the assumption that if a vowel can reduce it must be underlyingly short. Irreducibility is generally taken to be a consequence of stress, and this brings us to the second phonological property relevant to metrics. Because these words are non-lexical they do not receive stress according to the lexical stress rules described above. But they do not wholly lack stress, either: Zec and Inkelas (1988) observe that disyllabic non-lexical words have fixed stress patterns just as lexical words do (e.g. *amóng*, not **ámong*). They therefore propose a post-lexical stress rule that builds an obligatorily binary foot on a stressless word, with the right node strong if and only if the syllable that node dominates is heavy; this correctly

[13]The relation of these phenomena to the metrical treatment of these non-lexical words is suggested by Hayes in a letter to Kiparsky (p.c.).

accounts for the stress patterns of most of the disyllabic words in (50).

But their rule never stresses monosyllables. In support of this they note that whether a given non-lexical monosyllable will reduce or not is largely a function of whether it is in a phrasal configuration where it will receive stress—the final word in a phrase generally receives stress, and non-lexical words fail to reduce in that position:

(51) a. What are you looking at (*[ət])?

b. At ([ə]t the wasp on your head.

The problem with this is that in fact all monosyllables with long vowels or multiple final consonants (except those like *and* above, already noted to be exceptional) always fail to reduce, regardless of whether they receive phrasal stress:

(52) a. What are you looking through (*[θrə])?

b. Through (*[θrə]) a glass, darkly.

Now the foot their rule constructs is formally somewhat different from that assumed above to figure in the rest of English word stress: if the feet in lexical words are moraic trochees, it might be expected that those in non-lexical words would be too. It is tantalizing therefore to consider the possibility that the rule in fact constructs a moraic trochee at the right edge of a stressless phonological word, leading to stress not only on final heavy syllables of disyllables, as their rule does, but also on monosyllables just in case they are heavy. But it is unclear how single final consonants could be treated by such a rule. On the original formulation disyllabic words like *among* were correctly assigned stress on their second syllables on the assumption that the final consonant in that syllable made it heavy. But if final consonants in general made syllables with short vowels heavy, and the foot assigned by the rule was a moraic trochee, then all the monosyllables with short vowels and single final consonants would be expected to be stressed and immune to reduction, which they are not. Thus we find again in non-lexical words a certain ambivalence about the weight of closed syllables with short vowels as we noted in lexical words; and in this case too it will be manifest in ambivalent treatment in the metrics. Solving the problem is again

beyond the scope of this dissertation, but I will assume in what follows that ideally an account of the assignment of stress to non-lexical words in English should have stress assigned to all syllables of non-lexical words whose vowels are not reducible, and that except for those marked by daggers as involving complications, that should include those containing long vowels or closed with multiple consonants.

The question of in what configurations non-lexical words will receive stress because of their phrasal position brings us to the last assumption about English metrical phonology necessary for what follows. It was mentioned above that for the purposes of the post-lexical phonology words are assumed to be grouped into larger units forming a prosodic hierarchy, namely phonological phrases, intonational phrases and so forth. The most important of these for what follows will be the phonological phrase, and I will assume phrasing for English according to the proposal of Zec and Inkelas (1988), which maps syntactic phrases into phonological phrases as follows:

(53) Phonological phrase algorithm:

a. From the bottom up, branching nodes are mapped into phonological phrases.

b. No two phonological words on opposite sides of an XP boundary may be phrased together to the exclusion of any material in either XP.

c. A stressless phonological word will be phrased to the right if and only if it is immediately dominated by a branching node; otherwise it will be phrased to the left.

It is generally the final stressed phonological word in such a phrase which becomes the metrical head of the phrase. Compounds require a final note in this regard: like phrases they contain more than one phonological word, but of course they always have initial stress, assigned by a special rule at Level II.

2.3 Metrics

The general approach to metrics I will adopt is that of generative metrics (e.g. Jespersen 1933, Halle and Keyser 1972), which assumes that a meter can be described

through a set of rules which distinguish linguistic structures which are possible instantiations of the meter from ones which are not. (Some metrical phenomena as we will see lend themselves better to being described as a set of tendencies which distinguish linguistic structures which are favored instantiations of the meter from ones that are disfavored (Youmans 1989), but the distinction is not important for the time being.) In either case, the statement of such rules and preferences will take the form proposed in Kiparsky (1977) of a statement of the abstract metrical pattern, a statement of the relevant linguistic properties of the language of the verse, and a set of correspondence rules which establish allowable matchings between the two.

A succession of works in metrics have supported the idea that the metrical patterns of verse have the same formal properties as the metrical structure of language. Following the proposals of Liberman (1975) that language has a metrical structure which can be represented as trees branching into strong and weak nodes, Kiparsky (1977) argues that the metrical patterns of verse should be represented the same way; similarly, following consideration of the extent to which the metrical structure of language should instead be represented by grids, Hayes (1983) argues that the metrical generalizations captured by Kiparsky using trees can be equally well and in some cases better expressed if metrical patterns are likewise assumed to take the form of grids. Since I am here retaining the assumption that the metrical structure of language is represented by trees, the general vocabulary of metrical patterns and rules can remain essentially that proposed by Kiparsky. At the same time, however, advances in the actual theory encoded in that vocabulary from what Kiparsky presupposed, both in phonology as discussed above and in metrics as proposed by Hayes (1989) as will be discussed below, necessitate certain changes. Here I will propose appropriate changes by considering how the proposals of Kiparsky (1977) and then Hayes (1983) deal with a central rule of the English iambic pentameter which will be the necessary starting point for the consideration of other English meters which follows.

The metrical pattern of iambic pentameter is commonly thought of as consisting of five feet, each in turn consisting of an unstressed followed by a stressed syllable:

(54) The cúrfew tólls the knéll of párting dáy (Gray, *Elegy Written in a Country Churchyard*)

The representation of this structure will be refined in what follows, but for the time being I will anticipate that discussion in referring to the positions traditionally held to be stressless as 'weak' and those traditionally held to contain stressed syllables as 'strong', with scansions indicated by labelling the linguistic material constituting a strong position with an 'S' and that constituting a weak position with a 'W', though in what follows the W's will not always be given since in the meters under consideration they can always be determined from the disposition of the S's.

Now Kiparsky observes that the essential conditions of metricality for the meter are as follows. First, each metrical position normally corresponds to a single syllable. Second, while a strong metrical position may correspond to any type of syllable, a weak position may not correspond to certain types of stressed syllables of polysyllabic words, although it may to a stressed monosyllable. Although all poets allow some modification of these rules—sometimes loosening the requirements, sometimes strengthening them—they form the common denominator of the tradition.

The immediate concern here is how the formalism can capture the relevant degrees of word stress that are prohibited in strong positions. The basic distribution of word stress described by Kiparsky for Shakespeare's iambic pentameter is as follows. A monosyllable may occupy either a weak or a strong position:

(55) Nor shall Death brag thou wanderest in his shade (*Sonnet 18*)
s w s s s s

The primary stress of a polysyllabic word must occupy a strong position. This is true whether syllables adjacent to that one are unstressed, as in (56), or bear secondary stress, as in (57):

(56) a. The lion dying thrusteth forth his paw (*Richard III* 5.1.29)
s s s s s

And nothing 'gainst Time's scythe can make defense (*Sonnet 12*)
s s s s s

b. *And defense 'gainst Time's scythe cannot be made.
s w s

(57) a. I will maintain it with some little cost (*Richard III* 1.2.259)
s s s s s

To note the fighting conflict of her hue (*Venus and Adonis* 345)
s s s s s

b. *I maintain it with very little cost
s w s

Among secondary stresses, those which are adjacent to the primary stress are always in weak position, as in (57). But those which are not adjacent to the primary stress fall into two classes. In words like those in (58), syllables bearing secondary stress are always in strong positions:

(58) That the precipitation might downstretch (*Coriolanus* 3.2.4)
s s s s s

Who in unnecessary action swarm (*Henry V* 4.2.27)
s s s s s

That this is not an accident of the requirement that primary stress be in a strong position coupled with the fact of secondary stress falling two syllables away from the primary stress can be seen by the treatment of words with secondary stress three syllables away, in which it is likewise required to occupy a strong position:[14]

(59) a. This fortification, gentlemen, shall we see it? (*Othello* 3.2.5)
s s s s s

And are upon the mediterranean float (*The Tempest* 1.2.234)
s s s s s

b. *And are upon mediterran e an
s w s w s w s

[14]This is made possible by an additional correspondence rule permitting the two unstressed syllables between the two stressed ones to count as a single metrical position, as will be discussed below.

Moreover, the secondary stresses of words like those in (60) in contrast may occur in either weak or strong positions, even though they likewise fall two syllables away from the primary stress:[15]

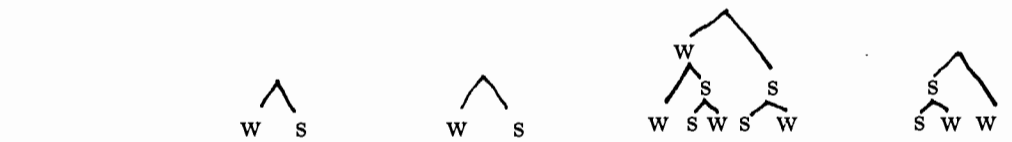
(60) a. Signifies that from you great Rome shall suck (*Julius Caesar* 2.2.87)
s w s s s s

What signifies my deadly standing eye (*Titus Andronicus* 2.3.32)
s s s s s

b. Montague, Montague, for Lancaster. (*Henry VI, Part 3* 5.1.67)
s w s s s s

The tree-based theory of metrical structure used by Kiparsky makes available distinctions that enable these generalizations to be straightforwardly expressed. On that theory, all syllables which bear some degree of stress, as evidenced by their resistance to vowel reduction, are distinguished from unstressed syllables by the feature [+stress]. But only syllables which are strong relative to a weaker syllable with which they are grouped in metrical structure are distinguished by being dominated by the strong branch of a metrical tree. On this theory, the stress properties of sample words scanned above would be as follows:

(61)



The stresses that are metrically relevant, in the sense that they are required to be matched with strong positions in the meter, are thus exactly those that are dominated by the strong branch of a metrical tree, while those that need not be matched with strong positions do not have such a structure, whether or not they are [+stress].

Kiparsky therefore proposes that like the metrical structure of the language, the metrical structure of the verse can be represented by metrical trees – in the case of iambic pentameter, by five right-headed trees:

[15]The exceptional positioning of the primary stress of these words in the intial weak position also involves a special rule which will be discussed below.

(62)

Possible correspondences between the two can then be formalized as follows (Kiparsky 1977, p.195):

(63) Definition: In a stress pattern M N, M and N are *lexical* if they are not separated by any # [where # signifies a word boundary].

(64) Basic correspondence rules for iambic pentameter: A line L is *metrical* with respect to the meter M if and only if the stress pattern of L corresponds to M as follows:

a. Terminal nodes correspond one-to-one.

b. There is no correspondence of the form S [in the line L]
↕
W [in the meter M],

where S is a lexical stress.

Now Hayes (1983) argues that these generalizations can be equally well captured on an approach which assumes that language has a rhythmic structure derived from trees and expressed in grids, and that the structure of the metrical pattern is represented by a grid. He proposes that in English grids are derived from trees roughly like those in (61) by the following rules:

(65) a. Assign each syllable a position on the grid ('.').

b. Assign each position sufficient marks ('x') so that the strongest syllable of every strong metrical constituent has more marks than its weak sister.

c. Content words must be grid-marked.

This will construct the following grids for each of the words in (61) above:

(66)

	x		. x		. x		. x . x .		x . .
a.	death	b.	defense	c.	maintain	d.	precipitation	e.	signifies

He then proposes that the metrical pattern is itself a grid of the form in (67),

(67) . x . x . x . x . x

and that the correspondence between that and the metrical grids of language can be defined using the notion of a stress 'peak' and a stress 'valley':

(68) a. A stress *peak* is a syllable whose grid column is higher than that of at least one of its neighbors.

b. A stress *valley* is a syllable whose grid column is lower than that of at least one of its neighbors.

Each of these may be delimited by the phonological domain in which the configuration occurs; a syllable might for example be a stress peak within a word, in which case both the syllable which constitutes the peak and the weaker neighbor that defines it as one must occur within that word. On this approach, Kiparsky's prohibition against a correspondence between metrical W and lexical S becomes a prohibition against a correspondence between a stress peak within a word and a stress valley in the meter:

(69)

*Peak	/ $[\ldots\_\ldots]_{word}$	in L
↕		
Valley		in M

As can be seen, this approach is indeed compatible with the facts of the distribution of stressed syllables observed by Kiparsky: lexical monosyllables, though grid marked, will not constitute peaks, and can therefore occur in valleys; the primary stresses in (66)b-e will all constitute peaks and therefore be prohibited from occuring in valleys; and among secondary stresses, only that in (66)d will constitute a peak and be consequently prohibited from occurring in a valley since those in (66)c and e,

by contrast, will not be grid marked at all, because even though they are stressed, they do not have weaker sisters from which they must be distinguished.

However, neither Kiparsky's nor Hayes' approach will be adequate here. Both depend on the exclusion from the metrical representations to which the metrical rules refer of certain types of foot structure which would not be excluded on the theory sketched in the previous section. In particular, if English is indeed best analyzed as having moraic trochees as its feet, then most heavy syllables will head feet without necessarily having weak sisters; in particular, the final syllable of *signifies* will head a foot, posing a problem for Hayes' account, and both syllables of *maintain* will head feet, posing a problem for Kiparsky's. We can see the former by representing plausible structures of the words in (61) on the theory sketched above in bracketed grid notation for comparison with Hayes' rule:

(70)

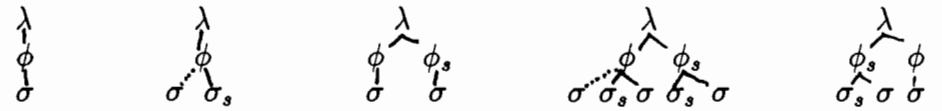
x		x		x	
x		. x		x	x
a. ((death)$_\phi$)$_\lambda$	b.	((defense)$_\phi$)$_\lambda$	c.	((main)$_\phi$)((tain)$_\phi$)$_\lambda$	
	x		x		
. x .	x .		x	x	
d. (pre(cipi)$_\phi$(tation)$_\phi$)$_\lambda$		e.	((signi)$_\phi$(fies)$_\phi$)$_\lambda$		

The problem here is that on the new theory the final syllable of a word like that in (70e) because it contains a long vowel must be grid-marked; it will then be defined as a peak given that there is an unstressed syllable preceding it, and on the rule in (69) will be incorrectly prohibited from occurring in a valley. At the same time, we will see that although the degree of prominence these syllables have is not relevant to the rules of iambic pentameter, it will be relevant to the rules of other meters; and a representation of stress capable of distinguishing between the final syllables of words like *signifies* which bear some degree of stress and those of words like *lingering* which bear none is in fact desireable for metrical description. The inclusion of constituency in bracketed grid representations may make available a ready solution,[16] but since tree notation will be used here because of its ready solution to another problem sketched in section 2.1, that possibility will not be pursued further here.

[16]The proposals sketched in Hayes (1989) for post-lexical stress relations might, for example, be adapted for lexical ones.

Turning now to Kiparsky's tree-based rule, when we represent the metrical structures of the words in (61) given by the new theory in tree notation for comparison with that rule, a different problem can be seen to arise:

(71)



a. death b. defense c. maintain d. pre cipitat ion e. signifies

The problem here is that the primary stressed syllable of a word like *maintain* is not in fact a formally terminal S, because it is itself a non-branching foot, and consequently has no weaker sister. It is of course an S indirectly, in that the foot of which it is the head is a strong sister of the weaker foot of which the initial syllable is the head. The task here then is to formalize this indirect strength. But this form of indirect strength figures even in the most fundamental issue of how word stress can be interpreted as a property of syllables in tree formalism, and hence the requisite idea that properties of heads at higher levels devolve on the heads of their constituents is already available in phonological theory in the definition of an indirect head adopted in (10) above in order to express the idea of a Designated Terminal Element.

On either formalism, both the problem and the solution involve generalizing the idea that what seems to exclude a given syllable from a weak position is whether it shares a constituent with a weaker neighboring syllable to include first, a variety of possible constituents and second, syllables which head those constituents indirectly rather than directly. To express this in the tree notation used here, then, I propose to begin with the traditional notion of metrical strength as being the strong node of a branching constituent as in (72)a – the same notion as a peak in (68)a but more perspicuously related to the formalism used here than that term – and then generalize it as in (72)b. It may also be useful at this juncture to compare this with the definition of stress in (73):

(72) a. Definition of metrical strength: A metrical constituent is *strong* if it is the head of a branching constituent.

b. Extension to indirect metrical strength: A constituent α is strong within a

domain δ if there exists a constituent β, strong within δ, of which α is an indirect head.

(73) A syllable is *stressed* if it is the head of a foot.

A constituent which is strong by the convention in (72)b is essentially the same kind of formal entity as a Designated Terminal Element, except that the element need not be terminal—it can be any element of the metrical hierarchy—and it need not be unique to a domain because its root may likewise be any element of the metrical hierarchy.

For the case of word stress under consideration here, we can see that exactly the right class of syllables will thus be defined as strong within the domain of the word, as follows. The monosyllable *death* in (71)a, while stressed, will not be strong, since there is no strong constituent within the word. The stressed syllable of the disyllable *defense* in (71)b is strong because it is the head of its foot, which branches. The primary stressed syllable of *maintain* in (71)c is strong because it is the head of the strong foot of the word, while the secondary stressed syllable in that word fails to be strong because there is neither another syllable within its foot that it is stronger than nor any strong constituent which dominates it. In contrast the secondary stressed syllable of the polysyllable *precipitation* in (71)d is strong within its foot just as is the primary stressed syllable of that word. Finally, the secondary stressed syllable of *signifies* in (71)e fails to be strong because like the lexical monosyllable in (71)a and the secondary stressed syllable in (71)c, it is neither part of a branching constituent nor dominated by the strong element of one.

Given this definition, then, it is possible to state the essential metrical properties of English iambic pentameter as described by Kiparsky as follows. The metrical pattern will continue to be assumed to be five iambic trees as in (62). Terminal nodes of that pattern will be referred to as metrical positions. The rule in (64)a that terminal nodes of the two patterns must correspond one-to-one becomes the requirement in (74)a, since terminal nodes of the metrical structure of language will be moras, not syllables. The definition of lexical stress in (63) is replaced by the notion of metrical strength, delimited by the phonological domain of the word, and the rule in (64)b is

thus replaced by an analog of Hayes' rule in (69):

(74) a. Syllables are in one-to-one correspondence with positions in the meter.

b. A syllable which is strong within a word may not correspond to a weak position in the meter.

The general formulation of (74), it should be noted, at the same time that it requires specific mention of syllables in a way that Hayes' formulation does not, permits metrical rules to refer to a wider range of metrical constituents than does Hayes' theory. A positive consequence of this is that it permits the statement of the metrical difference between words like *conflict* and *level* discussed in section 2.1; it was observed there that in the meter to be discussed, the entire word *level* is permitted to occupy a weak position, while the primary stressed syllable of the word *conflict* is not, and that it will be proposed that what this meter excludes from a weak position is a foot which is strong within a word. More generally, the more general formulation permits the idea that meters may be based on metrical constituents other than the syllable in a way that Hayes' theory does not.[17]

The rule for Shakespeare's iambic pentameter in (74)b is an example of a metrical rule of the type Hayes (1989) calls a 'bounding rule', because the domain in which the configuration relevant to the meter—in this case a strong syllable—may be sought is confined to a specified phonological domain—in this case the word. For example, the syllable *youth* in (75) is not excluded from a weak position, even though it is strong within the phonological phrase:

(75) Resembling strong youth in his middle age (*Sonnet 7*)
s s w s s s

More strikingly, the strong syllable of a compound is not excluded, since although compounds form a single syntactic word they form two distinct prosodic words. Thus Kiparsky (1977) notes that in compounds, it is any syllables which are strong within

[17]Bill Poser (p.c.) points out that other examples might include Japanese verse, which is based on mora counting (or possibly on bimoraic foot structure) (Poser 1990) and Diyari songs, which are based on a foot-based template (Austin 1978, Poser 1989).

the component words which must be in strong positions, and not the strong syllables of the whole:

(76) a. When proud-pied April, dressed in all his trim (*Sonnet 98*)
s s s s s

b. As the deathbed whereon it must expire (*Sonnet 73*)
s w s s s s

(77) a. Which works on leases of short-numbered hours (*Sonnet 124*)
s s s s s

b. *Which works on leases short-numbered and long
s s s w s s

In the compounds *proud-pied* and *deathbed*, although in both cases the first word is metrically strong, there is no metrically strong syllable within a prosodic word, and either positioning is consequently acceptable, while in the compound *short-numbered*, even though again the first word is the metrically strong one, only the second contains a metrically strong syllable within a prosodic word, and only the positioning in (77)a is metrically acceptable for it. At the same time a metrical rule could equally well specify a different phonological domain, such as the phonological phrase.

More generally, Hayes (1989) proposes a general typology of possible metrical rules relating to the disposition of stress which I will likewise assume here. He proposes that in addition to bounding rules, which take the form of the rule above of excluding a strong metrical constituent in a specified phonological domain from a weak position of the meter, there are 'left-edge rules' and 'right-edge rules'. Reflecting a general tendency in meter for beginnings to be strict and endings lax, left-edge rules take the form of allowing a bounding rule to be overridden at the left edge of a specified prosodic domain, while right-edge rules take the form of excluding from a weak position a constituent which would otherwise be allowed there if the weak position is at the right edge of a specified prosodic domain. A well-known example of a left-edge rule which will be important in what follows is that the rule in (74)b can be overridden at the beginning of a phonological phrase for Shakespeare and at the beginnings

of other, usually higher domains for other poets, creating a cadence which will be referred to as *inversion*:

(78) Savage, extreme, rude, cruel, not to trust; (*Sonnet 129*)
w s s s s s

Of the wide world dreaming on things to come (*Sonnet 107*)
s s w s s s

And yet dark night strangles the travelling lamp (*MacBeth* 2.4.7)
s s w s s s

And peace proclaims olives of endless age (*Sonnet 107*)
s s w s s s

An example of a right-edge rule is that in Milton's iambic pentameter the strongest syllable of a phrase is excluded from a weak position phrase-finally: lines like Shakespeare's (75) above repeated here as (79)a do not occur in Milton (Kiparsky 1977), but ones like (79)b do (Hayes 1989):

(79) a. Resembling strong youth in his middle age (*Sonnet 7*)
s s w s s s

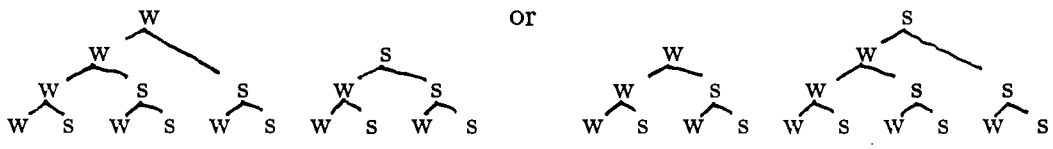
b. On a Sunbeam, swift as a shooting star (Milton, *Paradise Lost* 4.556)
s w s s s s

Two aspects of Hayes' typology which however will not be adopted here are noteworthy. First, Hayes notes that the hierarchical nature of the prosodic hierarchy means that a bounding rule which excludes a peak (a strong constituent on our terminology) within a given domain will likewise exclude a peak within all smaller domains. While this is true on the assumption that metrical structure has the formal properties of a grid, it is not entirely true on the assumption that it has those of trees. As noted above, the grid-based formalism assumes that the syllable is the basic unit of metrical representation; hence only a syllable can be a peak. A syllable which is a peak within a foot will consequently be a peak within a word, and a rule that excludes the latter will always exclude the former. This is not true on the tree-based formalism adopted here: as noted above, that formalism permits any constituent on the metrical hierarchy to be regulated by a meter and hence requires the relevant

one to be specified. This means that structure below a certain level may be treated as irrelevant. That is, while the spirit of Hayes' observation is retained in the sense that there cannot be discontinuities in the treatment of strength at different levels, there can be not only an upper bound but also a lower bound on what is relevant. It should be noted that this is not merely an issue with respect to the distinction between strong syllables and strong feet noted above, but a more general consequence of assuming a unified metrical hierarchy extending below the foot: the fact that a lexical monosyllable contains a strong mora, for example, does not exclude it from a weak position.

The second modification is that I will leave open the possibility that the higher-level domains relevant to the statement of rules such as the foregoing are not restricted to those of the language, but may include analogous higher levels in the metrical pattern. Kiparsky (1977) proposes for example that the metrical pattern of iambic pentameter includes not only groupings of positions into feet as in (62), but also groupings of feet into cola and cola into lines:

(80)



A left edge rule could then equally well license a configuration at the beginning of a line or a colon, for example, as it could at the beginning of a phonological or intonational phrase. Metrical and prosodic boundaries do often coincide, but they need not, and there seems insufficient evidence to rule out the possibility that for some poets metrical rules refer to the former.

The foregoing should give all the formalism and vocabulary for discussing the disposition of stress with respect to a meter necessary to what follows. To sum up, for a meter we can speak of weak and strong positions, possibly delimited by higher-level domains such as cola and lines; for the language which realizes a meter, we can likewise speak of weak and strong constituents delimited where necessary by any of the domains made available by the prosodic hierarchy. We can also speak of heads of constituents, and in particular of stressed syllables, the heads of feet. In the case of

both the meter and the language, the rhythmic structures will be represented formally by trees, with the head of a branching constituent, direct or indirect, designated as strong.

Before departing from the subject of metrical rules one further type of such rule which does not involve the distribution of stress should be mentioned. This concerns the twin possibilities of unrealized and extrametrical positions. First, Kiparsky notes that a weak position may occasionally be unrealized line-initially, resulting in what is traditionally termed a headless line, and after a major prosodic break before a strong position:

(81) a. _ Bootless home, and weather-beaten back (*Henry IV, Part 1* 3.1.67)
w s s s s s

b. Why so didst thou: _ seem they grave and learned (*Henry V* 2.2.128)
s s w s s s

Analogously, an extra weak position, traditionally termed an extrametrical syllable, may occur line-finally and after a strong position before a major prosodic break:

(82) a. Laugh at me, make their pasttime at my sorrow (*A Winter's Tale* 2.3.24)
s s w s s s w

b. So dear the love my people bore me: nor set (*The Tempest* 1.2.141)
s s s s w w s

The modification Kiparsky proposes to his metrical rule in (64)a can be adapted into the framework used here as follows:

(83) The presence or absence of a weak position in the meter is optional between a prosodic boundary at least as high as an intonational phrase, and a strong position.

We will find these same options of unrealized and extra weak positions in the meters to be considered below.

The foregoing rules have illustrated the main type of rules with which we will be concerned here, namely *metrical rules*, which state possible correspondences between

the language and the meter. In discussing these rules, we have assumed that the phonology of the language uniquely determines the representation that participates in that correspondence. However, a final theoretical consideration involves the fact that in fact the phonology makes available a range of possible representations, rather than a unique one.

First, it is in the nature of generative phonology that there will be different phonological representations for the same piece of language at different stages of a derivation, from that of underlying forms through the outputs of all the various rules of the phonology, and it is not always surface forms to which metrical rules refer (Kiparsky 1968). In fact there is evidence that in metrics, poets may differ as to which stage their correspondence rules refer to. For example, Levin (1980) and discussions of Levin's observations by Kiparsky (class lectures) suggest that the identity constituting rhyme in traditional French verse is defined on a representation earlier than the surface representation. In such verse, among words like *tronc* 'trunk', *long* 'long', *pont* 'bridge' and *blond* 'blond', the only possible rhymes are between the first two and the last two, even though all four are pronounced with a final [õ] . Now while the final consonants are all deleted in non-liaison environments, in liaison environments, according to traditional French grammar, underlying final /g/ in a word like *long* surfaces as [k] and underlying final /d/ in a word like *grand* as [t] (Grevisse 1964):

(84) a. gran[t]-effort 'great effort' b. lon[k]-oubli 'long-forgotten'

At the same time, in word internal environments all four surface as distinct:

(85) a. tron[k]ature 'place of truncation' b. lon[g]eur 'length'

c. pon[t]age 'docking' d. blon[d]ine 'fair-haired girl'

Thus in traditional French verse rhyme seems to be defined at a stage after the rule of final consonant devoicing which makes /g/ identical with /k/ and /d/ with /t/ for purposes of liaison, but before the rule of final consonant deletion, which makes all these words end in [õ]. In the verse of the poet Apollinaire, however, there are rhymes of *tronc* with words like *larrons*, with which it has identity only at the surface, after consonant deletion. Thus the difference between Apollinaire's practice

and the traditional one may be described as a difference in the level of phonological representation to which the rules of rhyme refer.

A similar contrast arises among English poets with respect to the syllabification of final nasals of words like *rhythm*. These become syllabic at a late stage of derivation, certainly after stress assignment, since if they were syllabic at the time of stress assignment a word like *órgàsm* would be incorrectly expected to have the stress pattern *orgásm*. Many poets in fact treat words like *rhythm* as monosyllabic, as in (86); but others treat them as disyllabic; Ogden Nash, for example, rhymes *rhythm* with *with 'em* (Kiparsky, class lectures):[18]

(86) One would more love by rithmes; but witchcraft charms (Donne, *Satire 2*)
s s s s s

Of ghastly Spasm, or racking torture, qualmes (Milton, *Paradise Lost* 2.481)
s s s s s

Thus clearly it is possible for metrical rules to refer to several possible phonological representations. One tentative hypothesis as to how the possibilities might be limited suggested by Kiparsky (class lectures) might draw on the grouping of phonological rules into various sets, most notably lexical and post-lexical rules, with metrical rules being able to refer to the output of one or the other of these. Thus the traditional French rhymes and the non-syllabic scansions of final syllabic nasals in English would be based on the output of lexical rules, and the rhymes of Apollinaire and the syllabic scansions of final syllabic nasals on the output of post-lexical rules. We will see that this approach can account for important differences in the treatment of lexical and non-lexical words in the meters to be considered below, at the same time that certain aspects of the phenomenon of resolution in meter will suggest that for those to be the only two possibilities may be too strong.

Second, Kiparsky (1977) suggests that there seem to be ways in which the phonological representation is optionally modified by additional phonological rules special to poetry, creating a sort of poetic dialect. Such rules are termed *prosodic rules*, to distinguish them from the metrical rules discussed above: while the latter are formally

[18]Actually the examples in (86) are not entirely convincing since the syllables in question could equally well be extrametrical.

unique to metrics and concern the correspondence between language and a metrical pattern, the latter are formally a kind of phonological rule, modifying the representation of the language on which those correspondences are defined, but in a way not normally arising in ordinary speech. The specific prosodic rules that Kiparsky proposes for Shakespeare's iambic pentameter are as follows: an unstressed vowel may be deleted following another vowel, as illustrated in (87); an unstressed vowel may be deleted medially before a sonorant followed by another unstressed vowel, as in (88); and an unstressed high vowel may be turned into a glide before a vowel as in (89). As can be seen, these rules are generally optional.

(87) Being had to triumph, being lacked to hope (*Sonnet 52*)
w s s s w s s

(88) Deep, hollow, treacherous and full of guile (*Richard III* 2.1.38)
s s w s s s

And greedily devour the treacherous bait (*Much Ado about Nothing* 3.1.28)
s s s s w s

(89) Who? Silvia? Aye, Silvia, for your sake (*Two Gentlemen of Verona* 4.2.25)
s w s s w s s

All of these figure in the verse discussed below, though only the first will merit further consideration. The general theoretical distinction between prosodic rules and metrical rules, however, will be crucial.

Chapter 3

Resolution

3.1 Old English

It is well known that certain phonological rules in Old English treat disyllabic sequences whose initial syllables are light as equivalent to heavy syllables, to the exclusion of light syllables alone. The best-known such rule is that of High Vowel Deletion, whereby in some nouns in the *-a* declension, the final nominative plural marker *-u* is deleted after either a heavy syllable or a light syllable followed by another syllable:

(90) a. /word+u/ /gōd+u/
word 'words' gōd 'goods'

b. /lof+u/ /scip+u/
lofu 'praises' scipu 'ships'

(91) a. /werod+u/ /færeld+u/
werod 'troops' færeld 'journeys'

b. /nīten+u/ /fulwiht+u/
nītenu 'small animals' fulwiht 'baptisms'

The forms in (90) show that in monosyllabic stems the *-u* is deleted after a heavy syllable as in (90)a, but remains after a light syllable as in (90)b. Those in (91) show

that in longer stems a light syllable followed by another syllable will behave exactly like a heavy syllable with respect to this process, resulting in deletion of the *-u* as shown in the forms in (91)a, in contrast to a sequence of a heavy syllable followed by another syllable as shown in (91)b.

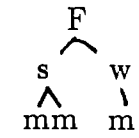
A rule conditioned in this way by the number and weight of syllables in the environment is clearly a rule conditioned by metrical structure. Any account of this metrical structure, however, ought also to account for stress placement. Main stress in Old English always falls on initial syllables; it is sometimes also claimed that secondary stress falls "on any heavy syllable after a heavy syllable or its equivalent when it becomes internal by addition of an inflection" (Campbell 1959, cited in Dresher and Lahiri 1991).[1]

(92) a. Héngèstes 'Hengest (gen.)', ōþèrne 'other (acc.)', æ̀þelinges 'prince (gen.)'

b. cýninga 'king (gen.)'

One possible account of the metrical structure of Old English that could account for these facts is proposed in Dresher and Lahiri (1991). They suggest that Old English makes use of a "Germanic foot", which is a binary, quantity-sensitive, obligatory-branching foot; that is, a foot whose head must be heavy and whose other syllable must be light. What is special about it is that where in many stress systems a foot whose head is required to be heavy will when confronted with a light syllable skip over that syllable, the Germanic foot will take a mora from the following syllable to satisfy that condition. And if there are any additional moras in that syllable, they will also become part of that foot, rather than be split between different feet. Dresher and Lahiri thus claim that the words in (90)–(92) above will be footed as shown in (93)–(94); High Vowel Deletion may be stated as in (95), and secondary stress will be realized on exactly those syllables which head feet, except that final feet which do not branch are deleted, accounting for the lack of stress on the final syllables of the words in (93)f and (94)a-c.

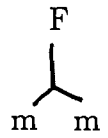
[1]Though this does not entirely accord with the description of Old English secondary stress given in Bliss (1967).

(93) a. 

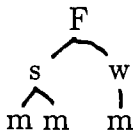
/word+u/
word

b. 

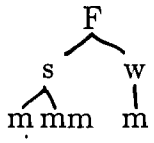
/gōd+u/
gōd

c. 

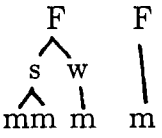
/lof+u/
lofu

d. 

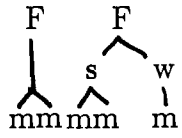
/werod+u/
werod

e. 

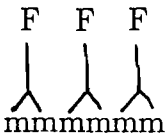
/færeld+u/
færeld

f. 

/nīten+u/
nītenu

g. 

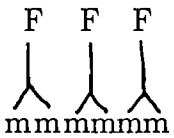
/fulwiht+u/
fulwiht

(94) a. 

Hén gès tes

b. 

ōþ èrn e

c. 

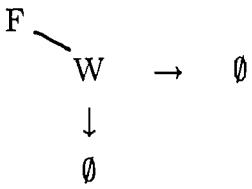
æþelìng es

d. 

cýninga

(95) High Vowel Deletion:

Delete a high vowel in the weak branch of a foot:

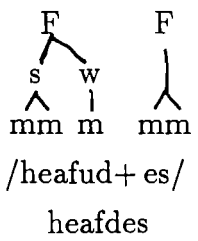


This analysis has several problems, however. First, the foot typology generated by the parameters of quantity-sensitivity and obligatory-branchingness to which it belongs already has been argued by Hayes (1987) to make available too many non-existent foot types, and as pointed out by Rene Kager (p.c.), the possibility that obligatory-branchingness might be interpreted in this way augments that problem in that it ought to make available a comparable foot for right-headed systems, yet no such feet seem to be required. Second, the resultant footings require a detailed rule of High Vowel Deletion which will distinguish between the final *-u*'s of the words *word*, *gōd*, *werod*, *færeld* and *fulwiht* in (93a, b, d, e and g) which are claimed to delete because they occur in the weak branch of a foot and that of *nītenu* in (93f) which

is claimed to fail to delete because it occurs in the only branch of a foot dominating a monomoraic syllable; an analysis which derived the deletion from more general principles and assigned *nīt̄enu* greater structural similarity to other words such as *lofu* in (93)c in which deletion fails to occur would be preferable.

Moreover, Dresher and Lahiri's formulation of this rule gives an account of certain Old English forms which is not entirely compatible with certain facts about them outlined in Kiparsky and O'Neil (1976). Dresher and Lahiri present the genitive form *heafdes* corresponding to *heofud* 'head (nom.)' in support of their analysis, arguing that it results from an underlying form footed as shown in (96), together with the application of their rule of High Vowel Deletion in (95) and the deletion of the final non-branching foot:

(96)



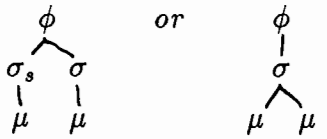
But they neglect the nominative form, which is the one illustrated for all other words in (93). For that form, according to Kiparsky and O'Neil, in early Old English the stem is *heafud* and the nominative plural *heafudu*. Its structure is therefore just like that of *nīt̄enu* in (93), except that the vowel of its second syllable is high. But at that stage the high vowel is not deleted, contrary to what Dresher and Lahiri's analysis would predict. Although *heafudu* is displaced as the nominative form in later Old English by *heafud* and later *heafdu*, according to Kiparsky and O'Neill these (and the genitive *heafdes*) are not necessarily phonologically regular, but rather the result of a complex morphological reanalysis involving analogy with other paradigms.

A further difficulty with Dresher and Lahiri's analysis is that what prevents the *-u* of *lofu* from not constituting the weak portion of a branching foot is that branchingness of feet is not defined in terms of syllables, the next level down on the prosodic hierarchy, but instead appears to make direct reference to moras. On that view, the crucial idea that if a foot incorporates a mora from a syllable following a light syllable

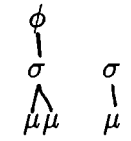
any other moras in that syllable will have to also be incorporated comes as a rather ad hoc stipulation. Finally, the analysis does not extend to Finnish, another language in which sequences of a light syllable followed by another syllable pattern with heavy syllables, as we shall see below.

Still, the essential idea behind Dresher and Lahiri's analysis seems exactly right – the idea that under certain circumstances a foot which requires heaviness may be required to be constructed and may satisfy the requirement of heaviness by incorporating a mora from a following syllable, together with any other moras in that syllable. A simple alternative analysis, currently being explored by various people including Rene Kager, Chang-Young Sohn and Paul Kiparsky (p.c.), would be to simply set Dresher and Lahiri's insight within the foot typology discussed above in such a way that the objections described above would not arise. In that typology, left-headed quantity-sensitive systems are footed by moraic trochees, the structure of which is repeated here:

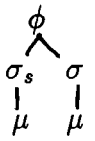
(97)

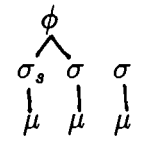


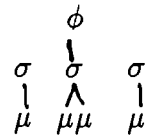
Now without adopting some analog of Dresher and Lahiri's idea, an analysis based on that foot type would give better results for High Vowel Deletion, but suffer from the shortcomings in analyzing main stress that Dresher and Lahiri's proposal addresses. Since Old English seems to be a language with a minimal word constraint prohibiting monomoraic lexical words—only non-lexical words like the preposition *be* 'by' or the relative particle and conjunction *þe* 'that' have such a structure—the theory requires it to likewise prohibit the construction of degenerate feet. Metrical rules assigning moraic trochees as in (97) left to right would therefore parse the forms above as follows:

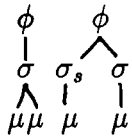
(98) a. 
/word+u/
word

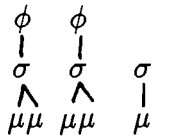
b. 
/gōd+u/
gōd

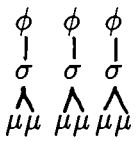
c. 
/lof+u/
lofu

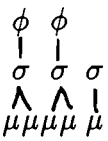
d. 
/werod+u/
werod

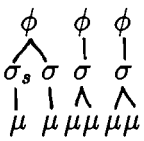
e. 
/færeld+u/
færeld

f. 
/nīten+u/
nītenu

g. 
/fulwiht+u/
fulwiht

(99) a. 
Héngèstes

b. 
ōþ èr ne

c. 
æþelìng es

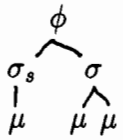
d. 
cýninga

This will give adequate results for High Vowel Deletion, since exactly those final -u's subject to deletion will fail to be incorporated into a foot, and the rule can be seen as a process deleting stray segments of some insufficient degree of sonority. But it will fail to give correct results for main stress assignment. On the theory sketched in section 2.1 above, a syllable can only be the head of the prosodic word if it is likewise the head of a foot. This poses a problem for words with initial sequences of a light syllable followed by a heavy one such as *færeld* in (98e) or *cyninga* in (99d), then, which will lack any foot on their initial syllables, since a degenerate foot cannot be assigned.

The simple incorporation of Dresher and Lahiri's proposal into this approach can, however, correct this shortcoming. Rene Kager has pointed out (p.c.) that several stress systems which pose difficulties for the theory involve initial stress, and that since initial stress is so easy to learn, it may be preferable to treat it specially rather than expand the inventory of iterating feet to account for it. The theory sketched in 2.1 makes available a mechanism for this in that it leaves open the possibility that the End Rule could simply require the leftmost syllable to be the head of the

prosodic word at the same time that the rule of foot construction would require the word to be parsed into moraic trochees from left to right. Initial sequences of a light syllable followed by a heavy one are unparseable on these assumptions, if the crucial assumption that the constituents of a metrical constituent are constituents at the next level down on the metrical hierarcy is to be preserved; here the constituents of the prosodic word would be required to be feet. But Dresher and Lahiri's strategy of allowing a light syllable followed by a heavy one to join with a mora from the following syllable, with the other mora in the latter syllable coming along, can come to the rescue: the unparsable intial sequences can be dealt with in just this way, by the assignment of an adaptation of their Germanic foot as a kind of a resolved moraic trochee:

(100) Resolved moraic trochee:



On this approach, the problematic forms in (98)e and (99)d above will be assigned metrical structure as follows:

(101) a.

færeldu

b.

cyninga

High Vowel Deletion can then be stated as a rule deleting high vowels in stray syllables as described above, at the same time that (keeping the assumption that final non-branching feet are deleted) the distribution of stress can be successfully accounted for.

It should be noted that this is a rather different proposal from that of adding a resolved moraic trochee to the inventory of iterating feet as suggested by Lahiri and van der Hulst (1988), cited in Dresher and Lahiri (1991). Instead, the special kind of foot constructed intially (and only initially) can be regarded as a kind of last resort means of moraic trochee systems with initial stress for dealing with otherwise unparsable

sequences. This avoids the theoretical problem of inappropriately expanding the inventory of possible feet. But it also has empirical consequences, in that words longer than three syllables would be parsed differently on the two accounts.[2] In Old English, there are not many examples of words long enough for the difference to matter. But in Finnish, to which we now turn, we find that exactly the same kind of construct is required initially, while the remainder of a word can be correctly parsed best by perfectly ordinary moraic trochees.

3.2 Finnish

Like Old English, Finnish has at least one rule that seems to treat a heavy syllable and a sequence of a light initial syllable followed by another syllable as equivalent, to the exclusion of light syllables alone. Carlson (1978) notes a process of 'expressive lengthening' (also discussed in Kiparsky (1989b)) whereby in emphatic pronunciations of expletives, some coda segments of certain syllables show lengthening as indicated in the following forms:

(102) a. perkele [per:kele]
saatana [saa:tana]

b. kamala [kama:la]
vituttaa [vitu:t:taa]

As can be seen, if the initial syllable is closed or contains a long vowel as in (102)a, segments in its coda will be lengthened, but if that syllable is open and contains a short vowel as in (102)b, segments in the coda of the following one will be. A metrical structure which would allow the rule to be stated as one lengthening segments in the final coda of the first foot in both cases would clearly be desirable here, and

[2]Kiparsky (p.c.) points out that the phenomenon of having fewer unstressed syllables at an edge than the foot structure might lead to be expected is somewhat complementary to that of having more as in the cases of ternary feet at edges that Hayes (1981) analyzes as resulting from extrametricality. As there, then, an analysis that accounts for exceptional phenomena at edges while maintaining a limited inventory of iterating feet seems desireable.

the question is how to construct one which would simultaneously account for the distribution of stress in Finnish.

Finnish is like English in having a stress system in which binary and ternary feet are mixed, but in which syllable quantity seems to condition the possibility of the ternary ones. Finnish has contrastive vowel length and a large array of diphthongs: *ei, äi, yi, öi, ai, ui, oi; au, ou, eu, iu, ey, äy, öy*; and *ie, yö* and *uo* (Leino 1986) and also *iy*. As in Old English, syllables ending in short vowels are light while those which are closed or contain long vowels or diphthongs are heavy. There is also a class of superheavy syllables comprising those which are closed in addition to containing long vowels or diphthongs.

Primary word stress falls without exception on initial syllables. Secondary stress is somewhat variable, but evidence from Carlson (1978), Finnish metrics as discussed in Leino (1982, 1986) and Sadeniemi (1949), and several Finnish speakers[3] converge on the following generalizations. Setting aside for the moment certain morphological complexities, secondary stress falls on every second syllable after the initial one, skipping an additional light syllable if the syllable after that is heavy, unless that heavy syllable is final, in which case the skipping is optional. Final syllables not preceded by a stressed syllable are optionally stressed if they are heavy. This means that in one and two syllable words the only stress is on the initial syllable. In three syllable words as in (103), a heavy final syllable optionally bears secondary stress:

(103) a. ópeta 'teach (imp.)'

b. mólemmat ~ mólemmàt 'both'

c. sánoneet ~ sánonèet '(they didn't) say'

In four syllable words stress falls on the third syllable if it is heavy, as in (104)a, or if it is light and followed by another light syllable, as in (104)b; while if the third syllable is light and followed by a heavy syllable, stress may fall on either it or the final one, as in (104)c and (104)d:

[3]My thanks to Lauri Karttunen in particular for his patient and insightful comments, and to Paul Kiparsky not only for these things but for finding and translating relevant parts of Sadeniemi (1949) and for providing glosses.

(104) a. sákarìston 'the sacristy's'

b. sýnneistäni 'of my sins'

c. véisasivàt ~ véisasìvat 'they sang (hymns)'

d. lópetetàan ~ lópetètaan 'is being finished'

In five syllable words the pattern is the same, except that the option shown in (104)c and d disappears: if the third syllable is light and the following syllable is heavy, stress falls obligatorily on the latter as in (105); if the third syllable is heavy stress falls on it as in (106) with none on the following syllable:

(105) a. ákvaariòssa 'in (the) aquarium', ópettamàssa 'while teaching'

b. pálvelijòita 'servants (gen. pl.)', úteliàita 'curious (gen. pl.)'

(106) a. tótellùtkaan '(did not) obey after all', káinalòssansa 'under his arm'

b. káravàanimme 'our caravans'

The pattern is continued in all longer words:

(107) järjestèlmällisỳydella 'systematicity (adessive)'

Setting aside for the moment the alternations in (103)b and c and (104)c and d, we can see certain resemblances between Finnish and Old English: initial stress is always assigned; stress assignment is quantity-sensitive; and as suggested by expressive lengthening, initial sequences of a light syllable followed by any syllable form a single metrical constituent analogous to a heavy syllable. It is also a language without monomoraic lexical words. The major difference lies in the fact that in Finnish an interval of at least one and in some cases two syllables between stresses is insisted on. In fact, the stress patterns of these forms can be accounted for in exactly the same way that was proposed for Old English with the addition of a single condition prohibiting stress clash: stress may not be assigned to a syllable adjacent to a stressed one. Thus metrical structure would be assigned subject to the following simultaneous constraints:

(108) a. The leftmost syllable is the head of the word.

b. Feet are parsed into moraic trochees from left to right.

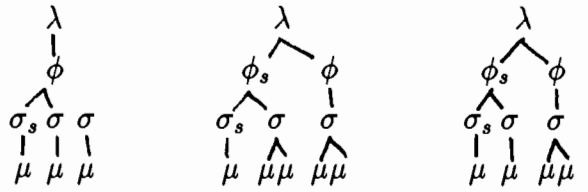
c. Degenerate feet are absolutely disallowed.

d. Inconsistencies among (a), (b) and (c) are resolved by constructing resolved moraic trochees (as in (100)).

e. Stress may not be assigned to two adjacent syllables.

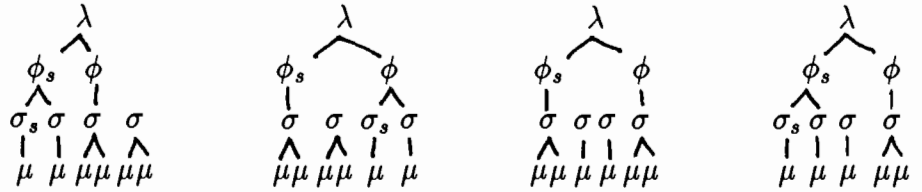
These conditions will result in metrical structure compatible with the stress facts for the forms above as follows:[4]

(109)



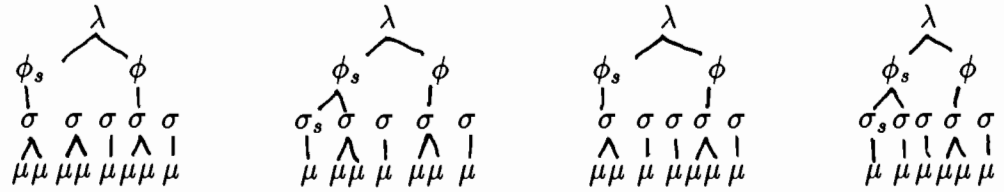
a. ó peta b. mólemmàt c. sánonèet

(110)



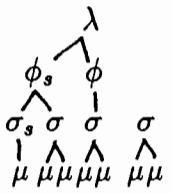
a. sákariston b. sýnneistàni c. véisasivàt d. lópetetàan

(111)

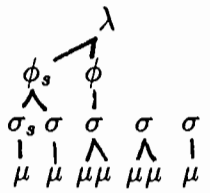


a. ákvaari òs sa b. ó pettamàssa c. pálvelijòita d. ú teli ài ta

[4]Note that stray syllables must be assumed to be adjoined after processes such as expressive lengthening, and also after the metrical phenomena to be discussed below which make reference to the minimal feet shown here.



e. tótellùtkaan



f. káravàanimme

In these forms we can see that the first two syllables will always form a stressed-stressless sequence, but not always with the same structures. In forms (109)a and c, (110)a and d and (111)d and f they form an ordinary disyllabic moraic trochee; in (109)b and (111)b and e they form a resolved moraic trochee; and in (110)b and c and (111)a and c they form a sequence of a monosyllabic moraic trochee and a syllable which cannot be footed because of stress clash. In sufficiently long words the third syllable bears secondary stress, , except for the forms in (110)c and d and (111)a, b, c and d which show the ternary intervals characteristic of Finnish. In all these, no foot can be constructed over the third syllable because it is light and consequently insufficient to constitute a moraic trochee. It is here that the difference between the proposal here to confine to initial position the mechanism of borrowing a mora from a following syllable to make up a resolved trochee and that of Dresher and Lahiri to treat the resolved moraic trochee as a possible iterating foot becomes crucial; in the latter case a foot could be constructed over the third and fourth syllables in such words, but that is not what happens. The third syllable is indeed skipped, and a foot is constructed over the fourth syllable alone, where secondary stress appears.

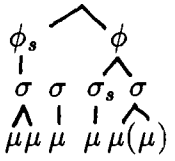
Turning now to the alternative forms of (109)b and c and (110)c and d in (103)b and c and (104)c and d respectively, we can see both alternations to be related to what Carlson refers to as the 'metrical ambiguity' of final syllables. First, we saw that final heavy syllables could be optionally unstressed if light, as in (112). Second, we saw that a light third syllable followed by a heavy syllable could optionally be unstressed if that heavy syllable is final, as in (113):

(112) a. mólemmat b. sánoneet

(113) a. véisasìvat b. lópetètaan

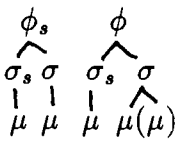
The implication of peripheral syllables in both of these options suggest that some extrametricality is at work. Given that foot assignment requires two moras, and that a foot therefore cannot be constructed on a final light syllable while it can be on a final heavy syllable, optional lack of stress on final heavy syllables could derive from their final moras being optionally extrametrical, so that the final syllables would be parsed as if they were in fact light. On that analysis, the optional stressing of light third syllables when followed by final heavy syllables will follow. For where final moras are not extrametrical, as in (110)c and d above, just as in the case of longer words as in (111) in which a third syllable is followed by a heavy fourth, the rule assigning moraic trochees will be unable to construct one involving the third syllable, but will instead construct one over the following syllable. Where final moras are extrametrical, however, as in (114), a foot can be constructed over the last two syllables just as in a word ending in two light syllables:

(114) a.



véisa sì vat

b.



lópe tè taan

In one respect, however, this analysis makes a wrong prediction. In the case of four-syllable words that genuinely end in two light syllables as in (104)b sketched in (110)b, stress on the third syllable is not in fact optional as would be expected if final moras could optionally be extrametrical, but rather obligatory. This remains problematic, and it will simply be stipulated that the extrametricality of final moras is confined to weak ones. Thus to the stress rules in (108) we may add rule (115):

(115) Final weak moras are optionally extrametrical.

Apart from the exception just noted, these rules are generally adequate to the task of accounting for that portion of the metrical structure of Finnish determined by rhythmic considerations rather than morphology. There are however two further complications which bear mentioning. First, there is evidence from meter to be

discussed below that the option of whether to stress heavy final syllables or not, while quite freely available where the syllable is heavy by virtue of being closed by a consonant as in (103)b, seems considerably less favored when the syllable is heavy in virtue of its containing a long vowel as in (103)c. Similarly, the possibility of there being stress on a light third syllable followed by a heavy fourth seems to be significantly less favored when the latter is heavy in virtue of containing a long vowel as in (104)d compared to (104)e. This preference seems natural insofar as vowels are more sonorous than consonants and hence universally more likely to add a second mora to a syllable, at the same time time that syllables with second moras seem universally to tend to attract stress, but it can be captured only in a limited way here, by refining (115) to say that either final consonants or final moras may be extrametrical, with the choice of extrametricality in the latter case entailing a more serious mismatch between syllable weight and stress.

The other complication is that there is some evidence that the phenomenon of not stressing a third syllable in favor of stressing a following final fourth involves a relative rather than absolute property of syllable weight. In words in which the third syllable is closed but contains a short vowel and the following syllable is superheavy, it is possible, though quite rare, for the fourth to be stressed instead of the third:

(116) táuonnutkàan, sýdämessä̀än

This is unaccounted for on the rules above, on which such final sequences would be expected to be stressed just as in the case of two ordinary final heavy syllables, resulting in stress on the third as in (111)e.

Finally it must be noted that as was mentioned above, morphology plays an important role in metrical patterns. Most importantly, there is a class of suffixes in Finnish which require stress on the preceding syllable, unless that syllable itself is such a suffix; in (117), for example, *-si* is such a suffix, resulting in stress on the fourth syllable instead of on the third as would be expected on the rules above:

(117) kóhtalonàsi

These cases are not particularly relevant to the analysis of the role of the resolved moraic trochee in the metrical structure of Finnish, but will occasionally appear when

we turn to its verse and the relation between metrical patterns there and the metrical structure of the language.

The foregoing analyses of Old English and Finnish support the idea that the phenomenon known in traditional grammar as resolution, whereby a sequence of a light syllable followed by another syllable is equivalent to a heavy syllable, does indeed play a role in the phonology of natural languages. The sequence of a light syllable followed by another syllable is in one incarnation an ordinary moraic trochee, the type constructed over two light syllables. In its other it is here proposed to be a special type of moraic trochee that languages with moraic trochees and initial stress permit to join with canonical moraic trochees as one of the basic feet into which words may be parsed. Together with the heavy syllable to which these are traditionally taken to be equivalent, itself of course also an ordinary moraic trochee, these form a natural class. I will refer to this class of moraic trochees which can serve as minimal feet into which words may be parsed as ρ, because it is defined by resolution. We are now in a position to turn to a consideration of the role of ρ in verse.

3.3 English Iambic Pentameter

It is well known that certain disyllabic words like *Heaven*, *given* and others can exceptionally count as monosyllabic in the English iambic pentameter. Kiparsky (1977) observes that for Shakespeare at least, this belongs to a more general pattern whereby any sequence of two syllables with short vowels of which the first is also open can occupy a single metrical position:

(118) a. And spends his prodigal wits in bootless rhyme (*Love's Labour's Lost 5.2.64*)
s s w s s s

Come to one mark, as many ways meet in one town (*Henry V* 1.2.2 08)
s s s w s s

In the affliction of these terrible dreams (*MacBeth* 3.2.19)
s s s s w s

Followed my banishment, and this twenty years (*Cymbeline* 3.3.69)
s s w s s s

b. This fortification, gentlemen, shall we see it? (*Othello 3.2.5*)
s w s s s s

He describes this as "resolution of a metrical position into a VCV sequence (where V is a short vowel, and C a single consonant)" and formalizes it in a metrical rule as follows:

(119) $\breve{V}$ $C\breve{V}$ (where M = metrical S or W)
↕ ↓
M ∅

Thus the second syllable in such a sequence may be simply discounted for metrical purposes.

Now as can be seen in (118), the VCV sequence into which a position is resolved may either have stress on the first syllable as in (118)a or have stress on neither as in (118)b. Moreover, resolution is possible in either a strong metrical position as in (118)a, or in a weak metrical position as in (118)b. But there is a restriction on the combination of these two possibilities: if the initial syllable of the sequence is stressed, the sequence must occupy a strong position.[5]

Kiparsky argues that this restriction follows from the status of (119) as a metrical rule. As discussed in section 2.3 above, a metrical rule specifies possible matchings between the phonological representations of the language and the metrical pattern. Here (119) does so by specifying an allowable class of exceptions to rule (64)a (our (74)a)in section 2.3, which requires syllables to be in one-to-one correspondence with metrical positions. But the application of (64)b (our (74)b), which prohibits a syllable which is strong within a word in a weak position, is unaffected. From a phonological point of view, whether they are counting as one metrical position or as two, words like those in (118)a contain strong syllables, and hence are correctly predicted to be excluded from weak positions.

The theoretical status of metrical rules is moreover confirmed, he notes, by the contrast between disyllabic sequences which count as one metrical position by virtue

[5]Whether sequences like that in (118)b where both syllables are unstressed should be treated as resolution under the analysis of it offered here is questionable, but as what follows will focus on the distribution of sequences like that in (118)a where the first syllable is stressed, the issue will not be pursued further here.

of the metrical rule of resolution in (118)a and those which count as one metrical position by virtue of the prosodic rule illustrated in (87) of section 2.3, whereby an unstressed vowel may be deleted following another vowel. As discussed there, prosodic rules are rules which actually alter the phonological representation of the language whose matching to the meter is regulated by the metrical rules. Hence a disyllabic sequence which counts as monosyllabic by virtue of such a rule would be assumed to have a monosyllabic phonological representation. On such a representation there can be no strong syllable. Hence it would be expected that such a sequence could occupy a weak position, and indeed Shakespeare allows them to, as shown in (120)a. But the same option is not available to disyllabic sequences counting as monosyllables through resolution; parallel cases as in (120)b do not arise.

(120) a. A soothsayer bids you beware the Ides of March (*Julius Caesar* 1.2.19)
s w s s s s

Can lay to bed for ever; whiles you, doing thus (*The Tempest 2.1.284*)
s s s s w s

b. *Her bank teller bid her beware the Ides of March
s w s

*Can lay to bed for ever; whiles you, sitting thus
s w s

Thus the phenomenon of resolution in the phonology of both Finnish and Old English, whereby rules of foot construction may under limited circumstances treat as equivalent a sequence of a light syllable followed by another syllable and a single heavy syllable, finds an analog in the metrics of modern English, whereby the correspondence rules of iambic pentameter may treat as equivalent such a sequence and a single syllable, insofar as either may correspond to a single metrical position. In both Finnish and Old English, when such a sequence is footed, the first of the two syllables will be stressed. Crucially, the rules of iambic pentameter will respect this stress, excluding it from a weak position. But it is not excluded from a weak position in all English meters. We are now in a position to turn to the first of our puzzles, the nineteenth-century meters in which binary and ternary feet are robustly mixed, and consider the role played by resolution in them. We will see that there such a sequence is allowed in a weak position, and argue that this is diagnostic of a meter that takes

as its basic unit not the syllable, but the special class of minimal moraic trochees we have identified as ρ.

Chapter 4

Finnish Iambic-Anapestic Meter

Leino (1982, 1986) observes that since the nineteenth century Finnish metrics has been dominated largely by what he calls a dynamic metrical system, adopted under the influence of Germanic languages, in which the basic structure of the verse involves alternation between prominent and unprominent syllables, where prominence is affected by both syllable quantity and stress.[1] Iambic, trochaic, anapestic and dactylic meters similar to those familiar from English are all of this type, as are ones in which iambic and anapestic or trochaic and dactylic feet are mixed. Among these, he notes that the anapestic and dactylic meters were never more than "experiments with borrowed conventions" (p. 31); and that although the iambic and trochaic meters were successful, since the beginning of the twentieth century they have been displaced by the mixed types, which he refers to as 'iambic-anapestic' and 'trochaic-dactylic', as the most common meters in Finnish. The mixed types, he suggests, are particularly well-suited to deploying the full vocabulary of Finnish in a natural way.

Here we will examine the iambic-anapestic meter identified by Leino and show that given the description of the metrical structure of Finnish words in section 3.2 above, its essential properties can be very succinctly stated. Correlated with the meter's

[1]This chapter is the result of work done together with Paul Kiparsky to develop ideas presented by him in Kiparsky (1989b). In it I am therefore grateful to him for contributions well beyond the usual, including translating the relevant portions of Leino (1982) and Sadeniemi (1949), browsing in the bookstores of Helsinki for editions of Finnish poets, reading those editions with an eye to the generalizations presented here, providing the glosses and many scansions, and, most of all, approaching it all with infectious enthusiasm.

mixing of binary and ternary feet can be seen to be three distinctive characteristics: a requirement that strong positions contain stressed syllables; a prohibition against lexical monosyllables in weak positions of ternary feet; and allowance of strong syllables of lexical words in weak positions just in case they are light and followed by an unstressed syllable within the same word, also belonging to the weak position—that is, just in case the entire weak position involves what we have identified above as resolution. It will then be proposed that these properties follow from an analysis that takes the meter to be a basically binary one, but one in which each metrical position corresponds not to a syllable, but to a minimal foot of the type we have identified as arising in moraic trochee systems including resolution, or a ρ.

Both the illustrations and the generalizations below are drawn largely from Leino's discussion of the meter. However, Leino does not actually provide a description of iambic-anapestic meter on its own independently of the properties of the dynamic system as a whole. Instead he gives a limited account of Finnish phonology, develops from that a set of rules establishing prominence relations for all the meters within the dynamic system, and then distinguishes the meters within that system simply by how many unprominent syllables they allow and in what order. Deducing the properties of any one meter from the interaction of these rules is thus a somewhat difficult process. Therefore, the description which follows actually represents the results of such a deduction together with a consideration of his examples, supplemented with comments and illustrations from Sadeniemi's (1949) discussion of Finnish metrics and with examples sought by Paul Kiparsky in Finnish poetry itself. Following the description in section 4.1 and the analysis in section 4.2, then, I will present in an appendix a detailed summary of Leino's approach showing how it yields these generalizations and comparing it with the approach presented here.

4.1 Description

The basic structure of a line of Finnish iambic-anapestic meter has either one or two syllables preceding each strong position:[2]

(121) koko pitkän päivän istui 'Sat the whole long day' (L86, p. 34)
s s s

Strong positions generally must contain stressed syllables. Among lexical words, we find in strong positions exactly those syllables claimed to be stressed in the account of Finnish stress in section 3.2 above. Thus a strong position may contain an initial syllable of a polysyllabic word, which we have seen bears primary stress whether it is heavy as in (122)a or light as in (122)b:

(122) a. Ja ettei viivytä turhaan 'And lest we tarry too long' (L86, p. 28)
s s s

b. Ja jalojen soturien 'And of the noble warriors' (L82, p. 134)
s s s

A strong position may also contain a lexical monosyllable, which we have seen will always be stressed:

(123) kolon koivuun luo kovin urin 'makes a hollow in the birch with hard grooves'
s s s

(L86, p.56)

And a strong position may contain any of the syllables we have seen to bear secondary stress, whether optionally or obligatorily. The final syllable of a three-syllable word may be in a strong position if it is heavy, as in (124)a, though such a syllable may also occur in a weak position, especially if its vowel is short, as in (124)b:

[2]In what follows examples cited in Leino (1986) are identified as from 'L86', and those from Leino (1982) as from 'L82'. The scansions shown for examples taken from Leino (1986) are those given by him. For examples taken from Leino (1982), the scansions of the parts of the examples under discussion are taken from him, but the scansions of the remainder of the lines are supplied by Paul Kiparsky, since Leino does not give them. For all other lines of Finnish poetry cited, the scansions are also supplied by Paul Kiparsky. Following Leino, compunds are indicated by a '=' between the component words.

(124) a. minä rakennan ja asun 'I build and dwell' (L82, p.161)
s s s
hañ nurkassa yksinään 'he alone in a corner' (L86, p.34)
s s s

b. Ja ensimmäinen on Melkior 'and the first one is Melkior' (L86, p.50)
s s s s

A final light syllable of a three-syllable word in contrast never occurs in a strong position, except under a special condition to be discussed below. Similarly a third syllable of a four-syllable word may be in a strong position if it is heavy as in (125), or if it is light and followed by another light syllable, as in (126):

(125) kuten sakariston taulussa, ja silmät jäiset ja tylyt.
s s s s s s s
'As in the sacristy's painting; and eyes icy and forbidding' (L86, p.49)

(126) joka pienen pienistä synneistäni 'which from my tiniest sins' (L86, p.23)
s s s s

A third syllable of a four-syllable word may also be in a strong position if it is light and followed by a heavy syllable, as in (127) and (128).

(127) a. Jos haavani kirvelevät 'If my wounds smart' (L82, p.134)
s s s

b. Olin kyllin jo kaarreksinut 'I had gone in circles enough already'
s s s
(Siljo, *Häkkilintu*)

Miten ihanan tuskallinen 'How delightfully painful'
s s s
(Kailas, *Sairaalan ikkuna*)

(128) a. Minä tuoko? Tuotako itkeksitään?
s s s s
'Me him? Is that whom they are weeping for?' (Hellaakoski, *Uusi runo*)

b. mua lentoon ylenevään 'me into rising flight' (Siljo, *Häkkilintu)*
s s s

kurottuivat iltaan säteilevään 'reached into the radiant evening'
s s s s

(Kailas, *Sairaalon ikkuna*)

For such a light third syllable followed by a heavy fourth to be in strong position is in this way more common if the vowel of the final syllable is short as in (127) than if it is long as in (128), and neither is so common as having such a syllable in the weak position so that the final heavy fourth is in the strong position instead, as in (129):

(129) Ja lukkari tuli myöskin. Ja sitten he veisasivat
s s s s s s
'And the sexton came too. And then they sang a hymn' (L86, p.48)

In fact for some poets such as Manninen and Jylhä, Sadeniemi (p. 160) notes that the latter is in fact the only possibility. But the scansions not from Leino in (128) and (129) are all confirmed by rhyme: in (127)b *kaarreksinut* rhymes with *mínut* and *tuskallinen* with *sínen*, and in (128)b *ylenevään* and *säteilevään* both rhyme with *kévään*. And for either the third or the fourth to be stressed is possible in the language on the rules developed in section 3.2, because of the optional extrametricality of final weak moras. That analysis predicts, however, that a third light syllable followed by a heavy fourth in a word longer than four syllables can never be stressed, and indeed only the fourth and never the third syllables of such words ever occur in strong positions:

(130) miks kirkon tornissa iso=kello noin taukoamatta soi
s s s s s s
'Why is the big bell ringing ceaselessly in the steeple?' (L86, p.48)

We have also seen above that in words where the third syllable is heavy and the fourth superheavy, the fourth may sometimes be stressed instead of the third; and in such words either syllable may appear in a strong position of the meter:

(131) a. sen, jolla ympärillään 'the one who, around him' (L82, p.134)
s s s

b. kumaran hahmon kuokoksellaan 'a bent figure in his newly opened field'
s s s s

(Hellaakoski, *Yksinäisyys*)

(132) a. ei tanssi tauonnutkaan 'the dance didn't stop after all' (L82, p.135)
s s s

b. Sinut miksi he siihen sulkivatkaan 'why did they enclose you in it at all?'
s s s s

(Kivikk'aho, *Sankarihautani*)

For the fourth syllable to be in the strong position as in (132) is much less common, though the scansion is again confirmed by rhyme. It will be recalled that words of this type were problematic for the stress rules given in section 3.2, as they seem to depend on the relative weight of the syllables in question, rather than on the absolute weights made available by the phonology. Nonetheless, while how to account for such stress patterns in the language remains unsolved, it seems clear that the possibility of stress on such syllables in the language is the source of their occurrence in strong positions in the meter.

Finally, syllables assigned stress for the morphological reasons mentioned in section 3.2 may be in strong positions: in (133), *-nä* and *-si* are suffixes which assign stress to the preceding syllable.

(133) Valon nähdä leviävänä 'to see the light spreading' (L82 p.139)
s s s

Sama kohtalo kohtalonasi 'the same fate as your fate' (L82, p.139)
s s s

In sum, then, among lexical words only those syllables which were analyzed above as potentially bearing stress occur in strong positions of iambic-anapestic meter.

Although there are a few cases where syllables in strong positions are not ones which would be expected to be stressed on the rules in section 3.2, the problem seems to be rather idiosyncratic wrinkles in the stress rules, and not shortcomings in the metrical generalization. For example, the syllable in the third strong position in

(134) would not be expected to be stressed, yet the scansion is not one that seems in tension with the language; that is, the syllable seems indeed to be stressed, possibly as a result of special properties of the suffix that constitutes it (Sadeniemi 1949):

(134) Pois, pois, syvään yksinäisyyteen 'away, away into the deep solitude'
s s s

(L82, p.139)

Another example is that some word-final light syllables with final *-e* occur in strong positions:

(135) Pois pohjasta houkuttele 'entice away from the bottom' (L82, p.79)
s s s

In this case a possible explanation could lie in an argument by Keyser and Kiparsky (1984) that all word-final *-e*'s in Finnish indicate the presence of an abstract following consonant unrealized by any segmental material, or 'ghost consonant'.[3] If it were the case that the stress rule were sensitive to the presence of these ghost consonants, these syllables would in fact be optionally stressed in exactly the same way that final heavy syllables of four-syllable words are. Thus among lexical words it appears that those syllables which appear in strong positions are those which are stressed within the language, though this generalization reveals come cases where the account of the phonology is not entirely adequate to the task of correctly specifying all stressed syllables.

Now the rules assigning stress in these cases were assumed to apply in the lexical phonology. Thus lexical words such as nouns, verbs, adjectives and most adverbs would undergo them, while non-lexical words such as pronouns, conjunctions, interjections and at least one adverb, *jo*, would not. This distinction is corroborated by the fact that as discussed in section 3.2, lexical words observe a minimal word constraint while non-lexical words do not: only the latter may be light monosyllables, such as *se* 'it' or *ja* 'and'. At the same time, however, non-lexical words clearly do receive

[3]The evidence involves a rule which normally raises final *e* to *i*, whose failure to apply in these words would be explained if the *e* were not in fact final but was followed by a consonant. Moreover, when such words are followed within sandhi environments by consonant-initial words, those initial consonants surface as geminates.

some stress: disyllabic non-lexical words, for example, always have initial stress just as disyllabic lexical words do, as in *mutta* 'but' or *tällä* 'this (adessive)'. And among them there are syllables which can occupy strong positions. The stressed syllable of such a disyllabic non-lexical word may occupy a strong position. And a strong position may be occupied by a non-lexical monosyllable: in the following lines, *on* 'is', *nyt* 'now' and *kun* 'when' occupy strong positions. But in all cases of this type, the word appears to be a heavy one:

(136) Se toivo on kuin tuuli 'That hope is like the wind' (L82, p.158)
s s s

Tuo katse—nyt mä tiedän 'That look—now I know' (L82, p.162)
s s s

mut kun näin ristin kautta 'but when I saw through the cross' (L82, p.165)
s s s

If we make the straightforward assumption that non-lexical words undergo the same rules as lexical words, but post-lexically, exactly those syllables which occur in strong positions will be stressed: initial syllables of polysyllabic words, and heavy monosyllables. Light non-lexical words cannot be stressed, and do not normally occur in strong positions. Apart from a few involving a special metrical convention to be discussed below, the only exceptions in Leino's data are in (137). The first seems adequately explained by the fact that it involves contrastive stress on the word in question, *sa* 'you'. The second involves the word *jo* 'already', whose properties are somewhat unclear on this account. *Jo* is special in that it is the only word which is light which belongs to a category generally considered to be lexical, namely, that of adverbs. But we argued in section 2.2 that in English adverbs fall into two classes, those which have phrasal projections, which are indeed lexical, and those which do not, which are non-lexical. *Jo* cannot head a phrase, and so if this criterion also extends to Finnish, its ensuing classification as non-lexical actually makes sense of its lack of conformity to the Finnish word minima. But it leaves its occurrence in a strong position in (137)b an unexplained exception:

(137) a. Ja samoin tehkösi <u>*sa*</u>! 'And *you* do the same!'

b. Oli valkea jo koko maa 'the ground was white already' (L86, p.80)
s s s

There also appear to be some systematic counterexamples to the generalization that strong positions contain stressed syllables, which reveal some special metrical cases. First, it appears that a stressless syllable may exceptionally occupy a strong position line-finally. There are several examples of this in Leino's corpus, and Sadeniemi (p. 160) notes it too:

(138) a. isäntäänsä käärme se 'that snake its master' (L82, p.140)
s s s

b. Ja valloitan uusia 'And I conquer new ones' (L82, p.157)
s s s

Joiss' ei ole kurjuutta, 'In which there is no misery' (L82, p.146)
s s s

Tai jalkoja, kuutiojalkoja 'Or feet, cubic feet' (Viita, *Pappi ja pakana*)
s s s s

If there is in this way a line-final relaxation of the requirement that a strong position must contain a stressed syllable, it should be noted that it is somewhat problematic from the point of view of Hayes' typology of metrical rules described in section 2.3, in that right-edge phenomena are normally associated with special strictness. But such a relaxation is not unprecedented: there is a similar phenomenon in Classical hexameters, where the final foot is always required to be a spondee, but either a light or a heavy syllable can count as heavy line-finally to meet that requirement; and in trochaic and dactylic meters in English, line-final weak syllables are often omitted. Thus it may be that Hayes' rule typology is too strong in this respect.

Some further apparent examples of stressless syllables in strong positions which appear to be line-internal may also be analyzed in this way:

(139) a. ja kantoivat pientä arkkua. Oi, äiti, sano, oi
s s s s s s s
'And carried a little coffin. Oh mother, say Oh' (L86, p.48)

b. kuten sakariston taulussa, ja silmät jäiset ja tylyt.
s s s s s s s

'As in the sacristy's painting; and eyes icy and forbidding' (L86, p.49)

c. hänen hyvän=sävyinen naamansa kauhusta vinoon vääntyy
s s s s s s s
'His well-featured face twists askew from terror' (L86, p.49)

All of these are cited by Leino in the context of a discussion of empty positions in the meter, and come from poems he analyzes as consisting of tetrameter couplets, with certain final positions left empty. On this analysis, all the problematic syllables occur at half-line boundaries, coinciding with major prosodic breaks: in (139)a *oi* initiates a new sentence; in (139)b *ja* initiates a new clause; and in (139)c the boundary between *naamansa* and *kauhusta* is that between predicate and subject. In (139)c, moreover, the presence of a line boundary is confirmed by the exceptional adjacency of two strong positions: that can result only from the phenomena of headlessness or inversion (the latter will be discussed further below) discussed in connection with English in section 2.3 above, which are both confined to initial positions of major prosodic and/or metrical units.[4]

A second apparent case of unstressed syllabels in strong positions of iambic-anapestic meter appears to involve the importation into iambic-anapestic meter of the phenomenon of inversion discussed with reference to English iambic meter in 2.3 above into iambic-anapestic meter. For example, some iambic-anapestic poems of Cajander appear to have stressless second syllables of polysyllables in strong positions; but in all cases, it is the first strong position of a line, and thus could be analyzed as involving inversion:

(140) labelcajander Lukossa on rautaportit, ei valoa sieltä näy
s s s s s s
'the iron gates are closed, no light is visible from there' (Cajander, *Vapautettu Kuningatar*)

Saalistahan linnan herrat yöt, päivat vahtivi nyt
s s s s s s

[4]The twin of headlessness, extrametrical syllables in final postions of major prosodic and/or metrical units, also seems to arise in Finnish; note that most of the sample lines in the foregoing do not end with their strong positions.

'The master of the castle guards his treasure night and day now' (Cajender, *Vapautettu Kuningatar*)

Sarkia has one poem with similar cadences:

(141) labelsarkia levolle ehtien (Sarkia, *Kouluvihko*)
s s s

The fact that the phenomenon is restricted to a few poets' work also argues for its status as a special metrical convention.

Beyond these cases, all the remaining examples of stressless syllables in strong positions in Leino's book turn out to come from iambic poems:

(142) Ja paikkaa katseli 'And looked at the place' (156, 1)
s s s

Oi Tornio, sun kruunus 'O Tornio, your crown' (16 1, 14)
s s s

ja sieluni, kun kuolen 'And my soul, when I die' (161, 14)
s s s

Kun asein neroutensa ja työnsä
s s s s s

'When with the weapons of his genius and work' (L86, p. 80)

Since he treats all meters of the dynamic system together, this distinction is obscured, but in fact the difference between requiring stress in strong positions or not seems to be a significant difference between iambic and iambic-anapestic meter in Finnish, also noted by Sadeniemi (p.160). We will see that this is also true in English.

In summary, then, it appears to be a fairly robust requirement of iambic-anapestic verse that strong positions must contain syllables of some metrical prominence. In some cases the phonological description is not quite adequate to the task of specifying all the stressed syllables, but the metrical generalization does not seem to be compromised by that. And in some cases apparent exceptions arise as a result of special metrical rules such as investion or the relaxation of this requrement line-finally. But overall, in this requirement iambic-anapestic meter differs significantly from iambic verse, which has no such requirement.

The two other distinctive properties of iambic-anapestic meter involve its weak positions. We have seen that either one or two weak syllables may precede a syllable in a strong position, and most often these are stressless syllables as in (143):

(143) he purjehtivat joy päivät 'they sailed night and day' (L82, p.136)
s s s

ja he alkavat karkelon 'and then begin the dance' (L86, p. 50)
s s s

koko päivän se ylitse viulun 'all day it above the violin' (L86, p.34)
s s s

But under two conditions they may be stressed syllables. First, lexical monosyllables may occur in weak positions, but only if they are the only weak syllable there, as in the case of *yöt* night' in (144):

(144) he purjehtivat joy päivät 'they sailed night and day' (L82, p.136)
s s s

Where there are two weak syllables, the only monosyllables which occur are non-lexical words, such as *se* 'if', *ja* 'and', *sun* 'your' and *Hän* 'he' in the following lines:

(145) koko päivän se ylitse viulun 'all day above the violin' (L86, p.34)
s s s

Ja sun punainen sukka=nauhas 'and your red garter' (L86, p.87)
s s s

tämän painava maahan Hän on 'he'll press this into the ground' (L82, p.167)
s s s

For a lexical monosyllable to be in a weak position is of course possible in iambic meter; what is surprising here is that even though iambic-anapestic meter allows two syllables in a weak position, it is not possible for one of two to be lexical, let alone both.

Second, a strong syllable of a lexical word may occupy a weak position just in case it is light and followed by an unstressed syllable within the same word which also forms part of the weak position:

(146) Pidättää unen köysin sen 'To hold it with ropes of sleep' (L86, p.87)
w s w s s

Mitä kielin he ei sanoneet 'What they did not say in tongues' (L86, p.87)
w s s w s

Hän tuimana sai sanomaan'He sternly managed to say' (L86, p.76)
s s w s

A strong syllable cannot be in a weak position if it is heavy, or if it is the second or only weak syllable. Thus this configuration is exactly that identified in Chapter 3 as resolution, and that is also possible in Finnish iambic-anapestic meter, resulting in feet of four syllables; Sadeniemi (p. 166) notes that in the rare cases where four-syllable feet occur, the first syllable is almost always light:[5]

(148) Joku värisevä kuutamon=hetki 'some trembling moonlit moment'
s s s

(Harmaja, *Rajalla*)

But we have seen that resolution is not allowed in English iambic meter in a weak position, and this appears to be true of Finnish iambic meter as well. Thus to allow a strong syllable of a word in a weak position of the meter in the special case of resolution is a third and crucial distinctive property of iambic-anapestic meter in Finnish.

Before turning to the question of how this can provide a key to an analysis of the meter, the interpretation of these constraints on weak positions for non-lexical words bears consideration. First, some poets such as Koskenniemi, Viljanen, Kaijärvi and Larin-Kyösti allow a heavy stressed syllable of a disyllabic word as the first of two weak syllables just in case the word is a non-lexical one, as in (149) (Sadeniemi p.,167-68):

[5]In fact the one and only apparent counterexample to the generalization that lexical monosyllables cannot occur in split weak positions can be accounted for on the assumption that the preceding strong position involves resolution. In the following line, *teen* 'I make' is lexical, yet appears to share a weak position with the unstressed syllable *si*; but in fact the latter could equally well belong to the strong position along with *-pa-*.

(147) Sinun kalleimpasi teen suureks (L82, p. 136)
s s s

(149) a. missä jalkas pieni astuu 'where your little foot steps'
s s s
(Koskenniemi, *Minä laulan sun iltasi tähtihin*)

sinne nouseva aurinko hohtaa 'there the rising sun shines'
s s s
(Koskenniemi, *En tahdo ma tietää minne*)

sillä Kuoleman rakkaus väsynyt ei 'for Death's love did not tire'
s s s s
(Koskenniemi, *Sydän ja kuolema*)

b. sulle neidot hymyil hukkaan 'the maidens smiled at you in vain'
s s s
(Viljanen, *Saari meressä*)

mistä kukkia etelän saa 'where you can get flowers of the south'
s s s
(Viljanen, *Evoe!*)

siellä kulkee mies ja nainen 'there a man and a woman are walking'
s s s
(Viljanen, *Rakkaus vainoaikaan*)

c. Tässä kilua, kalua kimmaltaa 'here all kinds of things are gleaming'
s s s s
(Larin-Kyösti, *Paholaisen huutokauppa*)

Koska saavutan taivahan rannat 'when I reach heaven's shores'
s s s
(Larin-Kyösti, *Vapaapurjehtija*)

eikö kohta ne nahjukset nappaa'aren't the blighters going to bite soon?'
s s s
(Larin-Kyösti, *Kirkonaidalla*)

d. Joissa tummuus ja syvyys oli kaukaisen korpilammen veen
s s s s s s
'which had the darkness and depth of a faraway forest pond'
(Kaijärvi, *Hen on minulle annettu*)

But others such as Siljo and Manninen seem not to allow this with non-lexical words any more than they would with lexical ones. For them there is one exception, however; they do seem to allow this just in case what makes the syllable heavy is a geminate consonant, as in *mutta* 'but' or *sillä* 'for'; Kiparsky (p.c.) suggests that this may be because such words have truncated monosyllabic forms such as *mut* and *sill'* which while not appearing in the standard language in formal usage do appear in poetic and colloquial usage, as in (150) below. Thus this may be something like how even the strictest English poets will allow words like *even* and *never* which have lexicalized poetic monosyllabic forms such as *e'en* and *ne'er* to exceptionally make up a weak position in iambic verse

Setting aside this latter complication, on the assumption adopted above that non-lexical words are stressed by the same rules as lexical words, but post-lexically, the practice of poets who allow lines like those in (149) can be attributed to their metrical rules respecting post-lexical stress only optionally. For poets who do not allow lines like those in (149), in contrast, respect for post-lexical stress is obligatory. We have seen in section 2.3 that exactly this kind of difference may characterize differences across poets in both English and French with respect to other rules.

This can also be seen in differences across poets in the treatment of monosyllabic non-lexical words which are heavy. On the assumptions above, such a word will always be assigned stress, but post-lexically. Now we have seen above that if a monosyllable is one of two weak syllables, it must be non-lexical. But for some poets, even that is not sufficient: the distribution of heavy non-lexical words may be restricted too.

For at least some of the poets who will allow a heavy initial syllable of a disyllabic word in a weak position, such as Koskenniemi, heavy non-lexical monosyllables are always allowed, even when there are two weak syllables:

(150) hän on aamunnousun ja Mikadon maasta
s s s s

'he comes from the land of dawn and the Mikado' (Koskenniemi, *Mun armaani pieni Geisha on* -)

<u>mut ei</u> kotihin konsanaan 'but never home' (Koskenniemi, *Koti-ikävä*)
s s s

mut jos löydän ma maani sen kerta 'but if I ever find my country'
s s s

(Koskenniemi, *Pyhiinvaeltaja*)

ei sun uhrilles tarkoitusta suo 'does not grant a purpose to your victims'
s s s s

(Koskenniemi, *Tuntemattoman sotilaan haudalla pariissa*)

kuin ei kukaan toinen hän syytön on 'he is innocent as no one else'
s s s s

(Koskenniemi, *Maria*)

This is compatible with the hypothesis above that such poets optionally disregard post-lexical stress.

For many poets, however, the occurrence of heavy non-lexical monosyllables is restricted, though not in the same way as that of lexical monosyllables. Leino suggests that the normal pattern is that the first of two successive weak monosyllables must be light, as in (151), though the second need not, as seen in (151)b:

(151) a. Ja se kuulutti kadulla julki 'and it announced publicly in the street' (L86, p.23)
s s s

b. ja he alkavat karkelon 'and they begin the dance' (L86, p.50)
s s s

c. Ja sun punainen sukka=nauhas 'and your red garter' (L86, p.87)
s s s

His explanation for this is that the first of two such syllables in fact receives some stress, such that these configurations can be seen to be similar to those in (146), that is, to those allowed under resolution. We will adopt that view here,[6] but with two provisos. First, it should be noted that only if the second is non-lexical will it be unstressed and able to resemble resolution; it has already been observed that in fact this seems to be true of all cases of two monosyllables in one weak position (including all the foregoing examples). But beyond that, it means that the rule grouping two such words together and assigning stress to the first must precede the assignment of

[6]Note that this means that light non-lexical syllables might in principle be allowed in strong positions in just these cases, although there do not seem to be examples of this in Leino's data.

any stress to such words individually, since the latter would stress heavy syllables, and pairs including them would then not resemble resolution.

A special case involves cases where the first syllable is heavy only in virtue of being closed by a single consonant, and is followed by a vowel-initial word. Leino observes that there is a rule of liaison in Finnish by which a final consonant of a monosyllabic word may be resyllabified as the onset of a following vowel-initial word. Now Leino claims that if the following word is either the negation verb *ei* or a part of the verb *olla* 'be', the rule will make the first syllable in sequences such as those in (152) count as light, and the whole will have the same structure as those of (151)b above which are admitted as similar to cases of resolution; and such sequences as those in (152) are indeed metrical for the same poets for whom those in (151) are:

(152) Ken on tohtinut koskea vuoreen 'he who has dared touch the mountain' (L86, p.72)
s s s
Sit' en tautia tahdokkaan 'I don't even want that disease' (L86, p.72)
s s s
Mut on saatava suunta selvä 'but you have to get a clear direction' (L86, p.72)
s s s

Again we will adopt Leino's analysis, but with some qualification. In the language liaison is not restricted to cases in which the second word is a form of *ei* or *olla*; one illustration of this rule in Pentillä's (1957) Finnish grammar is as follows:

(153) pois-otti [pois-sotti]
away-took

Yet only cases in which the second word is *ei* or *olla* appear in weak positions in the verse. The effect of Leino's restriction, then, seems to be to restrict these cases to ones in which the second syllable may be stressless, and a structure similar to that of resolution arises. Assuming such a rule, then, the pattern of a poet like Siljo, who as mentioned above excludes the heavy syllables of non-lexical disyllables from weak positions (except in the special case of the geminates) and excludes heavy non-lexical monosyllables as the first of two weak syllables except in cases of liaison, can equally simply be described as resulting from obligatory respect for post-lexical stress:

(154) sit'et myöntänyt ainutta kertaa
s s s
'you didn't admit it even once' (Siljo, *Häkkilintu*)

Mull'on aika ja rauha ja unhoitus
s s s
'I have the time and the peace and the oblivion' (", *Bacchus erakko*)

There is, however, a remaining puzzle with respect to this typology. There seem to be a few poets who allow heavy initial syllables of disyllables in weak positions as in (149), but do not seem to allow heavy monosyllables in weak positions except under the pattern in (151)–(152). Viljanen, for example, was seen to allow the former in (149)b, but the only examples of non-lexical monosyllables in weak positions conform to the pattern in (151)–(152), allowing for the special case of geminates:

(155) nyt on kallio asuntos 'now the cliff is your dwelling'
s s s
(Viljanen, *Saari meressä*)

jok' ei sanoja saada voi 'which cannot get words'
s s s
(Viljanen, *Lumi viileä verhoo maata*)

joll' on ääni kuin heleän huilun 'which has the sound of a bright flute'
s s s
(Viljanen, *Kullanetsijä*)

This pattern remains without any linguistic explanation on this account, and may instead reflect a conscious imitation of some relevant aspect of the tradition.

In sum, then, the main properties of Finnish iambic-anapestic meter seem to be the following. A strong position is generally preceded by either one or two syllables. A strong position always contains a stressed syllable. A weak position may contain a stressed syllable of a lexical word subject to two restrictions. If it is a strong syllable, it must be light and followed by an unstressed syllable within the same word which also belongs to the weak position. If it is a lexical monosyllable, it must be the sole weak syllable. Poets differ as to whether the stressed syllables of non-lexical words are obligatorily counted as stressed or not. Now we will turn to the question of how the rules for this meter may be formalized, given the description of Finnish stress above.

4.2 Analysis

The proposed analysis of the meter begins with two observations. First, in the two cases where lexically stressed syllables occur in weak positions – monosyllables and disyllabic sequences with light initial stressed syllables – the metrical configurations making up the weak positions are exactly those which we have seen to constitute the three possible incarnations of the moraic trochee, the foot type used in Finnish word stress: a heavy syllable; a light stressed syllable followed by another light stressed syllable; and a light stressed syllable followed by a heavy syllable, the resolved moraic trochee introduced in chapter 3. These three constitute the class we have called ρ. Second, the requirement that a syllable in a strong position be stressed is formally a requirement that it contain a head of a foot. Together these suggest that this foot, the moraic trochee, is the linguistic unit on which the equivalences which constitute this meter are based.

Modifying a suggestion first put forth in Kiparsky (1989b), then, I will propose the following basic metrical pattern and correspondence rules for Finnish iambic-anapestic meter:

(156) Basic metrical pattern: A line consists of a fixed number of strong positions, each preceded by a weak one.

(157) Correspondence rules:

a. Each position contains at least a σ and at most a ρ.

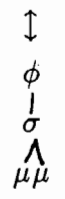
b. A strong position must contain the head of a ρ.

Now let us consider exactly how these rules serve to account for the properties described above. First, the requirement that a strong position must contain the head of a ρ will be satisfied if the position contains a stressed syllable of a lexical word. On the assumption suggested above that the metrical rules respect post-lexical stress obligatorily for some poets and optionally for others, it will also be satisfied if the position contains a stressable syllable of a non-lexical word. But it cannot be

satisfied by an obligatorily unstressed syllable of a lexical word, such as one adjacent to a stressed syllable or a final light third syllable, or by a light non-lexical word.

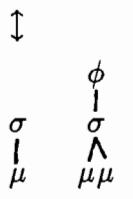
Second, the requirement that a position may contain no more than a ρ will restrict lexical monosyllables in weak positions to monosyllabic weak positions. A lexical monosyllable like *maa* 'earth' will be fine as a weak position alone, because it will constitute exactly a ρ, as in (158)a. But if there is any other linguistic material in that position, as in a collocation like *ja maa* 'and earth' as in (158)b, , the position will contain more than a ρ, and rule (156)b will be violated.

(158) a. W



maa

b. *W



ja maa

Finally, the two requirements together will mean that a strong syllable of a lexical word will be allowed in a weak position just in cases of resolution. How this follows can be seen by a comparison between the possible scansions of a strong syllable when it is heavy as in (159)a with those possible when it is light as in (159)b.

(159) a.

et tei

(i) w s

(ii) s s

(iii) w w

(iv) s w

b.

u nen

(i) w s

(ii) s s

(iii) w w

(iv) s w

Because the stress rule prohibits the assignment of stress to adjacent syllables, the syllable following a strong one will always be unstressed. It will therefore be unable to constitute a strong position, and the scansions in (i), in which a strong syllable is

the second or only weak syllable, will consequently be impossible in both cases. The scansions in (ii), in which both syllables are in strong positions, will also be impossible, not only for that reason but also because the meter requires alternating strong and weak positions. Those in (iv), with the stressed syllable in a strong position and the unstressed one in a weak position, are of course fine in both cases. The significant difference lies in the scansions shown in (iii), in which both syllables form a weak position. For the heavy syllable in (159)a, the strong syllable constitutes a ρ on its own, and so for the following unstressed syllable to also belong to the weak position would entail that the position would contain more than a ρ. But for that in (159)b, the two syllables together constitute exactly a ρ, and hence can make up a weak position. Thus a heavy strong syllable must be in a strong position as in (iv), while a light one may either be in a strong position as in (iv) or be the first of two syllables in a weak position as in (iii).

It should be noted that these rules will also ensure that only two syllables may be involved in a weak position containing a strong syllable: if anything other than a syllable in a strong position were to follow those which constitute the foot, the constraint that a weak position contain no more than a ρ would again be violated. Thus a three-syllable word with a light initial syllable and a light final one, for example, can only be scanned with the initial one in a strong position as in (160), since if it were not, for the final one to also belong to the weak position would violate (157)b, and for it to make up a strong position would violate (157)a:

(160) oli hänellä ruohon=korsi 'he had a blade of grass' (L86, p.34)
s s s

For poets who obligatorily respect non-lexical stress, these rules pertaining to weak positions will restrict stressed syllables of non-lexical words in exactly the same way that they will those of lexical words, with the exceptions noted above. Strong syllables of non-lexical disyllables will be allowed only if they are light and make up the first of two weak positions, and heavy non-lexical monosyllables will be allowed only in monosyllabic weak positions or in disyllabic ones if the first is a light non-lexical word, whether originally or by liaison, such that the whole can be treated as a case of resolution. Thus weak positions containing such heavy non-lexical words or

sequences of words as *missä* or *kun hän*, each of which would contain more than a ρ, do not arise. For poets who allow post-lexical stress to be disregarded, however, such words need not be regarded as containing more than a ρ, since they may be regarded as containing no foot structure at all.

There may be, however, an interesting shortcoming in this approach to poets of the latter type. If a weak position is constrained only in that it may contain no more than a ρ, and non-lexical stress may be disregarded, then a string of syllables which need never among themselves contain a ρ will always satisfy the requirement, and even infinitely long strings of non-lexical words will be permitted. This is somewhat problematic, since that never seems to occur except in the special case where there is resolution in a strong position together with a disyllabic weak position: the maximum number of syllables in any weak position seems ordinarily to be two. But in fact it may be unnecessary to modify the rules to deal with this. We will see in the next chapter that in English, in a fairly similar meter, in the hands of the metrical adventurer Gerard Manley Hopkins, this possibility is indeed realized. Thus it may be preferable to assume that this is excluded in Finnish out of a general preference for rhythmic alternation, or out of a conservative tendency to closely match the metrical prototype established for each position of a ρ, rather than to exclude it by rule.[7]

Thus it appears that the account of Finnish metrical phonology in section 3.2 together with the approach to meter sketched in section 2.3 makes available a simple account of Finnish iambic-anapestic meter, and one which makes clear the basis of Leino's claim that it is naturally suited to the structure of Finnish words. In both the meter and the language, a central role is played by ρ, made available by resolution in universal grammar. In the following chapter we will see that ρ also plays a role in the meter of English, even though the resolved moraic trochee made available by universal grammar does not play a role in the phonology of that language.

[7]Though the latter approach makes it somewhat problematic why one syllable should then be common.

Appendix: Comparison with Leino's Account

Leino (1986) notes himself that the rules he gives for Finnish iambic-anapestic meter "...describe a corpus, but..lack a clear theoretical foundation," which he regrets must be the case "as long as the prosodic description [of the language] is inadequate (p. 75)." In the foregoing chapters, however, we have seen that recent work in metrical phonology has in fact made available a better description of the metrical system of Finnish, and it has been proposed that it can be used to reanalyze Leino's data and generalizations in a theoretically sounder way. Here I will describe Leino's approach and consider to what extent the account presented here does succeed in capturing the characteristics of the verse identified and illustrated by him.

Leino's approach is basically as follows. He defines the meter as an pattern of alternating 'rising' (R) and 'falling' (F) positions, with correspondence rules defining the number and type of syllables which may occupy these positions. For iambic-anapestic meter, the correspondence rules define a strong position as consisting in one 'prominent' syllable and a weak position as consisting in one or two 'unprominent' syllables.

(161) $R \rightarrow P$

$F \rightarrow U$

The prominent and unprominent syllables referred to by the correspondence rules are in turn defined by prominence rules, which specify for a given metrical system which syllables are classified as which. We have seen that on his account the metrical system to which iambic-anapestic meter belongs is what he calls the dynamic system, comprising iambic, trochaic, and trochaic-dactylic meters as well as iambic-anapestic ones, all of which are claimed to have in common that their prominence relations are determined in the same way by certain phonological considerations, most especially stress and quantity.

The prominence rules themselves thus refer to a limited range of phonological properties, defined in an accompanying set of definitions. These include syllable quantity, stress, some aspects of phrasing, and a distinction between grammatical

and lexical items. These are of course the same properties invoked in our account, but they are used in somewhat different ways.

The generalizations about syllable quantity are the same on both accounts, although Leino uses the term 'short' to refer to the syllables classified as light, and 'long' to refer to those classified as heavy. But the generalizations about stress differ significantly. We have seen that within words primary stress falls without exception on initial syllables. For Leino, only such initial syllables of polysyllabic words count as stressed: a stressed syllable is one preceded but not followed by a word boundary (p. 74). Thus any additional syllables of polysyllabic words other than the first count as unstressed syllables for him. Moreover, for Leino all syllables which constitute monosyllabic words count as unstressed. It should be noted also that Leino's definition of stress entails that a syllable he refers to as stressed will always be preceded by a word boundary; this will be indicated in what follows as '#'.

Similarly the role of the distinction between grammatical and lexical items differs. We have seen that to account for certain lines he posits some resyllabification just before forms of the negation verb *ei* and of *olla* 'be', and he also suggests that heavy initial syllables of grammatical disyllabic words such as *missä* 'where' exceptionally count as light (p. 74). But these are treated as idiosyncratic properties of these words, and not derived from any theoretical distinction between the two kinds of words.

In sum, then, the phonological description on which Leino's rules are based counts simply as unstressed four kinds of syllables which on our account have articulated stress properties: secondary stressed syllables of lexical words, which are taken to be stressed; lexical monosyllables, which are also taken to be stressed; heavy non-lexical monosyllables, which are taken to be stressed post-lexically: and light non-lexical monosyllables, which are assumed to be stressed only post-lexically and only if they are the first of a pair of non-lexical words phrased together.

The poverty of Leino's phonological description raises both practical and theoretical problems. From a practical point of view, it will become obvious as we work through the rules below that as formulated they are terribly complicated. This is not just an aesthetic objection, however, because several important problems arise from this complexity. In some cases the rules are redundant, with a given linguistic

configuration meeting the description of more than one rule. In some cases moreover this redundancy actually leads to inconsistent claims, when one rule will go on to say one thing about the configuration, and another rule will say something else about it. And in others it leads to a lack of generalization that obscures certain metrical properties. For example, a poet who allows certain exceptions to one rule will predictably allow related exceptions to other prominence rules, but because the phenomena are described by entirely separate prominence rules such generalizations cannot be perspicuously stated. Another practical problem with the rules is that they are formulated in terms of various counted-off sequences of syllables, with the consequence that some configurations, such as long words, fall entirely outside their scope, in spite of the fact that they obviously do observe related constraints in the verse. Finally, from a theoretical point of view, the rules also have a curious status, in that insofar as they are intended to describe prominence relations of the language itself, it is not clear why they should be explicitly related to any metrical system, nor why they should be separated from the other elements of the phonological description listed in the definitions.

Leino himself is aware of some of these objections to his level of prominence rules, and justifies them with two arguments. First, multiple phonological properties such as stress and length are relevant to the meter, so it is desireable to combine them in a single notion such as prominence (p. 73). Second, the ability of a syllable to occupy a particular position in the meter depends not only on its inherent properties but also on the properties of syllables in its environment (p. 71). But these are precisely the generalizations which theories of the metrical structure of language have sought to capture, positing for any linguistic element a metrical structure based on a variety of phonological properties and expressing relationships between elements rather than inherent properties of them. Moreover, such theories were explicitly designed to avoid the problems arising from rules which depend on counting. Thus positing a phonological representation with these properties for the metrical structure of the linguistic material of any poem should be entirely consonant with Leino's approach, while making it possible to state the relations between that and the meter much more simply than Leino has been able to do.

But it is not sufficient to simply replace Leino's definitions and prominence rules with a richer phonological description: an adequate description of the properties of iambic-anapestic meter requires a richer set of metrical rules, too. If Leino's claim that his prominence rules describe the prominence relations simply of the language itself is taken literally, the only mechanism he has at his disposal to describe the meter is his correspondence rules, which describe only the number and relative order of weak and strong positions. This is inadequate: as we have seen, there seem to be other important differences among meters within the dynamic system; for example, iambic verse seems to systematically differ from iambic-anapestic verse with respect to whether a strong position may or may not contain an unstressed syllable. In fact, Leino's prominence rules are probably not as purely linguistic as he maintains. For example, he uses the term "incongruent" to describe the treatment as unprominent of initial light stressed syllables of trisyllabic words with heavy final ones as in (146). But if his prominence rules actually describe the language it is not clear how that can be called "incongruent"; that term implies another structure to which the language is being related. Thus a richer view of the properties of the meter itself is also in some ways already implicit in Leino's discussion, even if not explicit in his theory.

The approach presented here escapes both of these shortcomings. First, it assumes a much more articulated description of the phonological structure of the language, which reproduces many of the effects of Leino's prominence rules and unites them with the phonological definitions. Second, it assumes not one but two levels of description in addition to the phonological one: first, a description of the metrical structure itself, corresponding in role but not in content to Leino's correspondence rules; and second, a level of what we have called correspondence rules, specifying the possible relations between the metrical pattern and the phonological representation. Rules of the latter type are absent on Leino's model, since his correspondence rules refer directly to prominent and unprominent syllables, which he claims are defined by the prosodic properties of the language.

Now we will turn to a consideration of Leino's specific claims, and show that our account does indeed account for the properties he observes. To the extent that the two are equivalent, all syllables defined as prominent by Leino's rules should be

stressed on our rules, and all sequences of unprominent syllables permitted by Leino's rules should contain less than a ρ. I will now consider Leino's prominence rules one by one and show that this is true in all cases except for some involving the distinction betwen lexical and non-lexical words, where the approach presented here proves more refined.

PrR 1 A long stressed syllable is prominent:

(162) Ja ettei viivytä turhaan 'And lest we tarry too long' (L86, p. 28)
s s s

This rule is entirely compatible with the rules presented above. From the point of view of what may be in a strong position, any syllable which meets Leino's definition of stressed certainly meets ours, and hence may occupy a strong position. From the point of view of what may be in a weak position, Leino's rule, in requiring such a syllable to be in a strong position, prohibits it from being in a weak position. We have seen that our rules likewise prohibit an initial heavy syllable of a polysyllabic word from ever occuring in a weak position, because the fact that the syllable following such a one is always unstressed makes placing the heavy stressed syllable in a strong position the only scansion compatible with the rules given.

PrR 2 A short stressed syllable may be unprominent if it is preceded by a pause or by a long syllable following an unstressed syllable; otherwise it is prominent:

(163) a. Pidättää unen köysin sen 'To hold it with ropes of sleep' (L86, p.87)
w s w s s

b. Mitä kielin he ei sanoneet 'What they did not say in tongues' (L86, p.87)
w s s w s

c. Hän tuimana sai sanomaan'He sternly managed to say' (L86, p.76)
s s w s

From the point of view of what may be in a strong position, PrR 2 is likewise compatible with our rules, since it always allows a light stressed syllable to occupy a strong position, and the above rules for strong positions require only that a syllable in a strong position be stressed.

From the point of view of what may be in a weak position, PrR 2 must be considered in relation to PrR 3:

PrR 3 A long syllable preceded by an unstressed syllable is prominent if the short stressed syllable following it is unprominent.

Together these define two configurations which allow a short stressed syllable to be in a weak position, as follows:[8]

(164) a. $\Vert$ U over $\acute{\smile}$ b. σ — # $\acute{\smile}$, with P over — and U over $\acute{\smile}$

The fact that a short stressed syllable in a weak position is preceded by either a pause as in (164)a or by a strong position as in (164b means that it will never be the second of two adjacent weak positions. Although nothing is said in PrR 3 about what the short stressed syllable in a weak position may be followed by, we will see that it seems to have to be followed by another syllable in weak position. On Leino's rules, the reason is that there are no prominence rules that would ever make the syllable following it prominent: as we will see, PrR 4, 6, 9 and 10 all force one syllable to be skipped after any stressed syllable before a candidate for a prominent syllable can be found. It should be noted, however, that there seems to be one exception: as we will see, PrR 5 requires prominence of the third syllable in configurations like that in (165), but nothing prevents the syllable preceding that third syllable from being the short initial syllable of a disyllabic word.

(165) σ σ σ $\Vert$, with P over the first σ

Since no lines of this type actually occur, however, this seems more likely to be a mistake in the form of the rules than a genuine exception.

Thus the descriptive generalization seems to be that a light stressed syllable may be unprominent just in case it is the first of two unprominent syllables. PrR 2-3 constrains the environment to the left of the syllable in question to ensure this, and other rules constrain that to the right, though without complete success. We have

[8]In these schematic depictions of Leino's rules '$\smile$' represents a light syllable, '—' a heavy syllable, σ a syllable of indifferent weight, 'x' an unstressed syllable, '#' a word boundary and '||' a pause.

seen that our rules likewise conspire to allow such syllables in weak positions only if they constitute the first syllable of a disyllabic weak position: in that case only will the weak position contain no more than a ρ and the following strong position contain a stressed syllable.

PrR 3 must also be considered from the point of view of whether the syllable it defines as prominent is eligible to be in a strong position on our rules. The fact that the syllable to the heavy one's left is unstressed means that it does not initiate a polysyllabic word, and hence that the heavy syllable is either the long final syllable of a word of at least three syllables, as in (163)a above, or a heavy monosyllable, whether lexical as in *sai* 'managed' in (163)c or non-lexical as in *ei* 'not' in (163)b. In either case, since the syllable is heavy, it may be stressed on our rules, and thus any syllable counted as prominent by Leino's PrR 3 will also be permitted to be in a strong position on our account.

Before leaving this pair of rules that admit a light initial syllable of a polysyllabic word in a weak position, it must be noted that Leino observes that stressed syllables of grammatical words are allowed in similar configurations even if they are heavy as in *missä* 'where' or *mutta* 'but':

(166) Missä nähden huolta ja vaivaa 'Where, seeing care and trouble'
s s s

Mutta toisillensa rakkaat 'but to each other the dear ones' (L86, p. 73)
s s s

With regret he proposes to account for this by stipulating that heavy stressed syllables in grammatical words count as light. But we have seen that the proposed facts can be accounted for more naturally on the assumptions that because these words are not lexical, they receive their stress only from a post-lexical application of the stress rule, and that post-lexical stress is sometimes disregarded by poets. Moreover, that approach was shown to reveal significant differences across poets which have ramifications in other aspects of metrical practice, such as the treatment of non-lexical monosyllables. That perspective is lost on an approach which localizes the exceptional behavior of these words in one PR.

PrR 4 The third syllable of a four-syllable word is prominent.

The fourth syllable may be prominent instead if it is longer than the third and the word is followed by a pause or by an unprominent syllable:

(167) a. kuten sakariston taulussa, ja silmät jäiset ja tylyt.
s s s s s s s
'As in the sacristy's painting; and eyes icy and forbidding' (L86, p. 49)

b. joka pienen pienistä synneistäni 'which from my tiniest sins' (L86, p. 23)
s s s s

c. Jos haavani kirvelevät 'If my wounds smart' (L82, p. 134)
s s s

d. Miten lie, ei totellutkaan 'Somehow, didn't obey after all' (L86, p. 17)
s s s

(168) a. Ja lukkari tuli myöskin. Ja sitten he veisasivat
s s s s s s
'And the sexton came too. And then they sang a hymn' (L86, p. 48)

b. ei tanssi tauonnutkaan 'the dance didn't stop after all' (L82, p. 135)
s s s

PrR 4 by and large reproduces the effect of our stress rules for the case of four-syllable words, specifying as prominent the same syllables to which the rules assign secondary stress. We have seen that the stress rule will stress a third syllable except where it is light and followed by a heavy syllable, but that because of extrametricality, a final heavy syllable may always be treated as if it were in fact light, resulting in the option in (167)c. Hence any syllable counted as prominent on PrR 4 will be stressed, and able to occupy a strong position. Conversely, the only time a third syllable is allowed to occupy a weak position will be when it is unstressed.

There are at the same time a few advantages over PrR 4 of our approach. First, the assumption that the stress properties are defined separately from those of the meter accounts automatically for certain exceptions. For example, it will be recalled that certain suffixes such as *-nä* in the following line exceptionally make the syllables preceding them heavy:

(169) Valon nähdä leviävänä 'to see the light spreading' (L82 p.139)
s s s

These are exceptions to Leino's rules, in that the same metrical options found elsewhere are not available to these words, but on our account they are metrically regular – their behavior follows from their stress properties, however exceptional those may be. The same is true of other recalcitrant words discussed above, whose metrical properties clearly derive from special phonological properties. Second, our approach can apply to words of any length, whereas Leino's rule can only apply to words of four syllables: as he himself notes, longer words are simply outside the scope of his prominence rules.[9]

On the other hand PrR 4's replacement of the absolute phonological classification 'long' with the gradient property 'longer' deals more successfully with cases in which the third syllable is heavy and the fourth superheavy as in (168)b than our approach does. The stress rule, we have seen, is unable to account for such stress patterns, allowing the fourth to be stressed instead of the third only if it is phonologically heavy while the third is phonologically light. In fact as noted above Leino notes explicitly that a departure from the absolute distinction made by the phonology is necessary in this case. But insofar as the stress patterns that would match the scansions seem to be possible in the language independently of meter, the shortcoming is in the phonological analysis itself and not our metrical analysis.

Finally, it should be noted how PrR 4 affects the question of what may be in weak positions, particularly with respect to PrR 2-3. Collectively, the prominence rules so far allow the first three of the four logically possible scansions of syllables in a four-syllable word:

(170) a. P P
σ́ σ σ̀ σ

b. P P
σ́ σ ⏑ ¯̀

c. U P
⏑́ σ σ σ

d. * U P
⏑́ σ ⏑ ¯̀

[9]Or worse: as we will see in the case of PrR 10, where they happen to be covered by other rules the claims may actually be in conflict with the scansions he gives for such words.

It can be seen that if the initial syllable is prominent, either a single syllable or two syllables of which the second is light may occupy the weak position. But if the initial syllable is unprominent, only a single additional syllable following it may also be unprominent, since otherwise the weak position would contain more than two syllables. Moreover, that single additional syllable must be unprominent, because the rule makes only third or fourth syllables prominent, and never mentions the possibility that the second could be. This then is an example of what was mentioned above, of how the rules conspire to allow a light unstressed syllable to be unprominent only when it occupies the first of two weak positions. On our rules of course exactly the same sequences of syllables left unstressed within a word are predicted to be possible as weak positions, since none contains more than a ρ.

Apart from its implications for word stress, it should be noted that PrR 4 contains the additional provision that the fourth syllable may be prominent only if it is followed by a pause or an unprominent syllable. At first glance, on either approach this kind of restriction appears to be unnecessary: for the most part, if the syllable is followed neither by the pause at the end of a line nor by an unprominent syllable that means that it is followed by a prominent one, and the impossibility of its also being prominent in that case simply follows from the alternation of weak and strong positions imposed by either description of the meter. However, the pause for Leino is meant to be a phonological entity, not a metrical one, and presumably may also refer to a major prosodic break within the line, as well as to the end of a line (where a pause is obligatory). The claim then that a long final syllable of a four-syllable word may be prominent and hence in a strong position if it is followed by a pause even if it is not followed by an unprominent syllable is tantamount to saying that adjacent strong positions are permitted across major syntactic boundaries; that is, that weak positions can be omitted there. As noted, this is consistent with what is found in English as described in section 2.3 and can be allowed in our account by the incorporation of a Finnish analog to (83).

PrR 5 A syllable which is preceded by a syllable following a prominent syllable, and which is followed by a pause, is prominent:

(171)
```
P
σ   σ   σ   ||
        ↑
        P
```

(172) a. Ja ensimmä<u>inen</u> on Melkior 'and the first one is Melkior' (L86, p. 50)
```
             s     s          s  s
```

b. ja toinen Kaspar on 'And the second is Kaspar' (L86, p. 50)
```
      s      s      s
```

PrR 5 essentially rules out a disyllabic weak position before a pause. But to consider this rule clearly it is necessary to lay out all the possibilities of where word boundaries may fall in the configuration under discussion, and to consider them in turn.

(173)

a. P # σ σ σ ||	d. P # σ # σ # σ ||	g. P σ # σ # σ ||
b. P # σ # σ σ ||	e. P σ # σ σ ||	h. P σ σ σ ||
c. P # σ σ # σ ||	f. P σ σ # σ ||	

These divide into three sets of cases: d, f, c and g in which the syllable in question is a monosyllable; a and h, in which it is the final syllable of a word of at least three syllables; and b and e, in which it is the second syllable of a disyllable.

First, it should be noted that as mentioned above there seems to be a mistake in this rule. In the third case, in which the syllable in question is the second syllable of a disyllabic word, the configuration described by the rule can perfectly easily describe the sequence of a prominent syllable followed by an unprominent light stressed syllable, followed by another syllable followed by a pause:

(174)
```
P   U
σ   ⌣́   σ   ||
```

Thus as formulated, the rule would actually require that if a disyllabic word whose first syllable is unprominent occurs before a pause, its second (always unstressed) syllable will be prominent. This clearly does not occur; as discussed earlier, a syllable occurs in a weak position only when the syllable immediately following it likewise forms part of the weak position as in (163) or the following:

(175) kolon koivuun luo kovin urin 'makes a hollow in the birch with hard grooves'
s s s

(L86, p.56)

Since there are no examples of this type defined by (173)b and e, this seems to be an accidental mistake in Leino's formulation, and I will assume that the rule should not in fact include these cases.

Returning then to the other cases of the rule, from the point of view of what type of syllables it allows in strong positions, it can be seen that the rule diverges from our correspondence rules in allowing a syllable before a pause to be strong regardless of whether or not it is stressed. In the first case, however, where the syllable in question is a monosyllable, in fact heavy words are overwhelmingly more common, whether lexical as in *jous* 'bow' or non-lexical as in *on* 'is' or *lie* 'may be':

(176) a. oli hänelle viulun jous: 'it's best to go right ahead' (L86, p. 34)
s s s

b. paras suoraan jatkaa on: 'was the bow of a violin for him' (L86, p. 28)
s s s

c. Miten lie, ei totellutkaan 'somehow didn't obey after all' (L82, p. 161)
s s s

Likewise in the second case, in which the syllable in question is the final syllable of a three-syllable word, syllables which are heavy and therefore potentially stressed are overwhelmingly more common:

(177) a. Ja ensimmäinen on Melkior 'and the first one is Melkior' (L86, p.50)
s s s s

b. minä rakennan ja asun 'I build and live' (L82, p.161)
s s s

At the same time we have seen that there are exceptions to this as in (138) and (139) which we have attributed to some right-edge neutralization. Thus our rules are descriptively like Leino's in allowing light syllables in the weak positions he designates but for iambic-anapestic meter they are able to capture the status of that as a systematic exception to a more general pattern in a way that Leino's list cannot. Moreover, our approach captures the fact that for iambic meter it is not exceptional at all, in a way that Leino's rules, in treating all meters of the dynamic system together, cannot.

PrR 5 also seems to have implications for another right-edge phenomenon we have seen, inasmuch as it seems to rule out the possibility of more than one syllable following the final strong position of a line or half-line. On our approach this means that a single extrametrical syllable may occur line or half-line finally, which as noted in footnote 4 above does appear to be the case. From a formal point of view, however, for iambic-anapestic meter this means that the rule of extrametricality would be best formulated in terms of allowing an extrametrical syllable (or other appropriate linguistic unit), and not an extrametrical weak position. In the latter case, there would be nothing in the rules to prevent it from being realized in any of the same ways as any other weak position, including disyllabic incarnations, which is precisely what PrR 5 seems to be trying to rule out.

PrR 6 When three unstressed syllables occur between two stressed or prominent syllables, the middle one of the three is prominent.

(178) Se toivo on kuin tuuli 'That hope is like the wind' (L82, p.158)
s s s

(179)

$$\left\{ \begin{matrix} / \\ P \end{matrix} \right\} \quad x \quad x \quad x \quad \left\{ \begin{matrix} / \\ P \end{matrix} \right\}$$
$$\uparrow$$
$$P$$

PrR 6 is the first of several rules imposing alternating patterns of prominence on strings of unstressed syllables not already dealt with in the previous rules. Superficially it appears fairly straightforward, but in fact like PrR 5 requires more detailed attention, particularly on account of its peculiar disjunction "stressed or prominent". The three options for each position made available by this disjunction, namely stressed and prominent, unstressed but prominent, and stressed but unprominent, actually logically yield nine possible configurations:

(180)

		P				P			P					U					P
a.	/	x	x	x	$\acute{\sigma}$		d.	x	x	x	x	x	g.	/	x	x	x	/	
		P				P			P				U					P	
b.	/	x	x	x	x		e.	/	x	x	x	/	h.	/	x	x	x	x	
		P				P			P			U			U				U
c.	/	x	x	x	/		f.	x	x	x	x	/	i.	/	x	x	x	/	

Of these, cases e, f and i reveal a new kind of difficulty with the prominence rules: this rule as stated actually comes in conflict with PrR 2-3, in that if the stressed light syllable at the right is unprominent, PrR 3 requires that the syllable preceding it be prominent, at the same time that this rule requires that the one preceding that must be. Since the metrical pattern requires alternation between prominent and unprominent syllables, both rules cannot be satisfied. Lines like the following clearly show that it is PrR 2-3 which seems to take precedence, suggesting that the rule is simply incorrectly formulated in including the case where the rightmost syllable is stressed but not prominent.

(181) Mä leikissä myös olen myötä 'I too am part of the game' (L86, p. 67)
s s s

I will therefore assume what the rule should refer to is three unstressed syllables between a stressed or prominent syllable and a following prominent syllable.

For the cases falling under this modified rule, from the point of view of what may be in strong positions, once again the rule differs from ours principally in that while on PrR 6 any middle syllable in the kind of string it describes may be prominent, whereas on ours only a stressed one can. But this time there is no metrical convention neutralizing the distinction, and ours proves in fact more accurate.

In cases a and b, and also g and h, the stressed syllable defining the left edge of the configuration in question must initiate a polysyllabic word, creating various subcases depending upon the length of that word. If the unstressed syllables are the final three of a four syllable word, the effect of this rule will be to duplicate that of PrR 4, which will likewise require it to be the third syllable of the word which is prominent (the option it normally makes available of the fourth syllable being prominent being out because it would result in adjacent strong positions). So if it is true for PrR 4 that syllables it makes prominent are stressed ones, it will be true here too. If the three unstressed syllables are the final syllables of a three-syllable word plus a monosyllable, as in (182)a, or of a two-syllable word plus two monosyllables, as in (182)b, either kind of syllable is logically possible, but in iambic-anapestic lines, only syllables which are heavy and hence potentially stressed seem to occur. Although there are some cases of light syllables in that position, they are all in iambic verse as in (183), which we have already seen observes different constraints:

(182) a. Unet polttivat sen verta - 'Dreams burned its blood' (L82, p. 160)
s s s

b. Erä=maa on suuri ja vapaa, 'The wilderness is big and free' (L82, p. 160)
s s s

c. Eräs kuuma yö niin kan toi 'A hot night carried so' (L82, p. 161)
s s s

(183) a. Oi Tornio, sun kruunus 'O Tornio, your crown' (L82, p.161)
s s s

b. ja sieluni, kun kuolen 'And my soul, when I die' (L82, p.161)
s s s

The same generalization would also be expected to hold where the syllables are a string of three monosyllables, as in cases c and d, but there are no examples of this type.

From the point of view of what may be in a weak position, this rule has as one of its effects to rule out the possibility that in a string of three unstressed syllables

none will be prominent. On one hand this is actually a problem for Leino, given that such cases do arise as seen in the rare instances we have analyzed as involving resolution in both strong and weak positions as in (148) above. On the other hand, aside from that rare case, as has been observed above, not to do so may be something of a problem for our account, in that nothing rules out even infinitely long strings of non-lexical words, since even if such strings have some stress some poets are argued to optionally disregard post-lexical stress; yet such long intervals do not occur. But as suggested there, that may reflect preferences not necessarily of a kind that a metrical rule should account for.

Leino's rule is also curiously redundant in many cases: in any of the strings described by a-d in (180), if the first or third unstressed syllable were prominent an illegitimate sequence of two prominent syllables would arise, while if none were, the upper bound of two syllables in any weak position would be violated. This raises the question, then, of why this rule exists at all. One possible answer is simply that Leino's rules are intended to describe prominence relations of the language, and redundancy with respect to the metrical pattern is therefore not a shortcoming, but rather a reflection of the naturalness of the meter.

However, there is in fact also a purely metrical consequence of his formulation: cases g and h of (180), in which the leftmost syllable in the configuration is a light stressed syllable which is unprominent, are not redundant in this way. For in these cases, the first of the unstressed syllables in fact could be prominent without the alternating pattern of the meter being violated. As in the case of PrR 4, then, the specification that the syllable two away from a stressed one must be prominent serves to ensure that where the stressed syllable is itself unprominent, the one following it always will be too. The same effect is achieved on our rules directly through the stress rule, as described above.

PrR 7 A post-pausal long syllable followed by a syllable which is itself followed by a stressed one is prominent; a corresponding short syllable may also be unprominent.

(184) Tuo katse–nyt mä tiedän 'That look–now I know' (L82, p.162)
s s s

(185) ‖ _ σ /
↑
P

This rule appears to rule out a disyllabic weak position of which the first syllable is heavy, but again requires closer scrutiny of its formulation. The fact that the third syllable in the configuration under discussion is stressed means that it is preceded by a word boundary; of course, the fact that the first syllable is preceded by a pause entails that it is preceded by a word boundary as well. There are two possibilities for the disposition of other word boundaries: either there is one between the first and second syllables, or there is not. And since it is specified only that the third syllable is stressed, there are an additional two possibilities: either that syllable is prominent or it is unprominent. Thus logically the rule describes four possible configurations:

(186)

					P						P
a.	#	σ	σ	/		c.	#	σ	#	σ	/
					U						U
b.	#	σ	σ	/		d.	#	σ	#	σ	/

But of these, cases b and d involve the same problem encountered previously, that one rule may contradict another. The problem again involves PrR 2-3, which requires that a light stressed syllable in a weak position must be preceded by a heavy syllable which is itself prominent: if this condition is met, the one preceding that prominent one could not be prominent as required by this rule without the metrical requirement of alternating prominent and unprominent syllables being violated. This case is slightly different from the one encountered above, however, in that this rule requires the syllable to be prominent only if it is heavy; if it is light it may be unprominent, and hence there is one sequence which will satisfy both rules:

(187) Se on muka huutaja hornan 'It's said to be the howler of hell' (L86, p. 87)
s s s

Such sequences do not need anything from this rule to be defined as metrical, however, so it is not altogether clear in this case, either, why Leino formulates the rule in terms

of stressed syllables rather than prominent ones. One possibility might be that he intends thereby for it to apply only to prominent syllables which are prominent in virtue of being stressed; i.e., a string of three monosyllables might permit different scansions. We will set this problem aside, and turn to the cases a and c, in which the rightmost syllable is prominent.

Of these, case a where the two syllables constitute a disyllabic word also duplicates the effects of other rules. If the first syllable is heavy, it duplicates PrR 1, which requires such a syllable to be prominent. If it is light, it duplicates PrR 2, which permits such a syllable to be unprominent after a pause.

Thus case c, which involves two monosyllables following a pause, seems to be the only configuration which is truly at stake here. Again we may distinguish between the rule's consequences for strong and for weak positions. In terms of the former, this rule is entirely compatible with our approach, since the syllable being required to be prominent is specified to be a heavy and therefore potentially stressed one. But in terms of the latter, the two accounts differ. The effect of requiring the syllable in question to be prominent seems to be to rule out the possibility of a disyllabic weak position of which the first syllable is heavy, while permitting it if the first syllable is light. Thus for Leino disyllabic weak positions like those in (188) are metrical, while ones like those in (190) are not; those in (189) are also metrical, but for the special reason that they would be affected by the rule of liaison described above, in which the final consonant of a monosyllabic word may be resyllabified as the onset of a following word, if the following word is either the negation verb *ei* or a part of the verb *olla* 'be', such that the first syllable in them too would count as light:

(188) a. Ja se kuulutti kadulla julki 'and it announced publicly in the street' (L86, p.23)
s s s

b. ja he alkavat karkelon 'and they begin the dance' (L86, p.50)
s s s

c. Ja sun punainen sukka=nauhas 'and your red garter' (L86, p.87)
s s s

d. Se on muka huutaja hornan 'It's said to be the howler of hell' (L86, p.87)
s s s

(189) Ken on tohtinut koskea vuoreen 'he who has dared touch the mountain' (L86, p.72)
s s s

Sit' en tautia tahdokkaan 'I don't even want that disease' (L86, p.72)
s s s

Mut on saatava suunta selvä 'but you have to get a clear direction' (L86, p.72)
s s s

(190) Kun hän juo, niin hän viikkoja viertää 'when he drinks, he rolls for weeks' (L86,
s s s
p. 79)

Suo sen korvaas kuiskata salaa 'let it secretly whisper into your ear'
s s s
(L86, p. 80)

The difference between this and our account is that on the latter the possibility of having two monosyllables in one weak position depends not on the weight of the the two syllables directly, but on whether or not they are obligatorily stressed. This results in different predictions in two cases. First, Leino's formulation should permit configurations of the type (188)b and (189) even when the second heavy syllable is a lexical monosyllable (the distinction is irrelevant in the case of (188)a because if both are light both must be non-lexical), while on our account such configurations should be possible only if both words are non-lexical. In fact in all the cases cited by Leino the word in question is non-lexical as in the examples in (188)b-(190): *ja sun* 'and your', *se on* 'it is', *ken on* 'who is', *sit' en* 'it I don't', *mut on* 'but is', *kun hän* 'when he' and *suo sen* 'let it'. This is particularly evident in the cases in (189): as noted above liaison is not normally confined to cases in which the second word is *ei* or *olla*, so Leino's restriction of it to those cases seems a means to convey the fact that it is only cases in which the second word is non-lexical that appear in weak positions in the meter, a restriction otherwise not available on his rules.

The second difference is that our account permits configurations of the type in (190) above in which the first syllable is heavy but is nevertheless part of a split weak position just in case neither syllable is lexical. Lines of this type of course do occur: those in (190) are cited by Leino as exceptions to his rules. But he explicitly suggests that in spite of their occurrence the rules should not be modified to admit them, since then a distinction between "the general practice and the occasional exceptional

usage of a few poets (p. 80)" would be lost. We have seen above that this is certainly true, in that some poets like Koskenniemi and Viljanen would admit such lines while others like Manninen would not. But as it stands Leino's formulation does not capture the pattern across poets in quite the right way: while it captures the difference in poets' requirements regarding weight in such configurations, it fails to capture the more important similarity in their requirements that lexically stressed syllables be excluded from them.

There is one final aspect of Leino's formulation of this rule which requires attention. Insofar as the rule restricts what can occupy a weak position, it does so only for a weak position which follows a pause. Our rules in contrast restrict all weak positions in the same way. For the most part, similar constraints do seem to hold for them all, except where special metrical conventions obtain. For example, a poet like Koskenniemi who allows two heavy non-lexical syllables after a pause will also allow them after any other strong position:

(191) Mut kun vie hän mun maahansa loittoon (Koskenniemi, *Kulkuset*)
s s s

This suggests that the limitation on Leino's rule may reflect the same problem of long strings of syllables he counts as unstressed simply falling outside the scope of his rules.

PrR 8 When three unstressed syllables occur between a pause and a following stressed syllable, the middle one of the three is prominent if it is long.

(192) mut kun näin ristin kautta 'but when I see through the cross' (L86, p.165, 32)
s s s

(193) || x _ x /
↑
P

PrR 8 is similar to PrR 7, except that it deals with strings of three instead of just two syllables. It first should be noted that its description of the rightmost syllable as stressed interacts in similar ways with PrR 2-3: where the rightmost syllable is

a stressed syllable in weak position the prominence of the preceding syllable will be required by PrR 2-3 at the same time that the prominence of the syllable preceding that one will be required by this rule if that syllable is heavy. Hence only if that syllable is light can both rules be satisfied simultaneously:

(194) ja se mies oli autuas mies 'And that man was a blessed man' (L86, p. 34)
s s s

This restriction is puzzling since it is not entirely clear why, if both syllables in a sequence of a light monosyllable followed by a heavy one can be unprominent after a pause when followed by a stressed syllable as in (188)c and (189), they can't likewise both be unprominent if followed by a heavy monosyllable; in fact lines parallel to (194) but in which the second word is heavy (but unstressed) do occur:

(195) sit'ei siis ole syy erikoisesti vieroa (Manninen, cited in Sadeniemi p. 157)
s s s s

This seems most likely to be an omission resulting from an insufficiently broad category of syllables counting as stressed, and we will set this case aside.

Turning to the case where the rightmost syllable is prominent, as with PrR 7, the presence of a pause at the beginning of the configuration together with the absence of stress on any of the syllables in question means that it is a string of monosyllables which is under discussion. And as there, from the point of view of what may be in a strong position, the claim that the middle one will be prominent if it is heavy is entirely compatible with the claim that only stressed syllables will occur in such positions. But also as there, the real interest of the rule lies in the question of what may be in weak positions; and again there turn out to be some subtle differences between the two accounts.

For the third of the three unstressed syllables to be prominent would not be possible on either account in any case, since the fourth is already prominent and the meter requires alternation of strong and weak positions. For none of the three unstressed syllables to be prominent would not be possible for Leino, since there can be no more than two syllables in any weak position, while it would be possible on the above account, possibly problematically, as already noted in connection with PrR 6.

For the second to be always prominent to the exclusion of the first (provided it is heavy) involves a difference related to that seen in PrR 7, depending on the relative weight of the syllables in question:

(196) a. ‖ ⏑ ⏑ x P c. ‖ — ⏑ x P
b. ‖ ⏑ — x P d. ‖ — — x P

So long as the first is light as in (196)a and b, Leino's and our rules do make the same predictions: if the second is light as well as in (196)a, there is no syllable which will be stressed and hence eligible to make a strong position on our account, and none that will meet Leino's that for the syllable to be prominent it must be heavy, and the configuration should not arise; if the second one is heavy, it will be the only one that meets these requirements, and will be strong:

(197) se on jo uhraamaan, 'It's already to sacrifice' (L86, p. 165)
s s s

But where the first is heavy, on the above account there is no reason why it shouldn't be able to be prominent instead of the second, depending on the nature of the next two syllables following: where the second is light, as in (196)c, that would in fact be the only possible scansion, while where the second is also heavy, as in (196)d, it ought still to be possible for the first to be strong just in case the next two following are also non-lexical.

The question then is whether such configurations and alternate scansions do in fact arise. If they are absent line-initially in iambic-anapestic verse, it could simply reflect an absence of headless lines. But where the pause is medial, our account clearly predicts that a line like that in (198)b where both *tää* 'this' and *kuink'* 'how' are non-lexical should be able to be alternatively scanned as shown while that in (198)a, where only *jos* 'if' is non-lexical and *tiet'* 'the way' is not, could be scanned any other way, and that does seem to be the case:

(198) a. Se tiesi: jos tiet' ei voita 'It knew: if you don't gain the way' (L82, p. 168)
s s s

b. Oi, Herra, tää kuink' on pitkä 'O Lord, how long this is' (L82, p. 168)
s s s

Oi, Herra, tää kuink' on pitkä
s s s

PrR 9 When there are at least three unstressed syllables between a stressed or prominent syllable and a following pause, the syllable preceding the pause is prominent; if it is short and the syllable before it is long, either of the two may be prominent.

(199) a. Ja siivet sulle ne suo. 'And they give you wings' (L82, p. 167)
s s s

b. tämän painava maahan Hän on 'He is to press this into the ground'
s s s
(L82, p. 167)

c. Pois pelko. Auki lyö sä 'Away with fear. Break it open.' (L82, p. 166)
s s s

(200)

$$\left\{ \begin{matrix} / \\ \mathrm{P} \end{matrix} \right\} \; \mathrm{x} \; \mathrm{x} \; \underset{\substack{\uparrow \\ P}}{\mathrm{x}} \; \| \qquad \text{or} \qquad \left\{ \begin{matrix} / \\ \mathrm{P} \end{matrix} \right\} \; \mathrm{x} \; \underset{\substack{\uparrow \\ P}}{\text{–}} \; \smile \; \|$$

PrR 9 is similar to PrR 5 in the same way that PrR 8 is similar to PrR 7: it likewise constrains what configurations may occur before a pause, but it deals with cases where the pause is at least three syllables away from the one defining the left edge of the configuration in question, while PrR 5 deals with those where it is only two. From the point of view of what may be in a strong position, exactly the same thing is at issue here as there: Leino's rule allows any unstressed syllable to be in strong position before a pause, while on our account it should be possible only if the syllable is heavy. To get a rough idea of what PrR 9 says about what may be in weak positions, it is useful to compare it with PrR 5. In the latter, where there are two syllables between the leftmost one in question and the pause, the only alternatives to having the syllable preceding the pause be prominent as required by the rule are to have it be unprominent, and hence part of a final disyllabic weak position, which is what the rule prohibits explicitly, or to have it be unprominent and the

preceding syllable prominent, which is of course impossible insofar as adjacent strong positions are impossible. In the case of PrR 9, in contrast, there is a third possibility, which is to have the syllable one away from the pause be prominent, leaving a final single unprominent syllable. Line-finally, at least, this looks like the admission of an extrametrical syllable, together with a restriction that such a syllable must be light.

Again, however, the actual claims of the rule must be looked at more closely. Since the left edge of the configuration again has the disjunction 'stressed or prominent', there are three subcases: the syllable at the left edge may be a) stressed and prominent b) prominent but not stressed or c) stressed but not prominent:

(201)

	a.	b.	c.
	P	P	U
	/ x x x ‖	x x x x ‖	/ x x x ‖

And each of these in turn has four subcases according to the relative weight of the final two syllables:

(202) $\left\{ \begin{matrix} / \\ P \end{matrix} \right\}$ x x x ‖

a. — ⏑

b. ⏑ —

c. — —

d. ⏑ ⏑

In the first case, the fact that the leftmost syllable is stressed means that it is the first syllable of a polysyllabic word; since all the remaining syllables are unstressed, they must either belong to that word or be monosyllables. Thus it in turn involves three subcases, according to whether the first word is four, three or two syllables long.

Immediately it can be seen that if the syllable initiates a four-syllable word there is yet another incompatibility between different prominence rules: in this case PrR 9 describes the same case as PrR 4, but makes slightly different claims. PrR 4 states that the third syllable of a four-syllable word may always be prominent, and that the fourth may be prominent if it is heavier than the third. This rule states that the fourth is normally prominent, but the third may be prominent if it is heavy and

the fourth is light. Based on the actual scansions, it seems fairly clear that PrR 4 is intended to describe these cases, and the overlap is a result of an incorrect formulation. Words ending in a heavy syllable followed by a light one only have their third syllable prominent as required by PrR 4, and never the fourth as permitted by PrR 9:

(203) Siis kätes anna nyt morsianna 'So give your hand now to the bride' (L86, p. 51)
s s s s

Similarly, we have seen that although it is the marked option, words ending in a light syllable followed by a heavy one can have either their third or their fourth syllable prominent on PrR 4 as in (204), while on PrR 9 only treating the fourth syllable as prominent is possible; again, it seems to be PrR 4 which is more accurate, since scansions like those in (204) do arise:

(204) Ja lukkari tuli myöskin. Ja sitten he veisasivat 'And the sexton came too.
s s s s s s
And then they sang a hymn' (L86, p. 48)

joka mielin hämärin, hämmentyvin 'Which with dark, confused mind'
s s s s

Words ending in two light syllables must have stress on the third syllable according to PrR 4, while PrR 9 would require stress on the fourth. Again only examples conforming to the scansion predicted by PrR 4 exist:[10]

(206) joka pienen pienistä synneistäni 'which from my tiniest sins' (L86, p.23)
s s s s

Finally, words ending in two heavy syllables must have stress on the third on PrR 4, while PrR 9 would require the fourth to be prominent. Here there are no line-final examples, but the only line-internal one conforms to PrR 4, not to PrR 9:

[10]An apparent exception is the following line, which was discussed above as possibly having an exceptional stress pattern on account of a ghost consonant. But this is cleary not what Leino has in mind, as he gives it as an example of a line which is unmetrical on his rules.

(205) Pois Pohjasta houkuttele
s s s

(207) on mulla hautaijaiset, sulla häät 'I have a funeral, you a wedding'
s s s s s

Presumably, then, this is simply not the case Leino had in mind. If we look then at the case where it is a three-syllable word that the stressed syllable defining the left edge of the configuration initiates, we get a clearer picture of what may be at stake, and find interesting differences between Leino's and our account. Where the syllable two away from the pause is heavy and the one just before the pause light as in (202)a, PrR 9 allows either syllable to be prominent, whereas the above rules should only allow the heavy final syllable of the three-syllable word to be prominent; but there are no iambic-anapestic examples of this type in Leino's data. Where the syllable two away from the pause is light and the one just before the pause is heavy, as in (202)b, both accounts require the final heavy monosyllable to be prominent:

(208) mutta viikkoja juomatta on 'but is weeks without drinking' (L82, p. 167)
s s s

But where both are heavy as in (202)c, PrR 9 allows only the last to be prominent.

(209) sinä kerroit elävän näin: 'you told was living so' (L82, p. 167)
s s s

While this is certainly permitted on the above account, the question arises as to whether it is the only possible choice as claimed by this rule. It has been suggested in connection with PrR 5 that what Leino might be concerned with in these rules might be the possibility of a single extrametrical syllable before a pause. Since such syllables would form a class by themselves, they could have imposed on them whatever requirements the facts seem to merit, including a requirement that they be light if, as Leino's rules suggest, that is in fact the case. But in fact there do seem to be heavy extrametrical syllables. However, they in fact all seem to be either final syllables of polysyllabic words or non-lexical monosyllables, that is, exactly those which may optionally be unstressed. Thus perhaps having a lexical monosyllable be extrametrical is what Leino is trying to rule out in cases like (209).

In the final case, where both syllables are short as in (202)d, PrR 9 requires the last to be prominent. In fact, there do exist two lines of this type:

(210) pään herjalta halkaisi jo 'chopped the head of the blasphemer already'
s s s

Ja samoin tehkösi sa! 'and you do the same'
s s s

However, we have seen that the second of these is special in involving contrastive stress; and moreover that there seems to be an exceptional admission of light syllables in strong positions line-finally which can account for both.

Where the polysyllable providing the leftmost stressed syllable in the configurations in (202) is a disyllable, the two syllables in question are both monosyllables. Here there are no examples of the first type where the first is heavy and the second light, though again our rules predict that only the heavy syllable could be prominent. There are several examples in which the first is light and the second heavy, the case where the two accounts agree:

(211) moni lapsi, min kätki jo maa 'many a child that the earth hid already'
s s s

Ja siivet sulle ne suo 'and they give you wings'(L82, p. 167)
s s s

But again the case where both are heavy is the interesting one. For Leino, the rule straightforwardly predicts the final one to be always required to be prominent, and this is what his scansions reflect:

(212) a. tämän painava maahan Hän on 'he'll press this into the ground'
s s s

koti kolkko ja kylmä sen lies 'a home dank and it's stone cold'
s s s

uutt armasta taakaa kun saa 'when he gets a new dear burden'
s s s

b. Mi ruikutusta vaan soi
s s s

Vuorostaan Pekka nyt saa 'Pekka in turn now gets'
s s s

Olo onnekas ollut siell' ois 'it would have felt good to be there then'
s s s
(L86, p. 167)

On the above account, however, this should not only not be required (depending on what is said about extrametricality above), but in some cases should be impossible. For if the first of the two is lexical and hence stressed, it should not be able to share a weak position with any other syllable. Thus only where both are non-lexical should Leino's scansion be permitted, and in fact all those he gives are of this type: *Hän* 'he', *sen* 'its', *kun* 'when', *vaan* 'although', *nyt* 'now' and *siell'* 'there' are all non-lexical on the criteria set forth above, and consistently pattern that way in the meter.

In the second case shown in (201), where the leftmost syllable is prominent but not stressed, the final two syllables will always be monosyllables and hence pattern just as in the final case above.

In the third case, where the leftmost syllable is stressed but not prominent, the results are rather peculiar. Wherever Leino's rules would require that the final syllable be prominent, the result would be an illicit string of three unprominent syllables. Thus the only application of the rule which would result in an acceptable configuration would be in the case where the syllable two away from the pause is heavy and the one just before it is light, in which prominence can be legitimately assigned to the former:

(213) U P
/ x — ⏑ ‖

The other logical possibility, that of making the first syllable following the stressed one prominent simply goes unmentioned; and thus the rule has in the same indirect way we have seen before the effect of restricting light stressed syllables in weak position to the first of two weak positions. Of course on our account too if the leftmost syllable is in weak position the syllable one away from the pause must be prominent, in order to ensure that the light stressed syllable in a weak position is the first of two weak syllables. But the similarity of the end masks a major difference in the means: on Leino's rules the possibility of a short stressed syllable being weak is made

to depend directly on the weight of an extrametrical syllable, while for our account the coincidence of those two things results from independent constraints on weak positions and on extrametrical ones.

PrR 10 When a string of four unstressed syllables occurs between two stressed syllables, whichever of the middle syllables of the string is long become prominent; if both the middle ones are long or short, either may be prominent.

(214) / x x x x /
↑ ↑
P whichever long, otherwise whichever

PrR 10 introduces no issues not discussed already. Again, it overlaps in problematic ways with other prominence rules. Again, in terms of what may occur in strong positions, it differs from the above rules in that it allows a light syllable in a strong position where there is no alternative heavy choice. And again, in terms of what may occur in a weak position, as in the case of PrR 9, it differs from the above rules in that where both syllables are heavy it freely allows either to be prominent, where on our rules, either should be allowed only if none of the syllables are lexical monosyllables: if one is, only the scansion which sets the lexical monosyllable in a monosyllabic weak position should be possible. One last time, then, let us consider all the possibilities systematically.

Since the rule is formulated in terms of strings between stressed syllables, there are four possibilities: a) both stressed syllables are prominent b) only the leftmost one is c) only the rightmost one is and d) neither is.

(215)

		P				P			U				P		
a.	/	x	x	x	x	/	c.	/	x	x	x	x	/		
		P				U			U				U		
b.	/	x	x	x	x	/	d.	/	x	x	x	x	/		

Again, subcases are in turn defined by the relative weights of the syllables in question,

(216) / x x x x /

a. — ⏑

b. ⏑ —

c. ⏑ ⏑

d. — —

and by the weight of the polysyllabic word the leftmost stress initiates—it could be a word of five, four, three or two syllables, followed by monosyllables.

In each of these, on our above rules the possibilities for strong positions will be partially determined by the stress rule. In the case of a five-syllable word, where the third syllable is heavy and the fourth light, as in (217)a, or where the third is light and the fourth heavy, as in (217)b, our account and Leino's concur in choosing the heavy one:

(217) a. Mutta karavaanimme kulkee 'But our caravan goes' (L86, p.50)
s s s

b. Ja ratsastajalla naama lie ollut pelkästä luusta 'And the rider probably
s s s s s s
had a face that was all bone' (L86, p.50)

Where both are heavy, however, the two accounts differ, in that the stress rule allows only the third syllable to be stressed and therefore strong, while Leino's rule allows either that or the fourth to be prominent. In fact, only the former possibility arises in Leino's actual scansions:

(218) hänen kainalossansa käsi=kirjan mustat kannet naïn
s s s s s s s

If both are light, they again diverge in that the stress rule allows only the third to be stressed, while Leino's allows either to be. There are no examples of this type, however.

If it is a four-syllable word that the leftmost stess initiates, PrR 10 diverges not only from the stress rule, but also from PrR 4, in the type of conflict we have seen before. In this case, if both syllables in question are heavy, the stress rule and PrR

4 require stress on the third syllable while this rule permits stress on either that or the fourth; similarly if both are light: the stress rule and PrR 4 require stress on the first while this rule permits stress on either that or the fourth. Where the third is heavy and the fourth light, both rules require stress on the third; but where the third is light and the fourth heavy, this rule requires stress on the second where the stress rule and PrR 4 allow stress on either. In all cases those determined by the stress rule and PrR 4 seem to be the ones to which the scansions actually given conform.

If it is a three syllable word that the leftmost stressed syllable initiates, on our rules stress is optional on the final syllable if it is heavy, and impossible there if it is light. Therefore, on both that account and on Leino's, if the third is heavy and the one following it light the third will be prominent as in (219)a, and if the third is light and the one following it heavy the latter must be as in (219)b:

(219) a. ei vekseliin ja sen maksuun 'not into the bank draft and its payment'
s s s

b. mun wereni kai sen kestää 'my blood will probably bear it' (L82, p. 168)
s s s

If both are light, our account allows no acceptable scansion, whereas Leino's rule permits either to be prominent; in fact, there are no examples given of this type. And if both are heavy, Leino's rule allows either to be prominent in all cases, whereas our account allows either only subject to the constraint that whatever disyllabic weak positions result from the choice do not contain lexical monosyllables. Thus a line like (220)a following, where *ees* 'fore-' (as in *forward* is lexical, our account forces the scansion shown, whereas Leino's in principle would allow *-ten* to alternatively be prominent; whereas in a line like that in (220)b following, where *tuossa* 'that (invessive sg.)' may be non-lexical, the alternative scansion with *-hin* strong allowed by Leino's rules is indeed possible for ours too.

(220) a. Kuin keijuten ees=päin vaikkyy 'as if dancing shimmers ahead' (67)
s s s

b. Toki kaunihin tuoss on tyttö 'certainly the prettiest one, there is the girl'
s s s
(L82, p. 168)

If it is a two-syllable word that the leftmost stress initiates, exactly the same issues arise. In this case, both syllables in question will be monosyllables. Where one is light and the other heavy Leino's and our rules converge in choosing the heavy one as prominent. Where both are light they diverge, with Leino's permitting either as prominent and our rules neither; in fact no examples are given of this type. The most interesting case again is where both are syllables are heavy; again, Leino's rule treats the choice between the two as indifferent, while our account treats it as constrained by the requirement that a lexical monosyllable cannot share a weak position with any other syllable. Again the lines of this type show only one scansion, the one placing the lexical monosyllable *jää* 'ice' in a strong position, which is compatible with our account:

(221) hänen allaan on jää ja kivi 'under him is ice and stone' (LS2, p. 168)
s s s

Of the other cases possibly described by PrR 10 which would both involve the rightmost syllable being stressed but not prominent, cases b and d of (215), only the first of the two middle syllables could ever be chosen: as we have seen before, a stressed syllable can only be unprominent if the syllable preceding it is prominent, but if that is so then the second of the two syllables at stake in PrR 10 can never be prominent if the alternation in the basic metrical pattern is to be maintained, and only the cases which permit the syllable before that one to be prominent will be possible.

The only remaining case is the one where the rightmost syllable is stressed and prominent, but the leftmost one is stressed but unprominent:

(222) U P
/ x x x x /

In this case, however, the choice is also to a large extent determined by other principles: on either account, the fourth unstressed syllable couldn't be prominent in any case since it is adjacent to a prominent syllable. The third unstressed syllable couldn't be prominent on Leino's rules since unless the first were as well the result would be an impermissible three-syllable weak position, and no rule makes the first

prominent. Similarly on our account, if the third unstressed syllable but not the first were prominent the weak position would contain more than a ρ, and the first could never be prominent because it is obligatorily unstressed. Thus on either account only the second unstressed syllable is free to be prominent:

(223) Kuningastako palvelee (L86, p.76)
s s s

Thus again for Leino the only interesting effect of this case seems to be to rule out the possibility of the first unstressed syllable being the prominent one—an accurate constraint, but again hardly in a perspicuous place.

In conclusion, it appears that Leino's way of formulating the rules, while providing a welcome level of detail, leads to some redundancy, contradiction, oversight, inadequate scope, and lack of generalization. Our rules avoid these shortcomings of form and potentially make for a preferable description of the properties of Finnish iambic-anapestic meter, if in fact they are also correct in substance. In this regard, the major difference between Leino's account and ours is that Leino's treats both stress and quantity as constraining metrical possibilities directly, while ours treats quantity as doing so only insofar as it constrains the distribution of stress in the language. The main empirical consequences of this involves the distribution of monosyllables, with our account differing from Leino's in taking as central the avoidance of lexical monosyllables in disyllabic weak positions, and not the avoidance of particular combinations of weight; and in this it seems to be the more accurate. There is also a significant differnce between the two accounts regarding the criteria for occupancy of strong positions, with the above account again seming more refined in that it reveals a special property of iambic-anapestic meter not shared with true iambic meter. More generally, our more articulated phonological description, together with a metrical description that draws on that with respect to more properties than number and order of syllables, can maintain Leino's level of detailed description of the variety of instantiations of the meter possible, while keeping the rules simple and making illuminating distinctions between different dynamic meters and across different poets' practice.

Chapter 5

English Iambic-Anapestic Meter

In both traditional English metrics (e.g. Saintsbury 1906–61) and generative metrics (e.g. Kiparsky 1977), meters are often defined by the type of foot that is iterated within a line, with feet in turn defined by the number of positions in them, and by the relative strength of those positions. Thus as discussed in section 2.3 iambic meter is defined by a binary foot consisting of one weak position followed by one strong one, and anapestic meter may be analogously defined by a ternary foot consisting of two weak positions followed by a strong one. Of course, feet of one type may appear to arise in meters based on another type under restricted conditions if the correspondence rules for that meter permit it; this is the phenomenon called "substitution" in traditional metrics. The metrical rule of resolution discussed above in section 2.3, for example, was seen to give rise to such ternary feet as the following within Shakespeare's iambic pentameter:[1]

(224) a. And spends his prodigal wits in bootless rhyme (*Love's Labour's Lost* 5.2.64)
s w s s s

b. This fortification, gentlemen, shall we see it? (*Othello* 3.2.5)
s w s s s

But the restricted nature of these departures from the canonical number of syllables should in principle leave it clear whether the basic pattern is an iambic one or not.

[1]In the resolution analysis above, of course, insofar as there may be said to be substitution at all, in (224)a the substituted foot would actually be an amphibrach, not an anapest: his prodi(gal)
w s w

However, the actual range of mixing of ternary feet with binary ones to be found within English poetry far exceeds what is accounted for by any such descriptions. In the nineteenth century, poems were written in which feet of more than two syllables were mixed with binary ones to such an extent that the feet were taken to be either of variable size, or basically ternary. An example of the former description might be Gerard Manley Hopkins' own comments on his sprung rhythm, the meter illustrated in (225),[2]

(225) High there, how he rung upon the rein of a wimpling wing (*The Windhover*)
s ⏑ s s s s
The heart rears wings bold and bolder (*Hurrahing in Harvest*)
s s s s s

and which he describes as "... measured by feet from one to four syllables, regularly, and for particular effects any number of weak or slack syllables may be used" (cited in Preminger (1974), p. 808). An example of the latter description might be Saintsbury's comments on Alfred Lord Tennyson's poem *Maud* (Saintsbury 1961, v. 3, p. 207-209):

(226) In so far as the piece has a staple metre at all, it is to be found in a rather new, rather peculiar, and not invariably successful medium of long anapaestic lines... Indeed, this form is very quaint and curious, and introduces us, if we will, to one of the prosodic mysteries. It has been and will be said constantly in talking of substitution, that it has to be most carefully guarded, so that there be no confusion of bases. How difficult this is, yet how it can be done by the skill of the poet, may be shown by comparing these five-foot lines with the author's five-foot iambics, especially when he took to copious trisyllabic equivalence there. They approach very closely.

> It is time, O passionate heart and morbid eye, [(*Maud*, III 30) -K.H.]

[2]Scansions of Hopkins' sprung rhythm poems are either taken from Kiparsky (1989) or chosen in accordance with the principles outlined there. The diacritic '⏑', taken from Hopkins own ms., indicates what is called by Hopkins an 'outride', analyzed by Kiparsky as an extrametrical syllable. Where stress marks are shown on the lines those are also Hopkins' own.

> might be either, read as it is. Substitute ''Tis time,' and everybody, seeing it by itself, would take it for a heroic line; and so with the next and others. Yet read the whole, and the anapaestic staple is sun-clear.

Yet at the same time it is not clear in what sense the meter can be said to be anapestic, since it patently does not regularly contain ternary feet.

Now in the preceding chapter we have seen that Finnish has a well-defined iambic-anapestic meter, distinct from either iambic or anapestic meter, yet similar to them in involving predominately feet of either two or three syllables in length. Here I will propose that at least some of the puzzling cases in English of poems in which feet of different lengths are mixed derive from the existence in English as in Finnish of such a meter. It is this distinct iambic-anapestic meter which Hopkins' sprung rhythm is a variant of, and which attracts Saintsbury's attention in *Maud*, though we will see it is realized more satisfactorily in some of Tennyson's later poems, most especially *The Voyage of Maeldune*.

Kiparsky (1989) has already shown Hopkins' sprung rhythm to be an essentially binary meter, with resolution providing the key to the distribution of stress in its weak positions. Hence I will begin by summarizing Kiparsky's analysis of that meter, showing that it differs from ordinary iambic meter in respect of exactly those properties which characterize Finnish iambic-anapestic meter, and that it can be analyzed in a similar way. Then I will show that Tennyson uses a meter with essentially the same structural properties, though simultaneously with somewhat greater licentiousness and somewhat less extravagance. Moreover, through comparison with other poems of Tennyson I will show that the meter differs not only from ordinary iambic meter, but also from ordinary anapestic meter, in which feet are regularly three syllables in length, in just the way that the analysis predicts. Finally, I will consider some apparently iambic-anapestic poems of Swinburne which superficially fail to exhibit the expected properties, and show through a comparison with an anapestic poem that those properties are nonetheless manifest as statistical preferences.

5.1 Hopkins' Sprung Rhythm

Hopkins' sprung rhythm is probably the most famous and perplexing case of a meter involving feet of mixed lengths. Nonetheless, it has been argued by Kiparsky (1989) that it can be seen to be a basically binary meter if the role of syllable quantity in it is properly understood. He suggests that the metrical pattern consists of alternating strong and weak positions, and that just as in conventional iambic verse, each position can contain at most one syllable, with a strong syllable of a word excluded from a weak position. In this latter respect it is even stricter than conventional iambic verse in that no exceptions are made for phrase-initial position, and in that the strong syllable of a phrase is likewise excluded from a weak position.

But it differs from conventional binary meters in certain other ways which Kiparsky relates to the special role played by syllable quantity. First, where conventional iambic verse restricts the possibilities for stress in weak positions only, leaving strong positions free, in sprung rhythm a syllable occuping a strong position must have some metrical prominence. Normally it will be stressed, as in the lines in (225), but it may also be simply heavy, as in (227), where heaviness is defined as by the Latin stress rule to include syllables with short vowels if they are closed.

(227) a. Márgarét, are you gríeving (*Spring and Fall*)
s s s s

b. This Jack, joke, poor potsherd, | patch, matchwood, immortal diamond,
s s s ⌣ s ⌣ s s

(*That Nature is a Heraclitean Fire and of the Comfort of the Resurrection*)

Thus what never occurs in a strong position is a light stressless syllable:

(228) a. *Barbara, are you grieving
s s s

b. *The Jack, joke, poor potsherd, | ...
s s

But such syllables are freely allowed in strong positions in conventional iambic verse throughout the English tradition, including Hopkins' own:

(229) a. Now Time's Andromeda on this rock rude (*Andromeda*)
s s s s s

b. The roll, the rise, the carol, the creation (*To R.B.*)
s s s s s

Second, what counts as a syllable is governed by several special metrical rules. First, an unlimited number of unstressed syllables may count as a single syllable, provided all are light.[3] Basically, a light syllable is defined as by the Latin stress rule as an open syllable with a short vowel (or a syllabic sonorant):

(230) Both are in an unfathomable, all is in an enormous dark (*Heraclitean Fire*)
s s s s s s s

But this definition of what counts as light can be further modified by several rules. Most important, a word-final consonant in an unstressed syllable may be treated as extrametrical; hence syllables like those in (231) will also count as light:

(231) a. Both are in an unfathomable, all is in an enormous dark (*Heraclitean Fire*)
s s s s s s s

b. Degged with dew, dappled with dew (*Inversnaid*)
s s s s s

Second, unstressed syllables with high or mid vowels may be treated as light if they are open:

(232) Men, boldboys soon to be men: (*The Loss of the Eurydice*)
s s s s

Who to wedlock, his wonder wedlock, (*At the Wedding March*)
s ⌣ s s

Shadow that swam or sank (*Binsey Poplars*)
s s s

[3] An exception appears to be the scansion of *-un* as light in the following line:
Fire featuring heaven. For earth | her being has unbound; her dapple is at an end, as -
(*Spelt from Sibyl's Leaves*)

Finally, through a rule for which Kiparsky coins the term 'correption', since it seems to be a borrowing of the Latin metrical rule *correptio attica*,[4] an open syllable with a long vowel or diphthong may still count as light if it is followed by a vowel or by a glide (*y, w, h* or *r*) which is itself followed by a vowel:

(233) High there, how he rung upon the rein of a wimpling wing (*The Windhover*)
s ⏑ s s s s

These rules result in the exclusion of a lexical monosyllable from a polysyllabic weak position. As discussed above, English has no light lexical monosyllables, and since all lexical words are stressed, the restriction of Kiparsky's rule of final consonant extrametricality to unstressed syllables means that words with short vowels and single consonants like *cat* cannot be rendered light by that rule in the same way that words like *that* can. Thus a lexical monosyllable in a weak position will not share that position with any other syllables:

(234) Squandering ooze to squeezed | dough, crust, dust; stanches, starches
s s s s s s

(*Heraclitean Fire*)

*... crust and dust; stanches...
s s

The only exception to this is that correption may permit an open lexical monosyllable with a long vowel or diphthong to count as light in exactly the same way that it will a non-lexical syllable of that type: [5]

(235) Acts in God's eye what in God's eye he is —
s s s s s

(*As kingfishers catch fire, dragonflies draw flame*)

Beyond that, these rules result in the exclusion from polysyllabic weak positions of non-lexical words and other unstressed syllables as well, if they contain long vowels or are closed by more than one-word final consonant:

[4] ***Vocalis ante vocalem corripitur***: 'A vowel before a vowel is short'.
[5] The diacritic '⏑' is from Hopkins' own ms.

(236) Both are in an unfathomable, all is in an enormous dark (*Heraclitean Fire*)
s s s s s

*... all is by this/ must be in an / is like an enormous ...
s s

We will return to the general significance of this below; but first some comments are in order here about exactly how the special provisions of these rules are interpreted with respect to non-lexical words. First, the rule that allows a final consonant to be treated as extrametrical is explicitly confined to unstressed syllables. But what counts as an unstressed syllable is not entirely straightforward. In particular, any syllables of non-lexical words may always count as unstressed. Thus the final syllable of *upon* in (237)a may count as light and stressless for the purposes of this rule, at the same time that the same syllable may count as heavy and/or stressed for the purposes of satisfying the requirement illustrated in (227) of some metrical prominence in a strong position, as in (237)b:

(237) a. High there, how he rung upon the rein of a wimpling wing
s ⌣ s s s s

(*The Windhover*)

b. Why fasten that upon her, (*The May Magnificat*)
s s s

Since formally the stress properties of non-lexical words differ from those of lexical words in that stress is assigned to the former only post lexically, we can say that the metrical rules respect for post-lexical stress seems to be optional.

The second metrical rule proposed by Kiparsky modifying what may count as a syllable is that two short syllables of which the first is stressed can count as a single syllable. Given the possibility of final consonant extrametricality, words like *level* in (238)c will count as instances of this alongside those in (238)a and b:

(238) a. This very very day came down to us after a boon he on (*The Bugler's*
s w s s s s
First Communion)

*... nasty nasty day ...
s w s

b. Summer ends now; now, barbarous in beauty, the stooks rise (*Hurrahing in Harvest*)
w s ⌣ s s s s

*Winter ends...
w s

c. Of the rolling level underneath him steady air, and striding (*The Windhover*)
s w s s ⌣ s s

*... rolling leeward underneath...
s w s

Now a sequence which can count as a single syllable by this rule is just the configuration described in section 3.3 above as arising in cases of resolution, and it was seen there that such a sequence can always occur in a strong position, even in conventional iambic meter:

(239) Now Carisbrook keep goes under in gloom: (*The Loss of the Eurydice*)
s s s s

But in Hopkins' sprung rhythm, such a sequence can also occur in a weak position, as seen in the lines in (238) above. That is, disyllabic sequences that count as a single syllable by resolution are exempted from the rule that the strong syllable of a word is excluded from a weak position. Why should this be? Kiparsky argues that it follows from the fact that the metrical rule classifies them as single syllables:[6]

(240) ...treating resolved disyllables as honorary monosyllables explains at once why the otherwise robust generalization that lexical stresses do not occur in weak positons apparently breaks down for precisely those words... By definition, a monosyllabic word has no lexical stress. Also by definition, a resolved disyllable counts as one syllable. Therefore such a word does not have a lexical stress, and can freely occur in weak position. (p. 322)

The problem with this account, however, is that it compromises the strict theoretical distinction between prosodic and metrical rules described in section 2.3. The

[6]Recall that "lexical stress" in his comments is equivalent to our "syllable which is strong within a word", as outlined in section 2.3.

sequences here treated as monosyllabic by resolution are exactly the same as those treated that way in Shakespeares's iambic pentameter as described in section **3.3.** There it was noted that in that verse, disyllabic sequences with lexical stress are in fact excluded from weak positions if they count as monosyllabic by virtue of resolution—exactly the opposite state of affairs from that which obtains in Hopkins' sprung rhythm—and this was argued by Kiparsky (1977) to follow from the fact that resolution is a metrical rule, and consequently does not affect the phonological representation on which a strong syllable is defined. This line of argument is supported by the contrast with disyllabic sequences which count as monosyllabic by virtue of the prosodic rule discussed in section 3.3 whereby an unstressed vowel may be deleted following another vowel, which can freely occupy weak positions as in (241)a, giving the contrast in section 3.3 (120), repeated here:

(241) a. A soothsayer bids you beware the Ides of March (*Julius Caesar* 1.2.19)
s w s s s s

Can lay to bed for ever; whiles you, doing thus (*The Tempest* 2.1.284)
s s s s s

b. *Her bank teller bid her beware the Ides of March
s w s

*Can lay to bed for ever; whiles you, sitting thus
s w s

Following a suggestion in Kiparsky (1989b), I will propose that the solution to this puzzle lies in the fact that although the meter is indeed like iambic meter in being binary, it is unlike iambic meter in taking as its basic unit matched with a metrical position not the syllable, but a ρ, that is, a member of the class of possible minimal feet arising in moraic trochee systems, just as in the case of Finnish iambic-anapestic verse. We have seen from the foregoing that on Kiparsky's description of sprung rhythm, correlated with the meter's ready allowance of multiple syllables in weak positions are the same essential characteristics found in Finnish iambic-anapestic meter. Some metrical prominence is required in strong positions, as there. Lexical monosyllables are excluded from polysyllabic weak positions, as there. Finally and most important, a strong syllable of a word is permitted in a weak position just in case

that syllable is short and followed by an unstressed syllable. In the case of Finnish iambic-anapestic meter, all of these properties have been argued to follow from an analysis which takes the meter to be a binary one with strong positions following weak ones, but in which each metrical position corresponds to a ρ.

Putting together Kiparsky's rule for the basic metrical pattern of sprung rhythm in (242) with the rules proposed for Finnish iambic-anapestic meter in chapter 4, given in (243) with a modification to (243)a to account for Hopkins' hallmark use of empty positions which defines this meter as "sprung", then, we would get the following set of rules:

(242) Basic metrical pattern: A line consists of a fixed number of strong positions alternating with weak ones.

(243) Correspondence rules:

a. Each position contains at most a ρ.

b. A strong position must contain the head of a ρ.

Among lexical words, as there, these rules would correctly exclude light stressless syllables like those in (228)a and b from strong positions since as shown in (244) they will not head a foot of any kind, thus failing to satisfy (243)c:

(244) a. 

Barbara

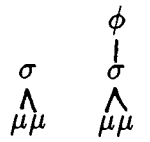
b.

the

They also exclude lexical monosyllables from all but monosyllabic weak positions as in (234); since a lexical monosyllable will always itself be a foot as in (245)a, if there is any additional linguistic material in a weak position as in (245)b, (243)b will fail to be satisfied:

(245) a. 

dust

b. 

and dust

Finally, they will permit a sequence of a short stressed syllable followed by an unstressed syllable to occupy a weak position, since it is just that configuration which will be assigned a disyllabic foot as in (246)a. In contrast, if the initial syllable is heavy as in (246)b that syllable will make up a foot on its own, and the remainder of the word will constitute additional linguistic material in the weak position, and again (243)b will fail to be satisfied.[7]

(246) a. 

le vel

b. 

nasty

There is however a problem with this adaptation of the rules for Finnish iambic-anapestic meter to English. As they stand, they fail to exclude from weak positions many syllables which are strong within words and do not fit the description of resolution. This is a consequence of a difference in the phonology of English from that of Finnish. As shown in section 3.2 and in chapter 4, in Finnish metrical phonology there is a prohibition against stress clash which will prevent a syllable followed by a stressed one within a word from ever receiving stress. This interacts as was shown with the rules in (243)b and c to exclude from a weak position any stressed syllable other than one which is the first syllable of a sequence admitted under resolution, since it means that the syllable following a stressed syllable can never make a strong position. It would therefore have to likewise belong to the weak position, but only if

[7]Note that this entails that for Hopkins the metrical rules can be satisfied by a phonological representation prior to the resyllabification described in section 2.2. If resyllabification renders the initial stressed syllable of a word like *level* heavy, then between that and stray syllable adjunction, at some later stage the structure of such a word should become indistinguishable from that of one like *nasty*.

the stressed syllable is a light stressed one such that together they form a ρ will that be possible without violating (243)b.

But in English phonology nothing prevents a syllable adjacent to a stressed one from being itself stressed; this configuration arises in words like *maintain* or *cónflict* as discussed in chapter 2, which are analyzed as containing two monosyllabic feet each, with the stronger of these at the word level being interpreted as the primary stressed syllable of the word. The weaker syllables of such words would thus be eligible to occupy strong positions on the rules above, and consequently nothing would stop the stronger adjacent syllables from being in weak positions. Yet they never are: in words of this type it is always the stronger syllable which is in the strong position, as in (247):

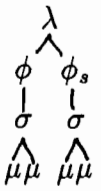
(247) This seeing the sick endears them to us, us too it endears. (*Felix Randall*)
s s w s s s s

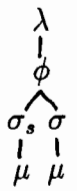
What I would tentatively[8] propose to deal with this difference would be the addition to the rules in (243) of (248):

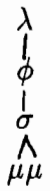
(248) A weak position may not contain a foot which is strong within a word.

A word like *endear*, like *maintain* or *conflict*, which would have a structure like that in (249)a, would thus have its second syllable excluded from a weak position by this rule because it constitutes a strong foot, while disyllables allowed by resolution such as *level* in (249)b and monosyllables such as *came* in (249)c would be permitted since the feet of those words are not strong relative to any other feet in their words:

[8] "Tentatively" because intuitively there is a problem with this solution. It predicts that the first two syllables of a word like *meditation* would be allowed in a weak position by resolution, but those of a word like *meditate* would not. While not contradicted by any data found yet, this prediction does seem counterintuitive, and diverges from what is found in Finnish, where the strongest foot of a word, namely the initial one, is always able to occupy a weak position, so long as it fits the description of resolution. A better direction for a solution might therefore involve phenomena related to clash rather than relative strength, since clash avoidance is what produces the relevant effects in Finnish.

(249) a. 
endears

b. 
le vel

c. 
came

Drawing on the foot structure of these words in this way for a solution seems appropriate, in that if in this meter it is true that the foot is the basic unit to which a metrical position corresponds, this rule forms an appropriate analog to that excluding a syllable which is strong within a word from a weak position in meters which take the syllable to be the basic unit corresponding to a metrical position.

Interestingly, in Hopkins' case the rule in (248) might possibly be subsumed under a rule excluding a foot which is strong within a phrase. It was observed above that according to Kiparsky, Hopkins never allows phrasal stress in weak positions. A rule excluding a foot which is strong within a phrase would automatically exclude any foot which is strong within a word, correctly predicting that the strong word of a compound like *blue-bleak* or of a phrase like *in groans grind* will be in a strong position:[9]

(250) a. Shine, and blue-bleak embers, ah my dear (*The Windhover*)
s s s s s

b. Where, selfwrung, selfstrung, sheathe- and shelterless, |
s s s s
thóughts agáinst thoughts ín groans grínd. (*Spelt from Sibyl's Leaves*)
s s s s

I will not pursue this, however, as in the latter line the positioning of *thoughts* in a weak position calls Kiparsky's generalization into some question with respect to phrasal stress (although with respect to compound stress it seems to be correct). Moreover, we will see that while a rule such as that proposed in (248) is required for Tennyson's iambic-anapestic meter, no extension of it to larger domains is.

[9]It is worth noting that the latter provides evidence for the phrasing algorithm of Zec and Inkelas (1988) over that of Hayes (1989): for the latter, *in groans* would form a clitic group and hence define *groans* as a strong foot in that domain, but the (surprising) alternate scansion is explicitly marked by Hopkins.

In deriving the properties of the meter not from constraints on syllable quantity directly but rather from constraints on foot structure which indirectly entail constraints on syllable quantity, this approach differs from Kiparsky's in the following respects. First, there are a few lines where the unstressed syllable following the stressed one in cases of resolution is closed by not one but two consonants, and possibly even one where it contains a long vowel:

(251) a. Only the beakleaved boughs dragonish |
s s s s

damask the tool-smooth bleak light; black, (*Spelt from Sibyl's Leaves*)
s s s s

He haunted who of all men most sways my spirits to peace; (*Duns Scotus's Oxford*)
s ⌣ s ⌣ s s s

b. Cuckoo-echoing, bell-swarmèd, lark-charmèd, rook-racked, river-rounded
s ⌣ s s s s

(*Duns Scotus's Oxford*)

These are minor exceptions on Kiparsky's generalizations, but follow automatically on the foot-based analysis, since their structure is just that of a resolved moraic trochee, exactly analogous to cases such as the following in Finnish described in chapter 4:

(252) a. Pidättää unen köysin sen
s s s

b. Iloisehen tanssiin soi
s s s

Second is a point of difference which goes the other way: in replacing Kiparsky's disjunction in the requirement that a syllable in a strong position must be heavy or stressed with the requirement that it must simply be stressed, it becomes inexplicable why the heavy but unstressed syllable like the final one of *Margaret* should be acceptable as a strong position. However, it is not out of the question that that scansion

could in fact be licensed by that syllable being stressed at some stage.[10] Recall from section 2.2 that following Ross (1972) one possible explanation for the systematic obligatory stress on final syllables of nouns closed by non-dental obstruents such as *Jáckendòff* compared with the possibility of no stress on final syllables of other nouns such as *Márgaret* might lie in the direction of all final closed syllables of nouns being in fact stressed by rule, and then destressed if it is dentals or sonorants they are closed with, unless the final syllables are lexically stressed, as in *Éndicòtt.* On such an analysis of English stress, allowance of the final syllable of *Margaret* in a strong position can be accommodated in a stress-based analysis of the meter if the metrical rules are permitted to refer to a representation preceding destressing. Although this requires a less constrained view of the range of phonological representations in a derivation to which metrical rules refer than the one proposed by Kiparsky as discussed in section 2.3 which limits the range to the output of the lexical rules, the relationship between resyllabification and resolution seems to require this weakening in any case, as mentioned in footnote 7 above and discussed further in chapter 6 below.

The third point of difference between Kiparsky's analysis and that presented here concerns Kiparsky's proposals for special conditions under which certain non-lexical words may count as light. His rule allowing final consonants to count as extrametrical, for example, so that a word like *in* can count as light, is to some extent natural in terms of English phonology in that English does have a rule of final consonant extrametricality. But its formulation is a little peculiar in relation to that in that the phonological rule is not restricted to unstressed syllables, but rather results in them. Now the effect of this rule for the meter, however, can be seen to be to pick out to be allowed in polysyllabic weak positions from among non-lexical words exactly those which were shown in section 2.2 to be vulnerable to reduction. If as sketched

[10]One apparent case which could not be accounted for in this way is that in the line in (253) the *-ing* of *comforting* makes up a strong position (and must, because it rhymes with *wring*).

(253) More pangs will, schooled at forepangs, wilder wring.
s s s s s
Comforter, where, where is your comforting? (*No worst, there is none*)
s s s s s

But we have seen that in Finnish iambic-anapestic meter a line-final position exceptionally admits a light stressless syllable, and that could be the case here too.

there in the phonology irreducibility is taken to be a function of stress, those words should be defined by the phonology as potentially unstressed while those with long vowels or closed by multiple consonants are defined as obligatorily stressed. Thus what Kiparsky's metrical rule seems to be doing is duplicating an effect which ought to be produced by a correct phonological account. On a correct phonological account of non-lexical stress it should be the case that non-lexical monosyllables with long vowels or closed by multiple consonants would, like lexical monosyllables, themselves constitute a complete foot, such that a weak position containing them and any other linguistic material would be in violation of the rule in (243)b. While an account of non-lexical stress which in fact achieves this effect has not been given,[11] it is clear that the described metrical facts would follow on such an account.

Similarly, the rule allowing mid and high vowels in open syllables to always count as light finds a basis in English phonology, with effects manifest in non-lexical words. As discussed in section 2.2, all word-final high or mid vowels in English are phonetically long, yet there seems to be a difference between those which are phonologically short and those which are phonologically long, manifest in such phenomena as the stress contrast between *Mary* and *Marie*, or the contrast between the possibility of a flap in such words as *Plato* and *Haiti* and the impossibility of one in words like *veto* and *emeriti.* In fact it turns out that Kiparsky's formulation is somewhat too general, and it is not all syllables of this type which seem to be allowed in weak positions, but just those that were noted in section 2.2. to be given by Kenyon and Knott (1953) as optionally having short vowels. Thus again, an ideal account of the phonology of non-lexical words in English would obligatorily assign a foot to an open syllable of this type which does not reduce, such as *through*, but only optionally to a word like *she* which fails to reduce for the different reason that such vowels are lengthened word-finally, and the metrical difference would follow from stress.[12]

[11]Recall from section 2.2 that if non-lexical words are to be footed by moraic trochees, and consonant extrametricality is what allows monosyllabic non-lexical words with short vowels closed by single consonants to escape being stressed, the generalizations observed by Zec and Inkelas (1988) to characterize disyllabic non-lexical words become obscured.

[12]A matter left unsettled on this analysis is that of why if words such as *she* fail to be assigned a foot because underlyingly they are short, they can sometimes be treated as long and occupy strong positions. One possibility might be that they do so just in cases where they actually receive

Thus given the right account of the stress properties of non-lexical words, it appears that a stress-based account of the meter will account for the same facts as the special provisions of Kiparsky's quantity-based account. Further support for the stress-based analysis comes from there being in fact a few counterexamples to Kiparsky's generalization that heavy unstressed syllables never occur in polysyllabic weak positions: in addition to those figuring in cases of resolution as discussed above, there are also the following non-lexical words in such positions which as described in section 2.2 above would be classified as heavy:

(254) a. His charge through the champ-white water-in-a-wallow (*The Loss of the Eurydice*)
s s s s

O the mind, mind has mountains, cliffs of fall (*No worst, there is none*)
s s s s s

b. Else, but in dear and dogged man? —Ah, the heir (*Ribblesdale*)
s s s s s

Of now done darkness I wretch lay wrestling with (my God!) my God.
s s s ⌣ s s s

((*Carrion Comfort*))

Now the other was brass -bold (*Brothers*)
s s s

Dearly thou canst be kind; (*Brothers*)
s s s

c. Months earlier, since I had our sweet reprieve and ransom (*Felix Randall*)
s s ⌣ s s s s

Cheer whom though? The hero whose heaven- handling flung me, foot trod
s ⌣ s s s s s s

((*Carrion Comfort*))

d. And the beadbonny ash that sits over the burn (*Inversnaid*)
s s s s

---

post-lexical stress by position as outlined in Zec and Inkelas (1988), but this has not been looked into.

There are always a few exceptions in metrics, but what is perplexing on Kiparsky's account is why, if the restriction on lexical monosyllables derives from a restriction on syllable quantity, there should be occasional exceptions to the latter but none to the former. On a stress-based account, this distinction is expected. Both lexical and non-lexical monosyllables are obligatorily stressed, but only in the case of the former is that stress assigned by a lexical rule. But we have already seen from the contrast in (237) that non-lexical stress can be completely disregarded by the meter. Thus exceptions to the latter but not the former are just as expected.

At the same time, however, this account raises a problem for the stress-based analysis. If non-lexical words, even when obligatorily stressed by our hypothetical rule, should still be able to have that foot be disregarded in this way, then some explanation is called for for the near categorical exclusion of such words from weak positions that led to Kiparsky's direct quantity-based account. One possibility might be that the restrictions on syllable quantity derive indirectly from an extremely strict preference for syllable quantity to be congruent with foot structure in accordance with the rules of the language and universal sonority constraints.[13] This would mean that while any sequence of unstressed syllables would satisfy the minimal rules for a polysyllabic weak position in the meter in not containing more than a ρ, only a sequence of light syllables would mimic the ideal structure over which a ρ may be constructed, with syllables rendered heavy by more sonorous segments moving the farthest from that ideal. On this approach, stressless syllables closed by single consonants would be considerably more freely allowed in positions containing multiple unstressed syllables or as the second syllables in resolution than stressless syllables containing long vowels.

In fact separating out the restriction on quantity as an additional requirement beyond that on stress, rather than treating it as the primitive requirement of the meter, has typological advantages. We will see next that Tennyson offers some examples of iambic-anapestic verse which are like that of Hopkins with respect to the free mixture of binary feet with longer ones, the requirement of some metrical prominence

[13]Though it is somewhat perplexing why that same poet should then allow more than two such syllables in a weak position.

in strong positions, the restriction of lexical monosyllables to monosyllabic weak positions, and the permission of a strong syllable of a word in a weak position just in cases of resolution. But the same poems do not share the restriction on the quantity of unstressed syllables, at least not in Hopkins' near categorical way. This is then exactly analogous to the situation in Finnish iambic-anapestic meter, where we saw that some poets, such as Siljo, exclude from polysyllabic weak positions non-lexical words and phrases containing heavy syllables such as *siellä* or *ei sun*, while other poets, such as Koskenniemi, freely allow them. Thus as there, an analysis which takes as basic the elements Hopkins and Tennyson have in common and localizes Hopkins' special strictness in an additional rule can capture this typological relationship.

5.2 Tennyson's Mixed and True Anapests

Here it will be seen that Tennyson uses an iambic-anapestic meter with the properties sketched above. The interest of Tennyson's use of the meter however goes beyond simply showing that it has currency in English beyond Hopkins. So far we have only established that the meter is different from conventional iambic meter; we have not yet considered its relation to conventional anapestic meter, in which foot lengths are not mixed but rather regularly contain three syllables. Hopkins did not write any verse of the latter type, but Tennyson did; and we will see that it differs from his iambic-anapestic verse in just the way the analysis that takes the meter to be based on the class of feet designated by ρ predicts.

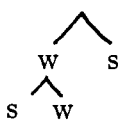
This can be seen through a consideration of how the analysis presented here compares to the most far-reaching proposal regarding ternary meters to date, set forth in Prince (1989). The occasional allowance of a strong syllable in a weak position of a foot seen above in cases of resolution has already been noted to characterize ternary meters in contrast to binary ones (Kiparsky 1977): such a syllable is allowed in the first, but never the second weak position of an anapest:

(255) a. Oh say does that star-spangled banner yet wave (Key, *The Star-Spangled Banner*)
s s s s

b. *...blood-besmirched banner...
s s

Prince (1989) offers an explanation for this: he proposes that ternary feet in verse have a basically binary structure, arising from one position of a binary foot being split into two subpositions, creating a total of three positions. He further claims that because of a principle in the psychology of rhythm, also manifest in music, such subdivisions always have a trochaic structure. On this approach, then, an anapest actually has the following structure:

(256) Anapestic foot:



The fact that the first of the two subpositions is metrically strong thus makes an additional position available to be matched with a strong syllable within a word, accounting for the distribution of stress in (255).

The problem with this account for the iambic-anapestic meter described above is that it fails to explain why the allowance of the strong syllables of words in that position should be restricted to cases of resolution, and why there should go hand in hand with that a restriction on monosyllables in the weak positions of such ternary feet. In fact we will see that ternary feet arise in two rather different meters: the iambic-anapestic meter we have been looking at, in which ternary feet are intermixed with binary ones, and the aforementioned restrictions obtain; and the meter for which I will reserve the term 'anapestic', in which the feet are regularly ternary. In Tennyson's verse we will see that while the ternary feet in both of these meters share the distribution of strong syllables which argues for them having having the structure in (256) above, the true anapestic meters do not exhibit any restriction of strong syllables in weak positions to cases of resolution, nor do they exhibit any restriction on the occurrence of lexical monosyllables in the weak positions of ternary feet. Hence the ternary structure in (256) cannot be taken to describe the ternary feet of both meters without some additional refinement. The analysis proposed here offers such a refinement for iambic-anapestic meter, by tying the properties it has in common with

the basic structure proposed by Prince more closely to linguistic structures, while no such relation is proposed for anapestic meter.

Tennyson's *The Voyage of Maeldune* is a poem of 130 lines which provide an almost perfect instantiation of the essential characteristics described above as distinguishing iambic-anapestic meter. Feet are either two or three syllables in length, as can be seen from the lines in (257). Strong positions are always filled by syllables with some metrical prominence. For the most part this is satisfied by the same range of syllables as for Hopkins—stressed syllables of lexical words, or syllables of non-lexical words which are at least optionally stressed in virtue of either being closed or containing a (potentially) long vowel:

(257) And we came to the Isle we were blown from, and there on the shore was he, (127)
s s s s s s

And setting, when Even descended, the very sunset aflame, (66)
s s s s s s

That is, strong positions containing light stressless syllables such as the final syllable of *beautifully* or non-lexical monosyllables such as *the* and *a* which do not have long variants other than citation or contrastive forms do not occur in this poem, though they do in Tennyson's iambic verse, as in Hopkins':

(258) *And setting, when Even descended, so beautifully aflame,
s s s

*And setting the marina with blazing sunset aflame
s s s

(259) Hues of fresh youth, and mightily outgrow (*Sonnet*)
s s s s s

A speech conventional, so void of weight (*Sonnet*)
s s s s s

The only difference from Hopkins in this regard is that there are no examples in strong positions of syllables such as the final one of *Margaret*, which are unstressed at the surface, yet closed.

The meter also exhibits the hallmark allowance of resolution in weak positions. A syllable which is strong within a lexical word may occupy a weak position just in

case it is light and followed by an unstressed syllable within the same word, also in the weak position:

(260) a. And the red passion-flower to the cliffs, and the dark -blue clematis, clung. (39)
s s s s s s

And the lilies like glaciers winded down, running out below (42)
s s s s s s

And the whole isle-side flashing down from the peak without evera tree (45)
s s s s s s

And the warm melon lay like a little sun on the tawny sand, (57)
s s s s s s

b. And the brooks glittered on in the light without sound, and the long waterfalls
s s s s s s

(13)

Glowing with all-coloured plums and with golden masses of pear, (60)
s s s s s s

And ever at dawn from the cloud glittered o'er us a sunbright hand, (84)
s s s s s s

c. And the poplar and cypress unshaken by storm flourished up beyond sight (14)
s s s s s s

Resolution of course also occurs in strong positions, as in Hopkins' sprung rhythm, and in ordinary iambic verse:

(261) a. Our voices were thinner and fainter than any flittermouse-shriek; (22)
s s s s s s

And the men dropt dead in the valleys and half of the cattle went lame, (31)
s s s s s s

For the Spring and the middle Summer sat each on the lap of the breeze; (38)
s s s s s s

And each was as dry as a cricket, with thirst in the middle-day heat. (50)
s s s s s s

b. And we came to the Bounteous Isle, where the heavens lean low on the land, (83)
s s s s s s

Again as in Hopkins' sprung rhythm, in both cases the second syllable in such sequences most commonly contains a short vowel or syllabic sonorant and is closed by only a single consonant, as in (260)a and b and in (261), but it may also be closed by multiple consonants, as in (260)c. There are no words in which the second syllable contains a long vowel, as in *essay* or *satire*, but those words are of course rare in English in any case.

Finally, the distribution of lexical monosyllables is restricted as in Hopkins' sprung rhythm, although somewhat less rigorously. In monosyllabic weak positions lexical monosyllables of course occur freely as in (262), just as do unstressed syllables as in (263):

(262) a. And the fig ran up from the beach and rioted over the land, (58)
s s s s s s

b. And a hundred ranged on the rock like white sea-birds in a row, (101)
s s s s s s

(263) a. And the warm melon lay like a little sun on the tawny sand, (57)
s s s s s s

b. And we took to playing at battle, but that was a perilous play, (95)
s s s s s s

But in disyllabic weak positions their occurrence is extremely rare. Apart from cases of resolution, those almost always contain two unstressed syllables, as can be seen in any of the preceding examples.

However, in contrast to Hopkins' sprung rhythm poems, there appear to be a handful of exceptional lines in which lexical monosyllables do occupy disyllabic weak positions. One case of this is only apparent: the word *St.* in the following line, while not among the non-lexical words listed in 2.2, clearly does reduce in some contexts (Kenyon and Knott 1953) and may thus be optionally stressless:

(264) And we came to the Isle of a Saint who had sailed with St. Brendan of yore, (114)
s s s s s s

Another stands as an inexplicable exception: in (265)a, *wild* appears to be part of a disyllabic weak position, and since *birds* rhymes with *words* in the next line as shown in b, this is the only possible scansion of the relevant part:

(265) a. And we came to the Isle of Shouting, we landed, a score of wild birds (27)
s s s s s s

b. Cried from the topmost summit with human voices and words; (28)
s s s s s s

The others, however, seem to involve interesting metrical regularities. In two lines the lexical monosyllables are open syllables followed by vowels, and thus seem to exemplify the same rule of correption which for Hopkins licensed similar configurations as in (235):

(266) But a sudden blast blew us out and away through the boundless sea. (10)
s s s s s s

Over that undersea isle, where the water is clearer than air: (77)
s s s s s s

But four exhibit a regularity unlike anything Hopkins allowed:

(267) And the pine shot aloft from the crag to an unbelievable height, (16)
s s s s s s

And we came to the Isle of Flowers: their breath met us out on the seas, (37)
s s s s s s

For a wild witch naked as heaven stood on each of the loftiest capes, (100)
s s s s s s

Bread enough for his need till the labourless day dipt under the West; (86)
s s s s s s

In all four lines, the lexical monosyllable is one with a short vowel, closed by a single consonant, and followed by an unstressed syllable beginning with a vowel also part of the weak position. It echoes a rule from Latin verse to be discussed more fully in chapter 6, that a syllable with a short vowel followed by a single consonant and then another vowel may always count as light in quantitative verse. Together with the instances of correption, this suggests a strong connection with Classical quantitative metrics, a connection which will be explored more fully below. But nothing in the Latin rule would account for the lexical monosyllables' always being in the first weak position. That property clearly makes these configurations resemble resolution, but across a word boundary; and I will therefore refer to it as 'phrase-level resolution'.

There is no rightward resyllabification in English, so the resemblance is only apparent, since the initial syllable can only be taken to be closed and therefore heavy. Nothing of the kind occurs in Hopkins, and it is excluded on the rules for iambic-anapestic meter above. But whatever its source, the regularity provides evidence beyond the simple fact of the scarcity of lexical monosyllables that Tennyson was sensitive to restrictions on the possibility of lexical monosyllables in disyllabic positions of this meter.

As with Hopkins, only lexical stress is obligatorily respected by the foregoing rules; what stress non-lexical words have may always be disregarded. A strong syllable of a non-lexical disyllable, for example, may occur in a weak position not only when it is an initial light syllable which is stressed, as in cases of resolution as in (268)a; it may also be a heavy syllable, as in b, or a final syllable as in c, or both, as in d:

(268) a. And the cock couldn't crow, and the bull couldn't low,
s s s s

and the dog couldn't bark. (18)
s s

b. And the roof sank in on the hearth, and the dwelling broke into flame; (32)
s s s s s s

c. And each of them boasted he sprang from the oldest race upon earth. (4)
s s s s s s

d. And the poplar and cypress unshaken bystorm flourished up beyond sight (14)
s s s s s s

And the brooks glittered on in the light without sound, and the long waterfalls
s s s s s s

(13)

Similarly, any non-lexical monosyllable is freely allowed in a disyllabic weak position, without regard to any of the restrictions outlined above for lexical monosyllables. An open non-lexical word with a long vowel need not be followed by a vowel-initial word; one closed with a consonant need not have a short vowel, be followed by a vowel-initial word, and occupy the first position:

(269) a. Through the fire of the tulip and poppy, the blaze of gorse, and the blush (43)
s s s s s s

And they prest, as they grew, on each other, with hardly a leaflet between, (64)
s s s s s s

b. And high in the heaven above it there flickered a songless lark (16)
s s s s s s

And we left the dead to the birds and we sailed with our wounded away. (36)
s s s s s s

And the men that were mighty of tongue and could raise such a battle-cry (23)
s s s s s s

Till they shouted along with the shouting and seized one another and slew (34)
s s s s s s

And we stayed three days, and we gorged and we maddened, till every one
s s s s s

drew (67)
s

c. Swept like a torrent of gems from the sky to the blue of the sea; (46)
s s s s s s

Then it opened and dropt at the side of each man, as he rose from his rest, (85)
s s s s s s

It is here that we also see, however, one of the principal ways that Tennyson's iambic-anapestic verse differs from Hopkins' sprung rhythm. While it was observed above that very occasionally Hopkins does allow a heavy non-lexical word in a disyllabic weak position, his avoidance of that is still so close to categorical that Kiparsky took it as support for a direct regulation of syllable quantity being an underlying principle of the meter from which the other properties derived. For Tennyson, however, weight seems to be irrelevant except insofar as it determines stress, as seen in the examples in (269)a and c, which are not exceptional, but common. It is possible that a closer study would still show a statistical preference in Tennyson for light syllables in the positions where Hopkins insists on them, but it is clearly not a metrical rule.

Tennyson's meter of course also differs from Hopkins' in other respects, with Tennyson's being generally more conventional. This can be seen in the special options for the realization of weak positions available line-initially. First, like any weak position, that one may of course contain either one or two syllables:

(270) a. And we wallowed in beds of lilies, and chanted the triumph of Finn, (48)
w s s s s s s

b. Till each like a golden image was pollened from head to feet (49)
w s s s s s s

But it also appears to be possible for a weak position to be omitted entirely in that position:

(271) ∅ Silent palaces, quiet fields of eternal sleep! (80)
w s s s s s s

On the analysis above which takes the meter to be a binary one, this can be accounted for by exactly the same rule described in (83) of section 2.3 whereby in conventional iambic verse a weak position may be omitted line-initially, resulting in headless lines as in (81) there. Hopkins of course allows weak positions to be omitted anywhere: that is the property that distinguished it as sprung in his own terminology (Preminger (1974), p. 808).

Second, many lines (about one in ten) begin as mentioned above with a dactylic effect in beginning with a stressed syllable followed by two unstressed ones:

(272) a. Dashing the fires and the shadows of dawn on the beautiful shapes, (99)
s w w s s s s s

Purple or amber, dangled a hundred fathom of grapes (56)
s w w s s s s s

b. Poured in a thunderless plunge to the base of the mountain walls, (13)
s w w s s s s s

'Come to us, O come, come' in the stormy red of a sky (98)
s w w s s s s s

There are two possible analyses of these lines.[14] On one they could be treated as having omitted line-initial weak positions as in (271) above. Alternatively they could be treated as involving inversions of the type found in conventional iambic verse as illustrated by the lines in (78) in chapter 2. The latter analysis, however, raises an

[14]For those in (272)b there is actually a third possibility, which is that they could simply be scanned contrary to their rhythm with the second syllable as strong.

interesting problem. Since in this meter all positions can be realized by two syllables, intervals of three and four and even five unstressed syllables ought to be possible between an inverted initial stress and the following second stress. Yet that never occurs: the maximal interval seems to be two syllables. Moreover, from a formal point of view inversion in iambic-anapestic meter is rather problematic. Recall from section 2.3 that for iambic verse inversion was described as resulting from a left-edge rule which exceptionally allows a strong syllable in a weak position line-initially (and elsewhere, depending on the syntax). Since iambic meter does not involve any constraints on the realization of strong positions, an account which assigns the entire phenomenon to the leftmost syllable is sufficient. But for iambic-anapestic meter, just licensing a normally not allowed syllable in the initial weak position is not sufficient as a rule to describe inversion, because the meter also places constraints on strong positions: the syllable following the exceptional one at the edge would still have to be one allowed in a strong position, and this does not appear to always be the case: the second syllable of *dashing*, for example, could not normally make up a strong position. This is also true of the rare inversions in Finnish iambic-anapestic verse of Cajander and Sarkia shown in (??) and (??) above. Interestingly, Hopkins did not allow inversion at all in his sprung rhythm; again in his own terminology, it was this property that distinguished it from "counterpointed" rhythm (Preminger (1974), p. 155). This observation together with the formal difficulty of the analysis suggests that inversion in iambic-anapestic meter may involve the importation of a somewhat alien and incompatible convention. In any case again Tennyson is more conventional in this than Hopkins.

Tennyson's meter in *The Voyage of Maeldune* thus confirms that an iambic-anapestic meter distinct from iambic meter with robust trisyllabic substitution has currency in English beyond the rather exceptional Hopkins: in this meter regularly correlated with the free mixing of binary and ternary feet are the three properties consistently noted: a requirement of stress in strong positions, a restriction on lexical monosyllables in disyllabic weak positions, and allowance of the strong syllable of a lexical word in a weak position just in cases of resolution. But Tennyson's meter can also shed light on a second question, of whether the meter is likewise distinct from

anapestic meter, in which feet regularly contain three syllables. Hopkins did not write any such verse, so no comparison is possible there; but Tennyson did, and we will see that it has very different properties.

Poems which normally have three syllables present and accounted for in every foot prove actually not terribly common—a point we will return to—but there are eight short ones among the first poems Tennyson wrote, which collectively provide roughly the same number of feet as *The Voyage of Maeldune* and afford an interesting comparison: *The Exile's Harp*, *I Wander in Darkness and Sorrow*, *Written by an Exile of Bassorah, while Sailing down the Euphrates*, *The Expedition of Nadir Shah into Hindostan*, *God's Denunciations against Pharoah-Hophra, or Apries*, *Lamentations of the Peruvians*, *Babylon*, and *Exhortation to the Greeks*.[15]

The claim that these poems always have three syllables to the foot first requires some comment. The following lines are typical, and their regular ternarity provides a contrast with lines above from *The Voyage of Maeldune* which is felt immediately:

(273) They are dead, they are gone, they are cold,
s s s
My embraces no longer they meet; (*I Wander in Darkness and Sorrow*)
s s s

But there are also lines which appear to involve feet of only one weak syllable initially, and to have extra syllables finally:

(274) Though the lapse of one day see their freshness declining
s s s s

[15]A ninth, *Epigram on a Musician, whose Harp-strings were Cracked from Want of Using* is excluded mainly because it is quite short, just four lines. It is worth noting though that it contains the one exception in all Tennyson's verse to the generalization that if lexical stress occurs in a weak position of an anapest it will be in the first of the two weak positions:

"Thy complaints, replied Dolce, I think never end"
s s s s

Curiously, *replied* is the same word which constitutes the sole exception to this rule in Matthew Prior's anapests, whose epigrams this certainly resembles:

True, Nell, replied John; but what yet is the worst
s s s s
On the west, replied Matthew, no windmill I find;
s s s s

Yet bloom for one day when thy minstrel has fled! (*The Exile's Harp*)
s s s s

Now we know that in iambic verse, as discussed in section 2.2, an extra weak position may be allowed line-finally, and a weak position may be omitted line-initially. On the assumption that the same options are allowed in anapestic meter, pairs of lines like those in (274) might be analyzed as exploiting these options at the end of the first and the beginning of the second line, respectively. But in fact the second of the two lines is indented in this and many other cases, and in those cases, the second line almost never appears with only one weak syllable unless the preceding line has an extrametrical one. Hence I will analyze pairs of lines such as the above as actually comprising a single line of regularly ternary feet. The options of extrametricality and headlessness are still available, as illustrated by (275)a and b, respectively, but will be assumed not to be involved in the structure of a line unless the requirement of three syllables to the foot is already, or can never be, satisfied:

(275) a. Yet, oh! yet, ere I go, will I fling a wreath round thee,
s s s s

With the richest of flowers in the green valley springing; (*The Exile's Harp*)
s s s s

b. Above thee shall rush the hoarse gale of the mountain,
s s s s

Below thee shall tumble the dark breaking billow. (*The Exile's Harp*)
s s s s

The reason it is important to be clear about this is not only to stress just how unrelentingly ternary the feet in these poems are, but also to clear the way to see that on these assumptions an interesting generalization emerges which suggests in a more subtle way that the underlying structure is actually ternary. Headlessness in these poems always means that one of two possible weak positions is omitted: where in iambic-anapestic verse, as seen in (271) above, it is possible for there to be no weak syllables preceding a strong position line-initially, just as in iambic verse, in these anapestic poems there is almost always one weak syllable present, as in (275)b; the only exception in all the poems is the following line:

(276) Ø Why hast thou shone in the temple of glory? (*Exhortations to the Greeks*)
w s s s s

Now this difference actually follows on an analysis which takes iambic-anapestic meter to be basically binary, and anapestic meter to be genuinely ternary, since in the latter case, if headlessness is defined as for iambic verse as the omission of one weak position initially, in the ternary structure only will there be always one weak position remaining before the strong one.[16,17]

Now the poems listed above which in this way exhibit regular ternarity afford an interesting comparison with *The Voyage of Maeldune* with respect to the properties claimed to be correlated with mixed foot length there. As there, strong positions are required to contain syllables of some metrical prominence; lines like (277) do not arise:

(277) *How unfathomable the true anapest is! ...
s s s s

But the realization of weak positions is strikingly different.

The first comparison lies in the conditions under which the strong syllable of a word is allowed in a weak position. As in the case of the iambic-anapestic verse, if such a syllable occurs there it is the first and never the second of two syllables in the weak position. But it obeys no comparable restriction that it be light: although configurations of that type do occur, as in (278), alongside them are numerous ones in which the strong syllable is closed, or contains a long vowel, or both, as in (279)a, b, and c respectively:

(278) a. There! now I have wreathed thee—the roses are twining
s s s s

[16]Inversion may also offer some indirect support for the underlying ternarity of anapestic meter. Inversion doesn't seem to arise in true anapestic meter, but on the left-edge account of it, together with the assumption that there are two weak positions in each foot, the lack of inversion in anapests actually makes sense. What inversion would be would be a relaxation on the realizational possibilities of the first weak position—but the worst that could be would be a heavy stressed syllable of a lexical word in the first weak position, which as we will see is allowed there anyway.

[17]A related puzzle on this account, however, is the question of why in iambic-anapestic verse extrametrical weak positions are not instantiated by the full range of possible realizations of weak positions, most importantly including cases of resolution.

Thy chords with their bright blossoms glowing and red: (*The Exile's Harp*)
s s s s

b. As dismally gurgles beside me
s s s

The bleak river's desolate moan.
s s s

(*I Wander in Darkness and Sorrow*)

c. The far-distant hills and the groves of my childhood,
s s s s

Now stream in the light of the sun's setting ray; (*Written by an Exile of*
s s s s

Bassorah, while sailing down the Euphrates)

d. The shrieks of the orphan, the lone widow's wail, (*The Expedition*
s s s s

of Nadir Shah into Hindostan)

e. Arm, arm from the east, Babylonia's son! (*God's Denunciations against Pha-*
s s s s

roah-Hophra, or Apries)

f. Yet remorse to thy grief-stricken conscience shall cling, (*Lamentations of*
s s s s

the Peruvians)

(279) a. The far-distant hills, and the groves of my childhood,
s s s s

Now stream in the light of the sun's setting ray;
s s s s

(*Written by an Exile of Bassorah, while Sailing down the Euphrates*)

By the barbarous hands on the cold marble- stone:
s s s s

(*God's Denunciations against Pharoah-Hophra, or Apries*)

Oh! cursed, doubly cursed, was that desolate hour,
s s s s

(*Lamentations of the Peruvians*)

b. I will hang thee, my Harp, by the side of the fountain,
s s s s

On the whispering branch of the lone-waving willow: (*The Exile's Harp*)
s s s s

With the fife and the horn and the war-beating gong:
s s s s

(*The Expedition of Nadir Shah into Hindostan*)

So I cry to the storm whose dark wing
s s s

Scatters on me the wild-driving sleet (*Wander in Darkness and Sorrow*)
s s s

c. Oh! when shall I rest in the tomb,
s s s

Wrapt about with the chill winding sheet (*I Wander in Darkness and Sorrow*)
s s s

The other striking comparison is the treatment of lexical monosyllables: here in the (always disyllabic) weak positions of the anapestic verse lexical monosyllables abound. At the most conservative count,[18] there are six in *The Exile's Harp*, nine in *I Wander in Darkness and Sorrow*, eleven in *Written by an Exile of Bassorah, while Sailing down the Euphrates*, three in *The Expedition of Nadir Shah into Hindostan*, four in *God's Denunciations against Pharoah-Hophra, or Apries*, nineteen in *Lamentations of the Peruvians*, ten in *Babylon* and six in *Exhortations to the Greeks*; that is, a total of 68 in 958 feet. In contrast, the 780 feet of *The Voyage of Maeldune* contain at the most conservative count only eight lexical monosyllables in anapestic feet, and of those one is actually reducible. More important, those in the anapestic poems clearly do not exhibit any of the metrical regularities involving correption and phrase-level resolution noted for the cases in the *Voyage of Maeldune*: in the anapestic verse such monosyllables can be closed, contain long vowels, or both; they can be followed by consonant-initial words; and they can occur in either the first or the second position:

[18]By conservative I mean that where a word is not classified as non-lexical in section 2.2 above, if a case of the same type could be made for it, as in the case of the temporal adverb *once*, or the use of *let* to make imperatives, I have nonetheless not counted it as non-lexical.

(280) a. Remember the time, when nor nations nor numbers
s s s s

Could break thy thick phalanx embodied and deep. (*Exhortations to*
s s s s

the Greeks)

b. Above thee shall rush the hoarse gale of the mountain,
s s s s

Below thee shall tumble the dark breaking billow. (*The Exile's Harp*)
s s s s

There the wandering Arab shall ne'er pitch his tent, (*Babylon*)
s s s s

c. I heed not the blasts that sweep o'er me
s s s

I blame not the tempests of night; (*I Wander in Darkness and Sor-*
s s s

row)

Wave the gloom of their wings o'er their desolate path. (*The Expedition of*
s s s s

Nadir Shah into Hindostan)

d. Arm, arm for the battle—the Lord leads thee on! (*God's Denunciations*
s s s s

against Pharoah-Hophra, or Apries)

Bids us leave these wild condors to prey on each other, (*Lamentations of*
s s s s

the Peruvians)

Your proud domes of cedar on earth shall be thrown (*Babylon*)
s s s s

Moreover, they can even bear the strongest stress of their phrase, in contrast to those in *The Voyage of Maeldune* which are generally subordinated to some stronger stress:

(281) a. The winds shall blow by thee, abandoned, forsaken,
s s s s

The wild gales alone shall arouse thy sad strain; (*The Exile's Harp*)
s s s s

b. Where the green weeds have mantled the hearth,
s s s
Whence arose the proud flame of the feast (*I Wander in Darkness and*
s s s
Sorrow)

c. For a dark gulf of woe all my fond hopes entombing
s s s s
Has rolled its black waves 'twixt this lone heart and thee. (*Written by*
s s s s
an Exile of Bassorah, while Sailing down the Euphrates)

d. I see thee but faintly—thy tall towers are beaming
s s s s
On the dusky horizon so far and so blue; (*Written by an Exile of Bas-*
s s s s
sorah, while Sailing down the Euphrates)

e. And the rank grass shall wave o'er the lonely hearth-stone; (*Babylon*)
s s s s

f. Thou art plunged in the dark gulf of thraldom and woe! (*Exhortations*
s s s s
to the Greeks)

Finally, it is even possible, though rare, that two lexical monosyllables occupy the weak positions of a single anapestic foot:

(282) Great Inca! To whom the great day-star gave birth (*Lamentations of the*
s s s s
Peruvians)

Iambic-anapestic meter seems then to be distinguished not only from true iambic meter, but also from true anapestic meter: in true anapestic meter, correlated with the regular requirement of three syllables to the foot, together with more subtle evidence that three positions are genuinely present in the abstract metrical structure, is the free occurrence of lexical monosyllables in weak positions, and the free occurrence of lexical stress in the first of the two weak positions. It should be noted that the claim that the anapest is a genuinely ternary meter is not incompatible with the claim that

its structure is a binary-branching one as proposed by Prince and illustrated in (256) above; indeed such a structure seems necessary to account for the distribution of strong syllables in the weak positions. But the question of the structure of anapestic meters will not be pursued further here in and of itself, but only insofar as it contasts with iambic-anapestic meter.

It is interesting, however, given that there seems to be a linguistic basis for iambic-anapestic meter, but not so obviously for true anapestic meter, to consider the place of anapestic and iambic-anapestic verse within the context of Tennyson's overall metrical history. The small cluster of anapestic poems discussed above are among Tennyson's earliest: they were all written in 1827 when he was only eighteen, and were never reprinted after their first publication. He only wrote one other: ten years after these *The Queen of the Isles* appeared, but his comments hardly suggest that it was one he considered a fine metrical accomplishment:

(283) I have written the inclosed within this last half hour and I wish you to put it into the Times or some paper with a circulation. It is little more than newspaper verse, but it might have an effect if good music went along with it. Marry, you must not set my name to it, but let it pass unfather'd, and get popular if it can. (*Letters* i 153, cited in Ricks p. 95).

Together with the fact that all the poems are quite short, the overall impression is certainly of a meter without much staying power for Tennyson. This impression finds support in Saintsbury's dismissive comment that for a survey of Tennyson's "actual prosodic accomplishment" it is "vain to look in *Poems by Two Brothers* [the volume in which these were published]" (v. 3, p. 184).

These poems clearly belong, however, to a larger set of experiments with ternary rhythms. Many early poems, such as *The Passions*, *King Charles' Vision*, *The Merman*, *The Sea-Fairies* and *The Old Chieftan* mix three syllable feet freely with two-syllable ones, regularly have stress in strong positions, occasionally have lexical monosyllables in disyllabic weak positions and in a few cases have strong syllables in the first of two successive weak positions. Some of these are ballads, others songs, and

some simply unclassifiable experiments. But in 1830 there appears the first poem to be published from this period, the *Dying Swan*, which is famous precisely for its mingling of ternary rhythms into a basically binary poem. Its first stanza is almost entirely binary, as in the lines in (284),

(284) The plain was grassy, wild and bare,
s s s s

Wide, wild, and open to the air,
s s s s

the second mixed, and the third heftily ternary, as in the lines in (285),

(285) a. To the shepherd who watcheth the evening star.
s s s s

And the creeping mosses and clambering weeds,
s s s s

b. Sometimes afar and sometimes anear;
s s s s

all to celebrated artistic effect:

(286) Now in these stanzas [the first two] we have merely had the *fact* of the swan's lament noted; they have otherwise been wholly taken up with the scene. In the third we come to the death-song itself, and the metre lengthens, unrolls, is transformed by more and more infusion of the trisyllabic foot, till the actual equivalent of the "eddying song," the "awful jubilant voice," the "music strange and manifold," is attained. (Saintsbury 1961, v. 3 p. 193)

In the ternary feet, however, almost all of the syllables in weak positions remain unstressed, except for "-times" in (285)b, discreetly encouraged by the symmetry with the initial inverted foot. It is as though Tennyson is testing the limits of what an essentially iambic meter will permit.

Tennyson's experimentation with mixed foot lengths dwindles, however, with only half as many poems making any significant use of ternary feet being produced in the

next twenty-four years as were produced in this three; during this time volumes of strictly binary verse were published, including some of his most famous poems such as the *The Lady of Shalott*, *Mariana*, *The Lotos-Eaters*, *Ulysses*, *Locksley Hall* and *In Memoriam A.H.H.*. Then suddenly there bursts on the scene the splashy dactylic *The Charge of the Light Brigade* and then *Maud*, with lengthy sections in exactly the meter to be found in *The Voyage of Maeldune*. It is as though the experiments had incubated and combined with experience of serious and sustained verse to create a sense of how mixed iambic-anapestic meters could be most satisfactory.

The most striking way in which the mixed sections of *Maud* are different from the earlier mixed poems is their overall length and their line length. The first four sections comprise 160 lines of hexameter; the middle mixes sections of iambic-anapestic trimeters and tetrameters with iambic sections; and the finale consists of 59 lines of iambic-anapestic pentameter. In the middle sections the mixing of different line lengths and of different meters makes them difficult hunting ground for firm metrical generalizations, and some of the shorter lines do seem problematic for those set forth here. But the initial hexameters clearly contain in a sustained way the hallmarks of the later iambic-anapestic verse exemplified by *The Voyage of Maeldune*: the mixed foot lengths, the regular occurrence of stress in strong positions, the occurrence of strong syllables of words in weak positions just in cases of resolution, as in (287), and a significant scarcity of monosyllables. Those in (288) are the only examples, and of these only (288)c is unlike anything seen in *The Voyage of Maeldune*; that in (287)a would be licensed by correption, and those in (288)b are like those resembling resolution at the phrase level:

(287) Is it peace or war? Civil war, as I think, and that of a kind (27)
s s s s s s

Is it peace or war? better, war! loud war by land and sea, (47)
s s s s s s

From which I escaped heart-free, with the least little touch of spleen. (87)
s s s s s s

Listening now to the tide in its broad-flung shipwrecking roar, (98)
s s s s s s

(288) a. The Mayfly is torn by the swallow, the sparrow speared by the shrike, (124)
s s s s s s

b. a Far off from the clamour of liars belied in the hubbub of lies; (152)
s s s s s s

Strong in the power that all men adore (343)
s s s s

c. Luminous, gemlike, ghostlike, deathlike, all the night long (95)
c s s s s s

Finally there comes, after an interval including a handful of translations of Classical poems and one of the Old English poem *The Battle of Brunanburgh* (not surprisingly making considerable use of resolution) the clutch of poems of which *The Voyage of Maeldune* is one which solidly exemplify the iambic-anapestic meter discussed with reference to it. It is these which Saintsbury takes to be paragons of the realization of the anapest in English: [19]

(289) In later books still, there is at least one practically new achievement of more than a special or individual kind. In his earlier work Tennyson—wonderful with the iamb and trochee, and the occasionally substituted anapaest—had not been very successful with this, the triple foot, unmixed or basic. He had let the *Dying Swan* swell into it magnificently; but the anapaestic admixture in the *May Queen* is one of the worst managed points in that poem, and, as we have seen even in *Maud*, he must be purely lyrical with it if he is to be purely successful.

As not very unfrequently happens—and as, by a curious instance of the coincidence of general with particular development, had happened already in the history of this special measure—it was in comic

[19] I have not examined the *Northern Farmers* mentioned here because they purport to be written in dialect, but the other minor poems of the period that would be considered to be iambic-anapestic, *The Grandmother*, *Jack Tar*, *The Islet* and *The Higher Pantheism* conform largely to the generalizations for that meter set forth above. The only respect in which there are occasional lapses concerns lexical monosyllables, as will be discussed further below with reference to *The Revenge* and *The Battle of Lucknow*.

> or partly comic matter that completely successful management of the continuous anapaest first came to him. The two *Northern Farmers* showed this mastery first; and he tried it in various inferior things, dialectic and literary, for a time, till it finally produced the absolute masterpieces of *The Revenge* and *Lucknow* and the *Voyage of Maeldune*."

But of course we have seen in the case of *The Voyage of Maeldune* that what Saintsbury refers to as the "continuous anapaest" is not that at all in the sense of involving regularly ternary feet, but rather a mixed iambic-anapestic meter. Thus in Tennyson's work at least, true anapestic meter seems fairly marginal, while iambic-anapestic meter holds a central place in some of his later work. We have seen that Leino (1982) claims this is likewise true of Finnish. Whether it is more broadly true of English verse is thus a question that merits further study. While there certainly do exist such celebrated anapestic poems as Byron's *The Destruction of Sennacherib* or Browning's *How they Brought the Good News from Ghent to Aix*, it is worth noting that they tend to be short, and to have their metrical accomplishment at least partly a mimetic one—both depict pounding horses.[20]

Returning then to Tennyson's iambic-anapestic poems, let us consider how well the other poems Saintsbury praises accord with the generalizations we have observed in connection with *The Voyage of Maeldune*. *The Revenge* is a bit harder to pin down than *The Voyage of Maeldune* since its line lengths are varied; even so it is possible to see that it is clearly in the same meter, and at the same time that there are a few exceptions to the generalizations previously laid down. There is frequent use of resolved sequences in strong positions as in (290)a as well as in weak ones as in (290)b. There is also one exceptional example of a lexical disyllable with a heavy initial stressed syllable in a weak position as in (291), but it involves an honorific; and since these do not have phrasal projections, if the generalization proposed in chapter 2 above for adverbs that all lexical ones have phrasal projections is correct

[20] An interesting contrast is afforded by music, where genuine ternary rhythms do not seem to be at all marginal; ternary rhythms in triple meters (e.g. 3/4 time or 6/8 time) are clearly well-established alongside ternary rhythms in duple meters (e.g. 4/4 time) (Cooper and Meyer 1960).

and has wider applicability, then this and other similar cases are not problematic for the generalizations concerning iambic-anapestic meter.

(290) a. And a pinnace, like a fluttered bird, came flying from far away: (2)
s s s s s s

By their mountain-like San Philip that, of fifteen hundred tons, (40)
s s s s s s

When he leaps from the water to the land. (55)
s s s

But a bullet struck him that was dressing it suddenly dead, (67)
s s s s s

b. 'Spanish ships of war at sea! We have sighted fifty-three!' (3)
s s s s s s

And it chanced that, when half of the short summer night was gone, (66)
s s s s s

That he dared her with one little ship and his English few; (107)
s s s s s

And the whole sea plunged and fell on the shot-shattered navy of Spain, (117)
s s s s s s

(291) Sink me the ship, Master Gunner— sink her, split her in twain!
s s s s s s

Similarly, there are still few, yet rather more lexical monosyllables in disyllabic weak positions. Those in (292)a are doubtful since they are again honorific, but those in (292)b also clearly involve lexical monosyllables. And of those in (293) which are difficult to pin down on account of varying line lengths, while that in (293)b could plausibly be argued to involve a non-lexical word by the criteria given in section 2.2 and that in c if scanned correctly exhibits the pattern of phrase-level resolution, that in (293a seems clear.

(292) a. So Lord Howard past away with five ships of war that day, (13)
s s s s s s

But Sir Richard bore in hand all his sick men from the land (15)
s s s s s s

And Sir Richard said again: 'We be all good English men. (29)
s s s s s s

But Sir Richard cried in his English pride, (82)
s s s s

b. Where they laid him by the mast, old Sir Richard caught at last, (108)
s s s s s s

Good Sir Richard, tell us now, (26)
s s s

(293) a. Took the breath from our sails, and we stayed.
s s s

b. And a day less or more (86)
s s

c. Long and loud, (45)
s

Another apparent difference is that there is one potential case of a light stressless syllable in a strong position, though again varying line length makes certain scansion difficult and moreover since the content of the lines concerns a change of pace, it is ripe for making metrical troubles:

(294) Very carefully and slow, (16)
s s s

The Defense of Lucknow, a poem of 106 lines, mostly of six feet but with seven in the refrain, shows a similar pattern.[21] Again, it contains resolved sequences in both strong positions as in (295)a and in weak positions as in (295)b; but it also contains two disyllables with long intial stressed syllables in weak positions, given in (296):[22]

[21]It is interesting to note that in this poem almost all the lines begin with stress allowed by inversion. Also, it tends to be rather more anapestic than either of the other two, except for these initial two feet and the refrain.

[22]The vowel of *mutineers* in the last example in (295)b is the one noted in section 2.2 to have eluded clear classification as to its length. We will see in chapter 6 that the same vowel in *Jupiter* seems to be counted as short.

(295) a. Horror of women in travail among the dying and dead, (88)
s s s s s s

Death in our innermost chamber, and death at our slight barricade, (15)
s s s s s s

Then on another wild morning another wild earthquake out-tore (61)
s s s s s s

b. Death in our innermost chamber, and death at our slight barricade, (15)
s s s s s s

Striking the hospital wall, crashing through it, their shot and their shell, (18)
s s s s s s

So that the brute bullet broke through the brain that could think for the rest; (19)
s s s s s s

Click with the pick, coming nearer and nearer again than before - (28)
s s s s s s

Backward they reel like the wave, like the wave flinging forward again, (44)
s s s s s s

Clove into perilous chasms our walls and our poor palisades. (55)
s s s s s s

Sharp is the fire of assault, better aimed are your flank fusillades —(57)
s s s s s s

Rifleman, high on the roof, hidden there from the light of the sun —(63)
s s s s s s

One has leapt up on the breach, crying out: 'Follow me, follow me! '—(64)
s s s s s s

Then day and night, day and night, coming down on the still-shatterred walls (92)
s s s s s s

c. Outram and Havelock breaking their way through the fell mutineers? (94)
s s s s s s

(296) Mine? yes, a mine! Countermine! down, down! and creep through the hole! (24)
s s s s s s

Kissing the war-hardened hand of the Highlander wet with their tears! (102)
s s s s s s

Similarly, in this poem lexical monosyllables occur in disyllabic weak positions in a greater number than in *The Voyage of Maeldune*, though still a third as frequently as in the true anapestic verse. Again there appear to be some tantalizing subgeneralizations, but none eliminating the sense that Tennyson avails himself of this fairly freely. That in (297)a could be a case of correption; those in (297)b involve configurations like phrase-level resolution; those in (297)c are at least all the second halves of compounds, to which there could be some significance; but those in (297)d defy any observations diminishing their significance as counterexamples:

(297) a. Then day and night, day and night, coming down on the still-shatterred walls (92)
s s s s s s

b. Ay, but the foe sprung his mine many times, and it chanced on a day (31)
s s s s s s

Kill or be killed, live or die, they shall know we are soldiers and men! (41)
s s s s s s

Clean from our line of defense ten or twelve good paces or more, (62)
s s s s s s

c. Quiet, ah! quiet— wait till the point of the pickaxebe through! (27)
s s s s s s

Soon as the blast of that underground thunderclap echoed away, (32)
s s s s s s

Cannon-shot, musket-shot, volley on volley, and yell upon yell —(34)
s s s s s s

Storm at the Water-gate! storm at the Bailey-gate! storm, and it ran (37)
s s s s s s

Then on another wild morning another wild earthquake out-tore (61)
s s s s s s

Ever the day with its traitorous death from the loop-holes around, (79)
s s s s s s

d. Sick from the hospital echo them, women and children come out, (100)
s s s s s s

'Never surrender, I charge you, but every man die at his post! ' (10)
s s s s s s

Still —could we watch at all points? we were every day fewer and fewer. (49)
s s s s s s

Children and wives —if the tigers leap into the fold unawares —(51)
s s s s s s

Roar upon roar in a moment two mines by the enemy sprung (54)
s s s s s s

Boardings and rafters and doors —an embrasure! make way for the gun! (67)
s s s s s s

Praise to our Indian brothers, and let the dark face have his due! (69)
s s s s s s

Thanks to the kindly dark faces who fought with us, faithful and few, (70)
s s s s s s

Blessing the wholesome white faces of Havelock's good fusileers, (101)
s s s s s s

And ever aloft on the palace roof the old banner of England blew. (106)
s s s s s s s

Nonetheless, these poems still seem to be in the same meter as *The Voyage of Maeldune.* Saintsbury groups them together in his comments cited in (289) above; and the formal criteria of mixed foot length, of near-categorical restriction of strong syllables within words in weak positions to cases of resolution, and of a preference for avoiding lexical monosyllables in disyllabic weak positions all support this. Some comments are therefore in order not only about these exceptions to the latter criterion in and of themselves, but also about why they should be more common in these poems than in *The Voyage of Maeldune.*

As to the first point, the existence of exceptions to these criteria probably should not compromise the claim that the poems exhibit a meter formally distinct from iambic ones on the one hand and anapestic ones on the other in the ways described. As mentioned in chapter 2 above, Youmans (1989) points out that it is possible to think of metrical rules not as primarily categorical, distinguishing metrical from unmetrical lines, but as preferential, distinguishing lines in the degree to which they approximate a metrical prototype. On this approach, so long as they are clearly marginal, configurations which the rules define as deviating from the ideal need not obscure what that ideal is, any more than the toleration of the initial cluster /pw/ in the borrowed word *pueblo* compromises rules excluding that from the set of English onsets.

This is particularly important to bear in mind in the case of meter, where all kinds of artistic considerations interact with these formal ones, and such considerations can help explain why *The Voyage of Maeldune* seems to be so much stricter in its instantiation of the iambic-anapestic ideal than *The Revenge* and *The Battle of Lucknow.* Among other meters important to English in which ternary and binary feet are mixed are Classical quantitative meters, especially hexameters, on the one hand and on the other ballads and the short battle poems like Byron's alluded to above. In subject matter *The Voyage of Maeldune* is clearly related to the story of Ulysses, and so metrical reference to the former is not at all out of place. This is manifest not only in its lines being hexameters, but also in the careful attention to the role of correption and to phrase-level resolution (related as we've seen to quantitative considerations) in the cases where lexical monosyllables do occur in disyllabic weak positions. This will be pursued further below. The other poems, in contrast, in depicting the adventures of battle, bear a stronger relation to the latter. This is paralleled formally by a greater proportion of ternary feet, particularly in *The Battle of Lucknow*, and a concomitant freer allowance of lexical monosyllables in disyllabic weak positions.

In sum, then, the meter of Tennyson's *The Voyage of Maeldune* seems clearly to be the same iambic-anapestic meter which underlies Hopkins' sprung rhythm. Its characteristic properties of a restriction on lexical monosyllables in disyllabic weak positions and of allowance of syllables which are strong within words just in cases of resolution contrast with those of true anapestic meter in ways that the analysis of it based on ρ captures. A major difference from Hopkins' use of the meter, however, lies in Tennyson's free disregard of post-lexical stress, and attendant divergence from the prototype for syllable quantity inherent in the meter. Moreover, in other iambic-anapestic poems Tennyson allows an occasional line of a type expected in anapestic meter but not in iambic-anapestic, suggesting that in some cases the meter may manifest itself more in determining preferences than requirements. In the next section we will see that such preferences may manifest themselves in quite subtle ways.

5.3 Swinburne's Mixed and True Anapests

That a prototype for a meter may still be manifest in statistical preferences even in the absence of categorical replication of it can be seen even more strongly in the verse of Swinburne. We have seen that the role of the class of minimal feet identified as ρ as the prototype for iambic-anapestic meter entails a significant role for syllable quantity in that meter, in limiting the conditions under which stressed syllables of lexical words, both monosyllabic and polysyllabic, may occupy weak positions. Now Swinburne is notorious for neglect of syllable quantity. T.S. Eliot compared him unfavorably with Tennyson in this regard, and Hopkins himself complained about the heaviness of the syllables in Swinburne's ternary feet:

(298) And my quantity is not like "Fiftytwo Bedford Square", where *fifty* might pass but *Bedford* I should never admit. Not only so but Swinburne's dactyls and anapaests are halting to my ear: I never allow e.g. *I* or *my* (that is diphthongs, for $I = a + i$ and $my = ma + i$) in the short or weak syllables of those feet... (cited in Kiparsky (1989), p. 313).

Yet it still seems to be the case that for Swinburne, light syllables are favored in the feet of his verse which shares properties with iambic-anapestic meter, but not in those of true anapestic meter.

Like Tennyson, Swinburne wrote both verse in which feet of two and three syllables are mixed, which might be expected to exhibit the properties of iambic-anapestic verse, and verse in which feet are regularly three syllables, which would thus be truly anapestic on our terms. The two are illustrated by the opening stanza of a poem of the first type, *The Triumph of Time*[23] in (299), and that of one of the latter, the anapestic *Dolores* in (300):

[23]In light of the connection between iambic-anapestic meter and quantitative meters mentioned above in connection with *The Voyage of Maeldune* and pursued in chapter 6, *Hesperia* or *Evening on the Broads* would afford particularly interesting comparisons. Saintsbury cites these as showing Swinburne's gift for rendering Classical hexameters as English anapests, and at a glance they do indeed seem to have the same properties as *The Triumph of Time*.

(299) Before our lives divide for ever,
s s s s

While time is with us and hands are free,
s s s s

(Time swift to fasten and swift to sever
s s s s

Hand from hand, as we stand by the sea)
s s s s

I will say no word that a man might say
s s s s

Whose whole life's love goes down in a day;
s s s s

For this could never have been; and never,
s s s s

Though the gods and the years relent, shall be. (*The Triumph of Time* 1-8)
s s s s

(300) Cold eyelids that hide like a jewel
s s s

Hard eyes that grow soft for an hour;
s s s

The heavy white limbs, and the cruel
s s s

Red mouth like a venomous flower;
s s s

When these are gone by with their glories
s s s

What shall rest of thee then, what remain,
s s s

Oh mystic and sombre Dolores,
s s s

Our Lady of Pain? (*Dolores* 1-8)
s s

As with Tennyson's anapests, although *Dolores* is presented on the page in stanzas of seven trimeter lines and one dimeter line, as odd-numbered lines, which are unindented, may always begin with a single syllable in weak position, whereas even-numbered lines, which are indented, only do so if the preceding line ends in a weak

syllable, I will treat these instead as consisting of three hexameters and one pentameter, and count fourth feet of the type which span the orthographic line boundary as in lines 1–2, 3–4, 5–6 and 7–8 as ternary. Similarly although *The Triumph of Time* is presented on the page in stanzas of eight tetrameter lines, for the same reasons I will treat the first and second, third and fourth, and seventh and eighth together as octameter lines, and count fifth feet of the type which span the orthographic line boundary as in lines 1–2, 3–4 and 7–8 as ternary.

Now both poems have certain properties that the foregoing comparison of iambic-anapestic meter with anapestic meter would lead us to expect. They have the expected property in common that strong positions require some metrical prominence. They also diverge in the expected way with respect to lexical monosyllables in weak positions, in that the occurrence of these in disyllabic weak positions appears to be highly restricted in *The Triumph of Time*, but entirely free in *Dolores*.

Of the 1568 feet of *The Triumph of Time* 616 are ternary, and 939 binary.[24] In the monosyllabic weak positions lexical monosyllables occur freely, as in (303)a, as do of course unstressed syllables, as in (303)b:

(303) a. With lips wide open and face burnt blind,
s s s s

[24]The missing additional thirteen have no weak syllables at all, as in the following:

(301) ∅ Clasped and clothed in the cloven clay,
s s s s
Out of the world's way, out of the light (115)
s s s s

Also, it should be noted that a handful of disyllabic intervals between strong positions are assumed to result from inversion at the beginning of either a line or a half-line, and are therefore counted as two successive monosyllabic weak positions, and not as one disyllabic one:

(302) a. Time shall not sever us wholly in twain (15)
s w w s s s

b. Rapid and vivid and dumb as a dream,
s w w s s
Works downward, sick of the sun and the rain; (59-60)
s s s s

c. It will grow not again, this fruit of my heart,
s s s s
Smitten with sunbeams, ruined with rain (18)
s w w s s s

The strong sea-daisies feast on the sun (55–6)
s s s s

b. Or poisonous foam on the tender tongue
s s s s

Of the little snakes that eat my heart. (111–12)
s s s s

In all, of the 939 binary feet, 162, or fully 17%, contain lexical monosyllables.[25]

But in the disyllabic weak positions of the ternary feet, in contrast, lexical monosyllables almost never occur. There the norm is overwhelmingly two syllables which are either unstressed, or stressed only postlexically:[26]

(305) a. I had given you surely, and life to boot,
s s s s

[25]The classification of certain words as lexical or non-lexical used in the study presented in this section is not entirely consistent with that presented in section 2.2: *such, need* (aux), *each*, and *one* (numeral) were counted as lexical, while *let* (subjunctive), *ere* and *while* were counted as non-lexical. But the frequency of these words is quite low, and the inconsistency should not distort the overall results in any important way.

[26]In both poems disyllabic weak positions also contain a few secondary stressed syllables of lexical words:

(304) a. But love lacks might to redeem or undo me;
s s s
As I have been, I know I shall surely be; (235-36)
s s s

b. But the worm shall revive thee with kisses;
s s
Thou shalt change and transmute as a god (370)
s s s

By the lips intertwisted and bitten
s s s
Till the foam has a savour of blood (115-16)
s s s

Nor by foam of the waves overtaken
s s s
Nor winds that the thunder bestrides (235-36)
s s s

c. Till the hair and the eyelids took fire,
s s s
The foam of a serpentine tongue, (139-40)
s s s

On the analysis here their distribution in each meter ought to pattern with that of lexical monosyllables (though see footnote 3 above) but that has not been considered here. Such syllables have simply been counted among unstressed ones, but again their frequency is low enough that that should not distort the overall picture.

Were we once made one for a single hour (99-100)
s s s s

b. And come what may after death to men,
s s s s
What thing worth this will the dead years breed? (139-40)
s s s s

Those pure cold populous graves of thine,
s s s s
Wrought without hand in a world without stain (272)
s s s s

But there are only two clear cases of lexical monosyllables in such positions:[27]

(308) That yearns and trembles before it sink,
s s s s
I had given, and lain down for you, glad and dead. (95-6)
s s s s

That knows not itself whether night-time or day be,
s s s s
Reverberate words and a foolish prayer? (255-6)
s s s s

Both of these are also subordinate to an adjacent stronger stress, though they show none of the quantitative considerations manifest in Tennyson's exceptions involving phrase-level resolution in *The Voyage of Maeldune.*

In *Dolores*, in contrast, lexical monosyllables in disyllabic weak positions are common. Of the 1265 feet of *Dolores*, all but some with omitted line- or halfline-initial

[27]There is a potential third case, but it can be accounted for by correption:

(306) But will it not one day in heaven repent you?
s s s s
Will they solace you wholly, the days that were? (163–4)
s s s s

And a potential fourth can be accounted for by resolution, such that the potential first syllable of the disyllabic weak position is really part of the preceding strong position:

(307) Have the high gods anything left to give?(174)
s s s s

weak positions are ternary, or 1171. As in the case of Tennyson's anapests it is most often the case that the weak positions of these feet contain two syllables which are unstressed as in (309)a or only postlexically stressed as in (309)b:

(309) a. On thy mouth though the kisses are bloody,
s s s
Though they sting till it shudder and smart, (83-4)
s s s

b. O wise among women, and wisest,
s s s
Our Lady of Pain (39-40)
s s

We shall see whether hell be not heaven,
s s s
Find out whether tares be not grain, (438-39)
s s s

But still fully 133 contain lexical monosyllables, as can be seen right from the opening lines quoted above:

(310) Cold eyelids that hide like a jewel
s s s
Hard eyes that grow soft for an hour;
s s s
The heavy white limbs, and the cruel
s s s
Red mouth like a venomous flower; (1-4)
s s s

And in contrast to *The Triumph of Time*, the sense that these words occur freely is confirmed by the fact that they need not be subordinate in their phrase to any stronger adjacent syllable; while this is true of some as in (311)a, it is not true of plenty of others, as in (311)b and (311)c:

(311) a. Fierce midnights and famishing morrows,
s s s
And the loves that complete and control (13-4)
s s s

Fruits fail and love dies and time ranges;
s s s
Thou art fed with perpetual breath (57-8)
s s s

b. What milk fed thee first at what bosom?
s s s
What sins gave thee suck? (47-8)
s s

That thy lips met with under the statue,
s s s
Whence a look shot out sharp after thieves (301-2)
s s s

c. For the tune from thine altar hath sounded,
s s s
Since God bade the world's work begin (189-90)
s s s

From the eyes of the garden-god at you
s s s
Across the fig-leaves? (304)
s s

And it certainly can be seen that they are subject to no such metrical conventions as correption or phrase-level resolution.

Thus fully 5.6% of the syllables in weak positions of the ternary feet in the anapestic *Dolores* contain lexical monosyllables, in comparison to only .16% in the mixed *The Triumph of Time*, a highly significant difference ($p < 0.001$).[28]

But the two poems do not appear to diverge in the expected way with respect to resolution. In both, the strong syllable of a word is occasionally allowed in the first

[28]I am indebted to Bill Poser for performing and explaining two tests of statistical significance for the statistical comparisons in this section. In each comparison the significant value is the value p, which is the probability that, under certain quite general assumptions, the difference observed might be due to chance. By convention, a probability less than or equal to 0.05 is considered "significant", and a probability less than or equal to 0.01 "highly significant". These probabilities mean that the observed difference would occur by chance in one case in 20 or one case in 100 respectively. The two tests reported are the Student T-Test, a standard parametric test, and the Kruskal-Wallis test, a non-parametric test.

of two weak positions; and in *Dolores*, as would be expected, in such cases the initial syllable may be either light as in (312)a or heavy as in (312)b and c:

(312) a. Seven sorrows the priests give their Virgin;
s s s
But thy sins, which are seventy times seven, (9–10)
s s s

And milk-budded myrtles with Venus
s s s
And vine-leaves with Bacchus he trod; (317–18)
s s s

b. And they laughed, changing hands in the measure,
s s s
And they mixed and made peace after strife; (176–7)
s s s

c. We have all done amiss, choosing rather
s s s
Such loves as the wise gods disdain; (309–10)
s s s

But in *The Triumph of Time*, where on the description of iambic-anapestic meter above it would be expected that the strong syllable of a word should be allowed in the first of two weak positions just in case it is light, the *only* examples of strong syllables in weak positions actually involve words with initial heavy syllables:[29]

(314) As the world's first dead, taken wholly away,
s s s s
Made one with death, filled full of the night. (119-20)
s s s s

[29]Disyllables that can be counted as monosyllables by the prosodic rule discussed in section 2.3 and 3.3 whereby an unstressed vowel may be deleted following another vowel are counted as monosyllables in *The Triumph of Time* as in (313)a, but as disyllables in *Dolores* as in (313)b since there they must be disyllabic in order to make up the three positions of the feet:

(313) a. Had you felt, lying under the palms of your feet, (*The Triumph of Time*, 382)
s s s s
b. Stood flushed, as a harp-player stands, (*Dolores* 250)
s s w w s

The heart of my heart, beating harder with pleasure
s s s s
To feel you tread it to dust and death - (383-4)
s s s s

Thus the realization of weak positions in *The Triumph of Time* correlates with its mixed foot length in the expected way with respect to the restriction on lexical monosyllables in disyllabic weak positions, (though as with Tennyson their exclusion is not categorical), but not at all with respect to the restriction of strong syllables in weak positions to cases of resolution. The question arises then of whether it is right to analyze the meter of that poem as iambic-anapestic meter at all if it lacks that crucial property. In fact, though Swinburne's practice remains mysterious in many ways, there is subtle evidence that its meter is indeed related to the iambic-anapestic meter we have seen.

We have seen that syllable quantity plays a crucial though indirect role in iambic-anapestic meter, in that it restricts what can be parsed as a moraic trochee and hence what can be represented as a ρ in the phonology. In Hopkins' sprung rhythm that relation seems to be respected in itself, while in Tennyson it seems to be respected insofar as it determines stress. In Swinburne, while it appears to be ignored entirely, it in fact manifests itself subtly in a statistical preference for light syllables in the weak positions of the ternary feet of his iambic-anapestic verse.

This can be seen through a comparison between the quantity of those syllables in the disyllabic weak positions in the two poems which do not bear lexical stress—or at least not primary lexical stress.[30] For this purpose, I will assume that the classifications of unstressed syllables according to their quantity relevant to this question are those described in section 5.1 as significant in Hopkins' sprung rhythm, and reflected in the classification of English non-lexical words according to their quantity in section 2.2. Thus a syllable may count as light under the following conditions: if it has a

[30]As discussed in footnote (26) above, in this study secondary stressed syllables of lexical words such as the stressed affixes as *un-*, *re-*, *out-*, *trans-* and *-most*, or the stressed but weak syllables of words like *serpentine* were classed with unstressed or only post-lexically stressed syllables, introducing a degree of crudity, but one that is probably minor in terms of the number of occurrences involved.

short vowel or syllabic sonorant[31] and is closed by no more than one consonant, as in *this* or *and*; if it contains a high or mid vowel which though normally long occasionally appears as short, as in *me*, *you*, or *no*; or if it contains a long vowel but it is open and followed by a word beginning with a vowel or with *y, w, h* or *r*, as in *I am swift* (l. 234), *I will say* (l. 5), *I have drunken* (l. 26) or *had I reached* (l. 143).

Based on these classifications, in the 608 ternary feet in *The Triumph of Time* which contain only syllables counted as unstressed in weak positions, there occur 111 heavy syllables, which represents 9.1% of the total 1216 syllables in those weak positions. In contrast, in the 1022 feet of *Dolores* which contain only syllables counted as unstressed in their weak positions, there occur 345 heavy syllables, which represents 16.9% of the total 2044 syllables in those weak positions. This difference is highly significant ($p < 0.001$).

Moreover, it is clearly *The Triumph of Time* which is special. This can be seen by a comparison with Swinburne's prose. In *Notes on Poems and Reviews*, an essay Swinburne wrote in the same year that *The Triumph of Time* and *Dolores* were published—wrote, in fact, in response to the violent critical reaction the collection containing the two poems provoked—using the same criteria as were used for the poems to classify syllables according to their stress and quantity, of the first 1015

[31] Kiparsky's rules for Hopkins outlined above treat sequences in unstressed syllables of /ə/ followed by a sonorant as always equivalent to syllabic sonorants. But while Kenyon and Knott (1953) give syllabic consonants as representing the pronunciation of some words such as *trembled, suddenly* or *treasures*, for others they give only reduced vowels followed by the relevant consonants, such as *laurels*, or *visions*. All the syllables of this type treated as short by Hopkins are indeed ones given by Kenyon and Knott as having syllabic variants. For this reason, I have followed their classifications in this case, rather than an abstract application of the rule Kiparsky proposes for Hopkins. Thus for Swinburne, lines like those in (315)a are counted as containing heavy syllables of this type, but those in (315) are not:

(315) a. That yearns and trembles before it sink (*The Triumph of Time* 95)
s s s s
Times unforgotten, and treasures of things (316)
s s s s

b. Save dust and laurels and gold and sand? (175)
s s s s
And sweet light visions of things undone? (216)
s s s s

Whether this distinction is really warranted is unclear, but in any case it makes the results more rather than less conservative.

unstressed syllables in the piece, 158 are heavy, or 15.6%. This figure does not differ significantly from that for *Dolores* ($p = 0.357$), though it does from that for *The Triumph of Time* ($p < 0.001$).

These results thus suggest that syllable quantity is not regulated at all in anapestic meter, but that iambic-anapestic meter clearly favors light syllables in its disyllabic weak positions. This property is manifest not only in the near-categorical exclusion by Hopkins of heavy syllables from such weak positions, but also even in this subtle statistical preference of Swinburne who is widely described as failing to properly attend to quantity.

In conclusion, then, there does seem to be a distinct iambic-anapestic meter in English as in Finnish. Correlated with its characteristic ready allowance of either one or two syllables in a weak position are typically three principal additional characteristics: first, a requirement that a syllable in a strong position be stressed; second, allowance of the strong syllable of a lexical word in a weak position of the meter just in case the entire weak position can be considered a case of resolution; and third, restriction of lexical monosyllables in disyllabic weak positions. These same properties characterize iambic-anapestic meter in Finnish, although much more rigorously. They have been argued to follow from an analysis that takes the metrical positions in that meter to be modeled not on the syllable, but on the class of minimal feet available within moraic trochee stress systems. Since that entails indirect restrictions on syllable quantity, it may be that the greater rigorousness of Finnish with respect to the meter is related to the fact that syllable quantity in that language lacks some of the complexities it has in English, as outlined in section 2.2. In the next section, we will see that very similar properties characterize English verse in which syllable quantity is regulated directly.

Chapter 6

English Quantitative Experiments

In the two preceding chapters we have seen that in both English and Finnish, syllable quantity plays a significant though indirect role in the stress-based meter we have identified as iambic-anapestic. In this chapter we will see that in English the reverse may also be true: stress plays a significant role in a meter based directly on syllable quantity. However, it will be claimed that the possibility of such a convergence of the two different meters on similar structures in English is a direct consequence of the relation between stress and quantity in English phonology. Thus a convergence does not arise to the same extent in a language like Finnish, where the relation between stress and quantity in the phonology differs.

The most sustained and intense interest in the possibility of English verse based on syllable quantity arose during the Renaissance, as part of the general interest at that time in Classical culture, and in particular in the Greek and Latin languages, for which quantitative meters had been the dominant verse form. While the English efforts in this direction did not produce many poems that have endured, it did produce several which were much admired at the time.

Now a common view of this limited success is that the general enterprise of developing verse in English based on principles other than stress is a doomed one on account of the salience of stress in English; but that particular poems sometimes succeeded either because stress was somehow mistakenly substituted for quantity in them, or because the the disposition of stress was somehow managed in a way that

prevented its salience from being disruptive.

A dissenting view is put forth by Attridge (1974), who in a detailed study of the quantitative experiments of the Renaissance argues that even successful poems were in many cases truly based on quantity, though somewhat inaccurately. He argues that the English schools of the period fostered deep misunderstanding of the nature of vowel length, stemming at least partly from characteristics of the English pronunciation of Latin, which not only obscured phonetic differences between long and short vowels but also rendered the phonological relation between stress and vowel length opaque. In consequence, poets' classifications of English syllables according to their quantity were often based on arbitrary choices, on spelling rather than sound, and on precedent. But he argues that the fact that verse which is rather unnatural in these ways could nonetheless have been practiced and admired by some of the best poets of the time is a testimony to the strength of the influence of Renaissance ideas of artifice, scholarship and the preeminience of written over spoken language.

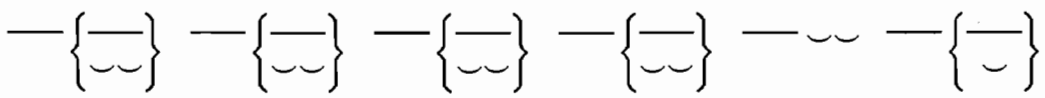
Here I will argue that for at least one much admired poet of the time, Sir Philip Sidney, neither view is fully correct. Attridge is right that the verse is genuinely based on quantity, but wrong in the extent to which he considers that to be arbitrarily and unnaturally determined, and in conflict with stress. In fact, the distribution of quantity in the verse and its relation to stress will be shown to be largely systematic and phonologically well-founded. But because of the nature of the relation between stress and quantity in English, the distribution of both stress and quantity in quantitative verse may bear a close resemblance to that in stress-based verse, resulting in the popular perception that successful quantitative verse is really based on stress.

The key to the conflict lies in the ambivalent nature of syllable quantity in English. We have seen in section 2.2 above that at the point where initial stress assignment rules apply in English, what counts as a light syllable is one which has a short vowel and is open. But if as a result of those rules a light syllable receives stress and is followed by an unstressed syllable, the onset of the unstressed syllable will be re-syllabified as a coda of the preceding stressed one, making the stressed one heavy. Moreover, we have seen that English has a minimal word constraint by which light

monosyllables are excluded as lexical words, such that the final consonant extrametricality which affects most words in English cannot apply to lexical monosyllables with short vowels closed by single consonants, since that would prevent them from receiving stress. Hence by the end of the lexical phonology there is a strong generalization with very few exceptions that in English, if a syllable is stressed, it is heavy.

This generalization is manifest in Sidney's practice in *Old Arcadia 13*, a poem of 175 lines of dactylic hexameter discussed by Attridge and claimed by him to be typical of Sidney's quantitative experiments. The structure of a line of dactylic hexameter is traditionally described as follows, where '—' indicates a heavy syllable and '⏑' indicates a light one:[1]

(316)



As can be seen, there are six feet, each consisting of a heavy syllable followed by either another heavy syllable or what is taken to be its equivalent, two light syllables. This equivalence is not available as an option in the last two feet, however; the heavy syllable of the fifth foot must always be followed by two light syllables, and that of the sixth foot by a single syllable, though that syllable may be either heavy or light, in the line-final neutralization referred to in chapters 4 and 5 above.

According to Attridge, in classifying syllables according to their quantity to match with this pattern, Sidney would have been aiming to follow the following principal rules from Latin versification:[2]

(317) a. A syllable with a long vowel or a diphthong is heavy.

b. A syllable with a short vowel followed by two or more consonants (whether in the same or a different word) is heavy.

[1]In the traditional literature on quantative verse heavy syllables are referred to as "long" and light syllables as "short", but I will use the terms "heavy" and "light" here in order to be consistent with the terminology used for syllable quantity in phonology generally and in the metrical discussion above.

[2]Sidney actually spelled out his rules for quantitative verse in English in a note preserved in the margin of one of the manuscripts of *Old Arcadia*, reprinted in Ringler (1962).

The implementation of these rules can be illustrated by the scansion of certain unstressed syllables in the following lines. In (318), *how* is scanned as heavy because it contains a diphthong, by (317)a:

(318) How to the woods love runnes as well as rydes to the Pallace (4)

In (319), by (317)b, in (319)a *of* is scanned as light because its short vowel is followed by just the single final consonant of the word, while in (319)b it is scanned as heavy because it is followed by two consonants, that one and the initial consonant of the following word *love*, just as in (319)c the final syllable of *reverence* is scanned as heavy because it ends in two consonants:

(319) a. Joyning your sweete voice to the rurall muse of a deserte, (2)

b. Here you fully do finde this strange operation of love, (3)

c. Neither he beares reverence to a Prince nor pittie to begger (5)

There are also two special provisions of the rules in (317) which Sidney would have been aiming to follow. First, *h* is never counted as a consonant. Thus in a line like that in (320) *in* is light in spite of being followed by *h*:

(320) But yet well I doo finde each man most wise in his owne case. (70)

Second, within a word, if the two consonants are a 'mute', which is basically an oral stop, followed by a liquid the syllable may optionally be counted as light. Thus the first syllable of *opprest* may be either heavy as in (321)a or light as in (321)b:

(321) a. (Opprest with ruinouse conceites) by the helpe of an outcrye: (109)

b. When Cedars to the ground be oppprest by the weight of an emmott, (77)

From a phonological point of view, what the latter caveat involves of course is the question of whether in spite of the presence of multiple consonants a syllable is really open because those consonants all belong to the following syllable as onsets; and it is therefore interesting to note that Sidney appropriately extends this exception to those clusters in English beginning with *s*, even though that is not one of the possibilities explicitly mentioned in the rule. Thus we find a contrast parallel to that in (321) in (322), with the first syllable of *estate* scanned as light in (322)a and that of *esteem'de* as heavy in (322)b:

(322) a. Since no estates be so base, but love vouchsafeth his arrow, (50)

b. Well may a Pastor plaine, but alas his plaints be not esteem'de (39)

Finally, an additional metrical convention deriving from Latin is the phenomenon of correption discussed in chapter 5 above, whereby an open syllable before a vowel may always count as light, even if it contains a long vowel or a diphthong:

(323) A vowel before a vowel is always short.

Thus in a line like that in (324), *how* is light in spite of its diphthong, because it is followed by a vowel:

(324) *Lawrell* shews what I seeke, by the Mirre is show'd how I seeke it, (116)

Now given these rules, as Attridge points out, one of the crucial cases for determining whether the verse is really based on stress or on quantity is syllables with short vowels followed by single consonants which are stressed. Attridge claims that such syllables are usually scanned as light, "when no Latin rule is operative" (p. 178). But in fact such syllables are overwhelmingly scanned as heavy. Of a total of 86 such syllables in lexical words, 68 are scanned as heavy, and the remainder we will see form systematic and explicable exceptions:

(325) a. But perforce disgest all bitter juices of horror (105)

Or when an *Echo* begins unmov'd to sing them a love song. (48)

Happy be you that may to the saint, your onely *Idea* (15)

Let not a puppet a buse thy sprite, Kings' Crownes do not helpe them (84)

In these woods to resounde the renowned name of a goddesse. (14)

b. Then kneling to the ground, oft thus do I speake to that Image: (146)

And precious couches full oft are shak't with a feaver. (86)

With bolde clamor unheard, unmarckt, what I seeke what I suffer: (112)

Olive paintes me the peace that I must aspire to by conquest: (117)

What meane is there, alas, we can hope our losse to recover? (7)

Presumably the explanation for this discrepancy between the actual facts and Attridge's description of them lies in the phrase "except where a Latin rule is operative": in many of these cases, as in those in (325)a, the spelling involves either a double consonant or a double vowel. Now it is certainly true that there are some cases in which such spelling leads to inaccurate scansion of syllables as heavy: the sequence /sc/, for example, is occasionally scanned as a cluster as in (326), and other examples will be discussed further below:

(326) Save that dayly we may discerne what fire we do burne in. (53)

But there is no necessary reason to assume that it is always the spelling which is responsible for the scansion of such words as those in (325)a, especially when there are cases like those in (325)b which actually go against the spelling.

Similarly, lexical monosyllables ending in single consonants are almost always scanned as heavy, even when the vowels are short:

(327) And thinke ther she do dwell and heare what plaintes I do utter: (143)

None can speake of a wound with skill, if he have not a wound felt. (70)

Nature worketh enough with a small help for the revealing. (61)

Lawrell shews what I seeke, by the Mirre is show'd how I seeke it, (116)

In the entire poem there is only a single case of a lexical monosyllable apparently scanned as light: the following line can scan only on the assumption that *dryd* is light because it is before a vowel, though it is worth noting that one manuscript shows *can coole* changed to *cooles*, suggesting that at least one other person felt the line to be aberrant with respect to Sidney's usual practice:

(328) Fire no liquor can coole: *Neptune's* seate would be dryd up there. (32)

Now here it is true that double consonants figure in the spelling of each of the words in (327), and moreover not in (328). But this correlation does not justify the assumption that the spelling is the reason for the scansion of such words as heavy, rather than a consequence of it. More important, such an assumption cannot account for the nearly complete absence of lexical monosyllables scanned as light in this verse, especially when such monosyllables spelled with single consonants abound in Sidney's non-quantitative verse; just a glance at the first few non-quantitative poems of *Old Arcadia* turns up *Pan, god, skin, wed*, etc. Moreover, other quantitative poems do yield examples of lexical monosyllables spelled with single consonants scanned as heavy:

(329) Dread not a whit (O goodly cruell) that pittie may enter (*OA* 74, 5)

(teares and teares of a man) had no returne to remorse; (*OA* 74, 16 (pentameter))

Clearly, the explanation for the consistent scansion of such words as heavy is related to their phonology, and to the fact that they are stressed. This can be demonstrated by a comparison of them with unstressed syllables. We have seen above that

according the rules of versification in (317), a syllable containing a short vowel and a single consonant should count as heavy if followed by a consonant-initial word and light if followed by a vowel-initial or *h*-initial one. Non-lexical monosyllables generally do follow this pattern, as in (330):

(330) a. In sorrows torments, then, tyed to the pompes of a pallace, (103)

What place is there left, we may hope our woes to recomfort? (28)

b. Sacred Muse, who in one contaynes what nine do in all them. (10)

What meane is there, alas, we can hope our losse to recover? (27)

c. But yet well I doo finde each man most wise in his owne case. (70)

Thus lexical monosyllables stand in sharp contrast to unstressed syllables, in that as we have seen in (327) above, they are not scanned as light even when they precede a vowel-initial word.

Thus it appears that in general syllables bearing lexically assigned stress are scanned as heavy. But this practice need not be taken as refuting Attridge's central claim that Sidney really was writing verse sensitive to English quantity, rather than either translating the quantitative meter into stress-based ones or being confused by stress in his determination of quantity. For in fact this classification of such syllables as heavy finds a basis in English phonology, which mandates a close match between stress and quantity. As mentioned above, in the case of lexical monosyllables, the exclusion of degenerate feet interacts with the requirement that lexical words be assigned stress to ensure that a lexical monosyllable must be bimoraic. Sidney's apparent perception that these should be scanned as heavy regardless of what follows them is thus true to the language. And in the case of polysyllables, resyllabification makes stressed syllables heavy, and his scansion of them as such is likewise true to the language. Moreover, this practice seems to be somewhat special to English.

For example, Finnish has no such phonological process, and examples in Leino (1986) suggest that in its quantitative verse stressed light syllables must be scanned as light:[3]

(331) *Ei* edes*säs* sitä *oo*, mitä *et*sit, *ei* taka*nas*kaan: (cited in Leino 1986, p. 30)

The idea that the scansion of light stressed syllables as heavy derives not directly from the fact that they are stressed but rather from the fact that the fact that they are stressed gives rise to resyllabification, and hence to their acquisition of coda consonants, finds some corroboration in a couple of cases of stressed syllables which are not followed by unstressed syllables, and hence are not subject to resyllabification. In (332), the stressed prefix *un-* is (showily) scanned entirely according to the rules of versification in (317) above, as light before *h* but heavy before a consonant:[4]

(332) With bolde clamor unheard, unmarckt, what I seeke what I suffer: (113)

Likewise, setting aside the question of vowel length to be discussed further below, the open stressed initial syllable of *idea*, which would not be affected by resyllabification since it is followed by the syllable bearing main stress, is scanned as light:

(333) Happy be you that may to the saint, your onely *Idea* (15)

This line of argument also means that even in the case of primary stressed syllables we might expect them to be scanned as light if they are followed by stressed vowels, as in the case of words like *Hittite*, *essay*, or *satire*; but as noted above these words are rare in English, and no examples occur in this verse. Thus the strong generalization manifest in this verse that if a syllable bears lexical stress, it is scanned as heavy, finds a basis in English phonology.

[3]Interestingly, in his examples such syllables also tend to be in the first rather than the second weak position of a dactyl. Together with his observation (Leino (1986, p. 30) that stressed heavy syllables may only occur as the strong and never the weak position of a spondee, this suggests that the preferred disposition of stress in Finnish may be rather like that which will be shown below to characterize English.

[4]There is of course still something a bit unnatural about this, in that surely the prefix *un-* must indeed be heavy in order to be stressed.

Now there are also some exceptions to this generalization, but they are systematic and reveal metrical regularities we have seen before. First, there is a class of exceptions which have exactly the structure of the configuration identified as resolution in the foregoing chapters: a light stressed initial syllable followed by an unstressed syllable occupies the first of two weak positions, with the unstressed syllable making up the second. Most of these are in trisyllabic words with heavy final syllables, as in (334):[5]

(334) Not limited to a whispringe note, the Lament of a Courtier, (110)

Neither he beares reverence to a Prince nor pittie to begger, (5)

Of carking agonies (to estates which still be adherent) (97)

Sweete Juniper saith this, thoh I burne yet I burne in a sweete fire. (120)

As Attridge himself points out, words of this type are problematic for quantitative dactylic verse. Since the final syllable can only be heavy and the penultimate syllable can only be light, the initial syllable can only be accommodated within the metrical structure of the line if it is also counted as light. This scansion of the initial syllable as light is in conflict with the generalization above that stressed syllables are scanned as heavy, but its status as an exception resulting from the intractability of such words is confirmed by their contrast with trisyllabic words with light final syllables which do not pose this problem and in which initial syllables of exactly the same type are normally scanned as heavy, just as in the disyllabic words in (325):

(335) Whose faire bodily gifts are fram'd most lovely to each ey. (55)

And when I meete these trees, in the earth's faire lyvery clothed, (113)

Cyprus promiseth helpe, but a help where comes no recomforte. (119)

[5]Note that the last example in (334) is one whose vowel length is actually unclear, as discussed in section 2.2. This will be taken up further below.

That Attridge has missed the importance of the length of the final syllable for these cases is confirmed by the fact that he cites the scansion "*málady*" (l. 104) in support of his generalization that stressed syllables with short vowels followed by single consonants are normally scanned as light, but in fact he is misciting the word in the line, which is *máladyes*:

(336) Nurse inward maladyes, which have not scope to be breath'd out, (104)

Not all cases of this scansion of a light stressed initial syllable as the first light syllable in a dactyl seem to be necessitated by an otherwise intractable structure, but they remain nonetheless the marked case. Four words which are non-lexical according to the criteria set out in section 2.2, *very, many, any* and *never*, are regularly scanned in this way, suggesting that it might be the case that Sidney's metrical practice only optionally respects post-lexical stress and its consequences for syllable structure:

(337) Give therefore to the Muse great praise in whose very likenes (62)

Oh no, no, hardye shepeheard, worth can never enter a title, (82)

Which shootes strongly with out any noyse and deadly without smarte. (122)

Come from mar ble bowers, many times the gay harbor of anguish, (92)

The first case in (338) may be influenced by parallelism with the second in which it is forced by the heavy final syllable of *prisoner*:

(338) Jaylor I am to my selfe, prison and prisoner to myne owne selfe. (163)

Two cases involving secondary stress are like the trisyllabic words above where there is metrical pressure to scan the initial stressed syllables as light, though the possibility should also be kept open that secondary stress is simply ignored (compare (332) and (333) above):

(339) Here you fully do finde this strange operation of love, (3)

For that I finde in them parte of my estate represented. (115)

Thus only that in (340) seems to have no other metrical motivation; while the stress pattern it results in may be preferred, it is as we have seen by no means necessary:

(340) Into the faire looker on, pastime, not passion, enters. (41)

Thus configurations with the structure of resolution seem to create a systematic set of exceptions to the generalization that most lexically stressed syllables are scanned as heavy.

Cases of stressed light syllables in the second of the two weak positions of a dactyl which do not bear this resemblance to resolution do not occur, except for a systematic set of exceptions that prove the rule. It must always be borne in mind in working with older poetry that pronunciation may have changed; this is true for *solemnize*, for example, in the following line, which formerly had stress on its second syllable:

(341) Ere that I leave with song of praise her praise to solemnize, (68)

Now in the following six instances a light stressed syllable appears to occur as the second of the two light syllables of a dactyl, and indeed the scansion of *meritt* is one of the examples Attridge gives in support of his claim that light stressed syllables are generally scanned as light:

(342) Hardy shepheарde, such as thy meritts, such may be her insight (155)

First the rivers shall ceasse to repay their fludds to the *Occean*: (65)

Of Phoebus' violence in shade of stately *Cyprus* tree (12)

Since no refuge doth serve from woundes we do carry about us (51)

Fire no liquor can coole: Neptune's seate would be dryd up there (32)

Unto a silly caban, though weake, yet stronger against woes. (93)

But these are all words of French origin, originally stressed on the final syllable. It cannot be the case that they still ordinarily had such pronunciations in Sidney's day, for at least some of them appear in iambic poems of *Old Arcadia* with their initial syllables in strong positions:

(343) Yet for that night my Caban dyd them keep (*OA 30*, 188)
s s s s s

O toong in which, all honoeyed likoures bee (*OA 46*, 3)
s s s s s

But even in Chaucer's time the shift to the Germanic stress pattern had begun, and these words nonetheless figure in his poetry sometimes scanned one way and sometimes the other, as noted by Halle and Keyser (1972):

(344) Heere men may seen how synne hath his merite (*The Physician's Tale* 277)
s s s s s

That on a day cam ridynge fro ryver (*The Wife of Bath's Tale* 884)
s s s s s

His spere it was of fun ciprees (*The Tale of Sir Thopas* 2071)
s s s s

Ne yeve us neither mercy ne refuge (*The Knight's Tale* 1720)
s s s s s

And bathed every veyne in swich licour (*General Prologue* 3)
s s s s s

The Romance stress pattern thus had already some status as an available poetic archaism, of a kind not at all out of place in pastoral poetry, or in a literary milieu in which French still played a prominent role. Thus these cases do not at all seem to compromise the generalization that if a stressed open syllable with a short vowel is scanned as light, it occupies the first weak position of a dactyl.

Exactly why structures like those involved in resolution should figure in this meter in this way poses, however, something of a puzzle. If underlyingly light stressed syllables are licensed in strong positions of this meter in words like those in (325) and (335) by the fact that they are rendered superficially heavy by resyllabification, it becomes somewhat problematic that they should also be able to count as light for purposes of resolution in the iambic-anapestic meter discussed in chapter 5 and in lines like those in (334) and (336)-(340) here. One possible answer to the puzzle might be that since English phonology makes available two characterizations of the quantity of such syllables, either is in principle possible, with perhaps the more superficial form being more common. As mentioned above, the idea that either of these representations would be equally available for metrical rules to refer to entails some loosening of metrical theory which merits further consideration.

But much more seriously for the analysis of this verse, if such syllables can count as light as well as as heavy, the question arises as to why they should occur only as the first of two weak syllables, as in cases of resolution, and never as the second. If the verse is genuinely quantitative, there is no particular reason why the fact that only in those cases do they belong to a minimal foot should be relevant. Moreover, the unstressed syllable following the stressed one in the second position of the dactyl is always light, where in the cases of resolution in both language and meter that syllable is permited to be heavy, suggesting that such sequences are simply counting as two light syllables. In fact it may be that this scansion is simply a preference and not a metrical necessity. But such a preference for placing them in just that weak position where they would likewise be allowed in stress-based verse, in addition to that for placing them in strong positions in general, may be just what it means for stress to be harmoniously disposed. That is, the role played by configurations with the structure of resolution is part of the technical basis for the popular judgment about successful quantitative verse.

A second metrical convention whereby stressed syllables are exceptionally scanned as light involves the rule of correption included as (323) above, whereby the first of two adjacent vowels may always be scanned as light, and again resembles a phenomenon seen in stress-based verse. Attridge notes that within words, a stressed syllable with

a long vowel is normally scanned as light when it is immediately followed by a vowel in accordance with this rule:

(345) Oppresst with ruinouse conceites by the helpe of an outcrye: (109)

That that deare *Dyamond*, where wisdome holdeth a sure seate, (165)

Of Phoebus' violence in shade of stately *Cyprus* tree (12)

For examples like those in (345), there is actually no need to suppose that it is the Latin rule that is accounting for this practice, since we have seen in section 2.3 above that throughout the tradition of English verse there obtains a prosodic rule whereby a sequence of two vowels may be counted as monosyllabic, as in *sayer* or *doing*, so that the sequences in (345) could actually be taken as making up the second position of a spondee. However, two additional lines find the problematic syllable in the second rather than the first of the two weak positions of a dactyl and are therefore not amenable to such an explanation:

(346) Onely Juell, O only Juell, which only deservest (147)

From the cruell headache, nor shooes of gold do the gowte heale (85)

Moreover, correption can also account for a handful of cases of lexical monosyllables exceptionally scanned as light; in each of the following, although a lexical monosyllable is scanned as light, it ends in a vowel and precedes a word beginning with a vowel:

(347) a. Farre more happy be you, whose greatnes gets a free accesse, (54)

b. And may I not (say I then) gett up though griefs be so weightie? (128)

Ewe doth make me be thinke what kind of bow the boy holdeth (121)

Pine is hye, hope is as hie, sharpe leav'd, sharpe yet be my hope's budds. (130)

And so behinde foule clowdes full oft faire starres do ly hidden'. (154)

First may a trusty Greyhounde transforme himselfe to a Tigre: (66)

Firr trees great and greene, fixt on a hye hill but a barrein (123)

Come from marble bowers, many times the gay harbor of anguish, (92)

Again, the English rule making a sequence of two adjacent vowels monosyllabic would, in contrast, provide no help here, since as in the case of the words in (346), the problematic syllable may be in the final position of the dactyl, such that the possibility that it might form a monosyllable with the following vowel-initial syllable would be incompatible with the metrical structure.

Thus the Latin rule of correption accounts for several kinds of cases where syllables bearing lexically assigned stress are nonetheless scanned as light. Unfortunately, this rule does not find the straightforward phonological justification that Sidney's practice with respect to closed syllables discussed above does. In fact, the rule runs counter to English phonology, in that as we have seen in section 2.2 English actually lengthens the first of two adjacent vowels, as seen in such pairs as *algebra* ~ *algebraic*. At the same time, however, we have seen that even Hopkins allows correption to license a lexical monosyllable in a disyllabic weak position where it would otherwise be forbidden, as in (235) of chapter 5. The question of the tenacity of this convention in English thus clearly merits further study.

Thus resolution and correption seem to play an important role in Sidney's quantitative verse, accounting for systematic metrical exceptions to the generalization that, except for some phonologically explicable exceptions, if a syllable is stressed it is heavy and scanned that way. There are a few genuine exceptions to these generalizations. The first syllable of *shepherd* is consistently scanned as light in the second weak position of a dactyl in collocations like *worthy shephearde* (l. 172), *hardy shephearde* (l. 155), or *silly shephearde* (l. 40). This could be an example of the deference to precedence which Attridge attributes to this verse, if it is the case that these are fixed expressions standard in this pastoral genre, otherwise unusable, but finding some

precedent for this unfortunate scansion.[6] As mentioned above, there is also the single case of the lexical monosyllable *dryd* scanned as light in (328). And there are a few utterly unwieldy lines which will be taken up below. But overall the generalization that if a syllable is stressed, it will generally be scanned as heavy, except where special phonological considerations or metrical conventions of resolution or correption obtain, seems quite strong.

This implication does not work the other way around, however. If a syllable is not stressed it may or may not be heavy. As will be seen next, the principles determining the choice in this second case raise a variety of issues, especially relating to the role played by vowel quality in the determination of length.

Unstressed syllables with short vowels generally conform more straightforwardly to the expectations established by the rules in (317). This means that if they end in a single consonant, they will be scanned as heavy if they are followed by a consonant-initial word as in (348)a or (349)a, and light if followed by a vowel-initial one as in (348)b or (349)b, with *h* being disregarded, as in (348)c and (349)c:

(348) a. Comes from marble bowers, many times the gay harbor of anguish (92)

If neither by that helpe, thou canst clime up to thy fancie, (100)

b. And hope thereby to ease their inward horrible anguish, (45)

And yet neither of us great or blest deemeth his owne selfe. (73)

c. You, though feares do abash, in you still possible hopes be: (23)

(349) a. In sorrows torments, then, tyed to the pompes of a pallace, (103)

What place is there left, we may hope our woes to recomfort? (28)

[6]Alternatively it could be the case as suggested by Pat Shaw (p.c.) that in Sidney's time *shepherd* retained sufficient stress on its second syllable from its origin as a compound that it would not be subject to resyllabification.

b. Sacred Muse, who in one contaynes what nine do in all them. (10)

What meane is there, alas, we can hope our losse to recover? (27)

c. But yet well I doo finde each man most wise in his owne case. (70)

There are, however, two departures from this. First, there are cases where syllables which from a phonological point of view ought to be scanned as light by these rules appear to be scanned as heavy because they are spelled with two consonants:

(350) a. Pleasd to receave that name by rebounding answere of *Echo*, (44)

And shall sensive things be so sencelesse as to resist sence? (138)

And sorrows do require some respitt unto the sences. (175)

b. Will at length perceave these flames by her beames to be kindled, (167)

But as above, it can nonetheless be argued that the choices of scansion the spelling accompanies are not in most cases phonologically improbable violations of the ear for the sake of the eye. For similar scansions do arise, though very occasionally, even in the absence of spelling with double consonants:

(351) a. That that deare *Dyamond*, where wisdome holdeth a sure seate, (165)

b. But in a minde that would his flames should not be repressed (60)

Firr trees great and greene, fixt on a hye hill but a barrein, (123)

Moreover, there are also cases that go the other way, where a closed syllable is scanned as light in spite of not being followed by a vowel:

(352) Will at length perceave these flames by her beames to be kindled, (167)

But (like a point in midst of a circle) is still of a neernesse

And in the case of non-lexical monosyllables, Sidney actually spelled out this variability as one of the rules he noted down (Ringler (1962), p. 391):

(353) "Particles used nowe long, nowe short (as 'but', 'or', 'nor', 'on', 'to')."

Thus in Sidney's actual practice, it seems that the rule that a sequence of two consonants makes the preceding syllable heavy is not scrupulously observed if the first of the two consonants is word-final. Although he clearly exhibits a strong tendency to keep to the Latin rule in (317)b in these cases, he equally clearly always allows for the possibility that an unstressed syllable ending in only a single consonant may in fact be either heavy or light, irrespective of the context, and his annotation shows that this is not a lapse but something he considered an acceptable practice.

What is particularly striking about this is that his practice is thus remarkably similar to that of Hopkins, who as we have seen in section 5.1 requires all syllables in polysyllabic weak positions to be light, and allows unstressed syllables with short vowels closed by single consonants to count as light for that purpose. As discussed there, although it is not clear how it should be accounted for, non-lexical words of that type are just those that do not necessarily receive stress even post-lexically, possibly because their final consonants may be extrametrical where those of lexical words can't be since such words must be stressed. In any case, the recurrence of the practice of treating such syllables as light in two such diverse poets suggests strongly that it has its basis in English phonology, particularly in the case of Sidney, since unlike correption it represents a deviation from Latin rules, and hence must find its motivation in English.

In unstressed syllables with long vowels, however, there is no evidence that Sidney succeeded in distinguishing them as Hopkins did. There there appears to be a correlation with spelling that cannot be accounted for except by taking spelling as the explanation for his scansion. In unstressed syllables which are open, those with

short vowels are scanned most often as light, though those which are mid or high also appear occasionally as heavy, as with Hopkins:[7]

(354) a. How to the woods love runnes as well as rydes to the Pallace, (4)

b. Or when an Echo begins unmov'd to sing them a love song. (48)

At the other end of the spectrum, those with diphthongs which are actually spelled that way are always scanned as heavy except, as we saw above, when they are affected by correption:

(355) a. Save that dayly we may discerne what fire we do burne in. (53)

How to the woods love runnes as well as rydes to the Pallace (4)

b. Well may a Pastor plaine, but alas his plaints be not esteem'de (39)

Lawrell shews what I seeke, by the Mirre is show'd how I seeke it, (116)

But those such as *you* which have simple vowels which are spelled as diphthongs pattern with the genuine diphthongs:

(356) a. Here you fully do finde this strange operation of love, (3)

b. Neither doubt you a whit, time will your passion utter. (58)

And conversely, those with vowels whose sound is diphthongal but which are spelled like simple vowels show the same pattern as those with simple short vowels, being normally light but occasionally heavy:

[7]Similar variation occurs in the case of final syllables of lexical words too in earlier poems; for example, the final syllable of *Echo* is scanned as light before a consonant in one line but heavy before one two lines later:

Oh! I do know what guest I have mett; it is Echo. 'Tis Echo. (31, 3)

Echo, what do I gett yelding my sprite to my grieves? Grieves. (31, 5)

(357) a. Joyn'd, by thy beauty adorn'd, be no meanes these greefes to abolish: (99)

b. Let not a puppet abuse thy sprite, Kings' Crownes do not helpe them (84)

Similarly, those whose vowels are long as evidenced by resistance to vowel reduction but not spelled in such a way as to indicate length—the double vowel in the case where both are the same is apparently not something that would have influenced Sidney, since he took pains to note in his rules that words like *doo* and *shee* are short in spite of their usual orthography's suggestion to the contrary—are normally scanned as short: [8]

(358) Unto the heav'ns? our wings be too short; th'earth thinks us a burden; (29)

That Sidney did not adequately distinguish long from short vowels in unstressed syllables is confirmed by his treatment of certain closed syllables of non-lexical words. Even if they have genuinely long vowels, they pattern just like unstressed syllables with short vowels, being scanned as short before vowel-initial words and long before consonant-initial words:

(359) a. Lyke to my noble thoughts, still new, well plac'd, to me fruteles. (124)

b. But (like a point in midst of a circle) is still of a neernesse, (6)

But if they have (at least possibly) genuinely short vowels, but are spelled as diphthongs, they are long even before vowels:

(360) Happy be you that may to the saint, your onely *Idea* (15)

And hope thereby to ease their inward horrible anguish, (45)

The one exception is *owne*, which in (361)b is scanned as light in spite of being spelled with a diphthong:

[8] An exception here is *O*, which is always long, as explicitly stated by Sidney.

(361) a. What can justice availe, to a man that tells not his owne case? (22)

b. Of my owne harte, where thoughts be the temple, sighte is an aultar. (171)

In fact, all the lines in *Old Arcadia 13* which are truly difficult to scan on any account involve problematic vowel length. First, there is a line which appears to have excess syllables, which could be accounted for by assuming resolution in a strong position, except that its vowel is long:[9]

(362) If then a boddily evill in a boddily gloze be not hidden (87)

Second, one syllable bearing secondary stress but with a long vowel is scanned as light, in a heroic manipulation of spelling to rescue a word which is otherwise difficult (though not impossible if the *-st-* sequence is counted as an onset of the second syllable) to position in dactylic verse as discussed above:

(363) Silly shepheard's poore pype, when his harsh sound testifis our woes, (40)

Similarly, it will be recalled that the first syllable of *idea* was argued to be properly treated as open since resyllabification won't apply to it, but of course it would nonetheless be expected to be scanned as heavy on account of its vowel quality:

(364) Happy be you that may to the saint, your onely *Idea* (15)

Finally, in one line the first syllable of *shining* is scanned as short in the second position of a dactyl a violation of just about every rule thus far seen; this line is sometimes cited as evidence that Sidney had no idea what he was doing, and of his "extraordinary perversions of natural rules" (e.g., Stone (1901), p. 123):

(365) Then by my high Cedar, rich Ruby, and only shining Sunne (80)

[9] A similar case may arise in (365) below, in that *Ruby* could be resolved in lieu of *and* being taken to be short as in the scansion given.

But this is in no way typical of his practice; such syllables are normally long

(366) Hardly remains fyer hid, where skill is bent to the hiding, (59)

Popler changeth his hew from a rising sunne to a setting (132)

Moreover, the important point is that the deviation of this line from Sidney's normal practice really follows from the stress of the offending syllable, and not from the length of its vowel, which is for him already something of a lost cause.

In Sidney's inaccuracies in classification of the length of English vowels he is very different from Hopkins, who scrupulously distinguishes vowels like those of *the* or *a* which must be short from those of *me, you, to* or *no* which may be and in turn from those of *though* or *I, my, thy* or *thou* which must be long. But given that vowel quality is the issue relating to quantity which Attridge claims to have been most seriously confused by the Elizabethan pronounciation of Latin and by the way it was taught in the schools of the time, it is hardly surprising to find that as the locus of true deviation from English phonology in Sidney's quantitative verse.

It is interesting to consider to what extent the other quantitative experiments Sidney included in *Old Arcadia*, namely *Old Arcadia* 11, 12, 31, 32, 33, 34 and 74, conform to the generalizations described above for *Old Arcadia 13*. While none show the same patterns quite so strongly, to the extent that they depart from them, there seems to be a consensus that the poems containing the departures are less successful, and in some cases also a conclusion that they are probably Sidney's earliest attempts at quantitative verse.

Old Arcadia 31, for example, the only other poem in simple hexameters, finds occasional lexical monosyllables scanned as light where that is not sanctioned by any of the rules described above. These include open syllables which are followed by words beginning with single consonants, as in (367)a, and syllables closed by single consonants which are followed by vowel-initial words, as in (367)b; the latter (except for the issue of the vowel's length) resembles the occasional similar treatment of lexical monosyllables by Tennyson in *The Voyage of Maeldune*. At the same time, though, the same poem yields scansions like those in (368) where lexical monosyllables

are heavy in spite of the potential application of (317)b, in conformity with the generalizations proposed for *Old Arcadia 13*:

(367) a. Faire Rocks, goodly rivers, sweet woods, when shall I see peace? Peace. (1)

Can then a cause be so light that forceth a man to go die? Aye. (24)

b. Oft prove I: but what salve, when Reason seeks to be gone? One. (11)

(368) a. Dev'lls? if in hell such dev'lls do abide, to the hells I do go. Go. (50)

b. Oft prove I: but what salve, when Reason seeks to be gone? One. (12)

Thus there seems to be some uncertainty about the appropriate treatment of these, which is firmly resolved by the time of *Old Arcadia 13*, and in a phonologically well-founded way.

Another important difference from *Old Arcadia 13* includes the scansion as light of the unstressed initial syllables of *enjoy* (l. 13), *advise* (l. 18) and the secondary stressed syllable of *unkind* (l. 43), in spite of their sequences of two consonants. These seem like the kinds of scansions that might genuinely be considered as lapses into confusion of stress and quantity; but it is important to note that by the time of *Old Arcadia 13* not only do such scansions not occur, but the distinction is even put on display, as in the line discussed in (332) above:

(369) With bolde clamor unheard, unmarckt, what I seeke what I suffer: (113)

Most different, in *Old Arcadia 31* the initial syllable of *lovers* is scanned as light, possibly on analogy with the scansion of *love* as short before a vowel which occurs in some of the other poems, in a divergence from the practice in *Old Arcadia 13* of the type noted in (367)b:[10]

[10]The only other cases of lexical monosyllables closed with single consonants being scanned as

(371) a. What do lovers seeke for, long seeking for to enjoy? Joy. (31, 13)

b. But most wretched I am, now love awakes my desire. (11, 20 (pentameter))

Finally, scansion of disyllables in the manner resembling resolution is rather more frequent, and sometimes neglects vowel length:[11]

(372) Horrible is this blasphemy unto the most holy. O lie. (45)

Now Ringler (1962) says of *Old Arcadia 31* (and likewise of *Old Arcadia 34*) that it is metrically "exceedingly imperfect", and therefore probably among Sidney's earliest experiments (pp. 402, 404 respectively). At the same time he says of *Old Arcadia 13* that it "appears to be correct according to Sidney's own rules." (p. 394) But the scansions he treats as deviations from the rules suggest that he is construing the rules somehow other than as described here. For example, he counts as departures from Sidney's own rules the scansion of *thy* as short in spite of being followed by two consonants in a case where the consonants are the possible onset cluster *sp* as in (373)a, the scansion of *say* as short in a case where it in fact precedes a vowel as in (373)b, and the scansion of the "normally long" first syllable of *woman* as short

long before a vowel share with *love* the final consonant being /v/, suggesting some rather special convention; this is true of *prove* in (367)a above, as well as of the following:

(370) and that he thence must part where to live onely I lyved. (74, 30 (pentameter))

shall prove that fiercenes can with a white dove a bide? (74, 34 (pentameter))

It may be related to a widespread but unexplained tendency for disyllables with /v/ to be specially treated as monosyllables; *even* and *Heaven*, for example, in almost any English poet's verse can count as monosyllables, and even occur in a weak position, where resolution would not normally be allowed. This could also explain the apparent resolution of *evill* in (362); see also *dev'lls* in (368).

[11]Attridge notes that scansions as short of the first syllables of words like *title*, *snaky*, *duty* are plentiful in *Old Arcadia 34* whereas those syllables would not be permitted in short positions in later poems on account of their long vowels. While it is true that they do not occur there, it may also have something to do with resolution of disyllables being in general more restricted, since we have seen that difficulties pertaining to vowel length persist. There may be a tendency toward greater accuracy concerning it, but there is no absolute distinction.

when it is in a position resembling resolution, as in (373)c, all of which are perfectly regular on the rules outlined above for *Old Arcadia 13*. The last in particular clearly figures in what is far from a negligent departure from the rules and in fact a rather clever display of their subtleties:

(373) a. Arte? what can be that art which thou dost meane by thy speche? Speche. (29)

b. Yet say againe thy advise for th'ev'lls that I told thee. I told thee. (18)

c. Silly rewarde! yet among women hath she of vertu the most. Most.

What great name may I give to so heav'nly a woman? A woe-man. (11, 36–37)

In light of this, it seems justified to take Ringler's response to *Old Arcadia 13* as support for treating it as the most successful of Sidney's quantitative experiments and the truest representation of his most mature conclusions about the optimal principles for such verse in English, without doing so for the circular reason that it most closely follows the rules discerned here. And in any case, even for these poems where some exceptions do exist, at worst they reduce the generalizations outlined above from absolute rules to strong tendencies, which is only to be expected in verse which is deliberately experimental.

Now exactly why should the generalizations found to characterize Sidney's quantitative experiments in *Old Arcadia 13* have been felt by him to be optimal? Part of the answer surely has to do with the fact that as we have seen, the role played by stress in Sidney's determination of syllable quantity is on the whole systematic and finds a basis in some facts of the actual relationship between stress and length in English phonology. There are shortcomings as we have seen, particularly with regard to vowel length, and these may help explain why those experiments shouldn't have had a success enduring well past the Renaissance. But in general Attridge's central thesis that the popularity in the Renaissance of verse that was largely unnatural is a testimony to the value placed on artifice by that culture on this view becomes less convincing, with phonology making a stronger counter-claim than he acknowledges.

But beyond that, on the analysis presented here, the phonology actually underdetermines the metrical possibilities in certain crucial ways. In particular, light stressed syllables can be scanned as either heavy or light. Moreover, when they are light they can be scanned as either the first or the second of the two positions of a dactyl requiring light syllables. But these possibilities are not all equally favored in Sidney's verse. First, we have seen that such syllables are much more commonly scanned as heavy, which may possibly be attributed to a preference for the meter to be based on the more superficial phonological form available. Second, we have seen that when they are scanned as light, they are normally the first of two light syllables, and not the second.

The latter preference, moreover, seems to have currency beyond Sidney's practice. Leino's (1982) comments noted above in footnote 3 and illustrated in (331) suggest that it is worth investigating whether it might not also be true of Finnish. And comments made by Saintsbury (1961) suggest that it is a preference shared by at least one critic. Saintsbury cites the following line from Stone, which differs from what we have seen of Sidney's practice precisely in allowing light stressed syllables as the second weak position of a dactyl:

(374) for with mighty vessels loaded, a lordly river (pentameter)

And he excoriates it as follows:

(375) Mr. Stone thought a line of his 'a perfect pentameter'—asked, indeed quite touchingly, if it is not? The answer is that it is not a pentameter at all...To scan 'river' as 'rĭvēr' is mere childish petulance, because it is pronounced the other way.

He goes on to show that what he has in mind has to do not with stress but with quantity:

(376) One of the commonplaces for fighting on this subject is the almost famous position that 'quantity' is a dactyl while 'quiddity' is a tribrach...the late Mr. Stone "would have that there did not live a man

> who, if the question were fairly put to him, could fail to detect the difference." Well, I am that man; or rather, though I do see that 'quantity' is a rather (not much) more *dactyly* dactyl than 'quiddity', I deny that the latter is a tribrach at all. (p. 427)

Thus Saintsbury clearly expresses the view that stressed light syllables in English ought to be scanned as heavy. But it is interesting to note that he doesn't make his point by objecting to a line in which such a syllable is the first of two weak syllables in a dactyl, even though such lines are common in verse based explicitly on Stone's principles, such as that of Robert Bridges, as illustrated in (377):

(377) My solace in solitude, when broken roads barricade me
(*Wintry Delights* 3)

This suggests that lines of this type do not strike Saintsbury as unharmonious in quite the same way.

Now in Sidney's verse we have seen that the result of these preferences is a distribution of stress and quantity which bears a striking resemblance to that found in iambic-anapestic meter. Strong positions always contain syllables of some metrical prominence, though it may be simple weight in *Old Arcadia 13* where it must generally be stress in iambic-anapestic verse. Lexical monosyllables are restricted to monosyllabic weak positions (spondees in quantitative terminology), except in cases of correption, and the similarity is strengthened by the preference in iambic-anapestic meter for light syllables there. Strong syllables of lexical words generally occupy strong positions, but may occur in weak positions just in cases of resolution. A difference – the twin really of the ability of stressless heavy syllables to occupy strong positions – is that stressed heavy syllables may occupy weak positions (the second position of a spondee) in quantitative verse, a configuration which supports Attridge's claim that Sidney really was writing verse based on quantity, not stress:

(378) In sorrows torments, then, tyed to the pompes of a pallace, (103)

Selfe-lost and wandring, banished that place we doe come from, (26)

Since outward pleasures be but halting helpes to decay'd soules (52)

Though such lines are in fact quite rare in *Old Arcadia 13*,[12] further strengthening the resemblance to the cadences of iambic-anapestic meter.

This resemblance between the two meters has not gone unnoticed by critics. It was mentioned above that the strictness in the realization of the possibilities of iambic-anapestic meter in Tennyson's *The Voyage of Maeldune* created a resemblance to quantitative verse, in a metrical reference entirely appropriate to its subject matter; and Saintsbury in fact comments on the resemblance between the meters with reference to *Maud*:

(379) It is impossible not to see that [...such lines..] have been to some extent suggested by the hexameter mania, which was specially strong rather before the middle of the century [though] Tennyson had too unerring a sense of English prosody ever to use the hexameter itself seriously; ... These things form a by-study of great interest to the hexameter question. (p. 208)

But nothing is said explicitly in such criticism about what formal properties constitute the resemblance. Here some precise properties shared by these two meters have been identified, and argued to derive from natural language, where they figure in the natural class of minimal feet arising in moraic trochee systems and identified as ρ. Their recurrence in two diverse meters thus supports the hypothesis that for poets and critics alike, the structures that make for aesthetically satisfying poetry derive from language itself.

[12]Andrew Devine (p.c.) points out that the last of these could actually involve a Romance stress pattern for *pleasures*, in which case it would no longer be an example of this, and that *banished* could be trisyllabic, providing another case resembling resolution of the type in (334) and (336).

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