PROSODY IN THE PARCHMENT

Manuscript evidence for the pertinacity of syllable, foot and word-prosodic structures in the mediaeval German grammar

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Abstract

This thesis explores the prosodic phonology of Middle High German (MHG), aiming to provide a thorough account of its structure as a system and consider its role in accounting for key sound changes. It highlights the pertinacity of certain prosodic structures, despite the sometimes quite substantially different surface output between MHG and Modern Standard German (NHG). Much of the complexity of the NHG phonological system has its roots in the mediaeval period and the high level of language contact at this time, notably with Romance languages (and Old French in particular). I argue that much of the modern phonological system's surface complexity results from the interaction of large-scale Romance borrowing (invariably with right-edge prominence and final superheavy syllables) and pertinacity within the phonological grammar, particularly in relation to the uneven trochee, Prokosch's Law and the leftward prosodic incorporation of affixes and clitics. Standard accounts of MHG typically provide a phonemic inventory and traditional grammar, neglecting suprasegmental prosody and rarely providing a detailed treatment of the phonological system as a whole. This research takes a holistic approach, aiming to address this gap and provide a focused discussion of a range of prosodic phenomena. It explores not only segmental quantity, but its relationship to higher prosodic structures, including the syllable, foot and prosodic word. This raises implications for phonological theory more generally—including the role of recursivity within the prosodic hierarchy and the lack of isomorphism between surface syntax and phonological phrasing—and provides new insights into lexical stress and cliticisation. *Parzival*, a sprawling grail romance from the early thirteenth century, is central to this analysis; it represents a large corpus of real poetic data from a single source, enabling a closer, more nuanced analysis of a particular synchronic snapshot of MHG (at a time when diphthongisation was present, but open syllable lengthening and degemination were yet to occur).

To James

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List of abbreviations and symbols

Alem.	Alemannic
ART	ARTICULATOR
Bav.	Bavarian
C	consonant
CEM	consonant extrametricality
Cgm. 19	*München, Bayerische Staatsbibliothek, Cgm 19*
Cod. 857	*St. Gallen, Stiftsbibliothek, Cod. 857*
COR	CORONAL
DOR	DORSAL
eNHG	Early Modern German
E	English
EFr.	East Franconian
F	foot
FNC	function word
G	German
Gmc.	Germanic
GVS	Great Vowel shift
H	heavy
HVD	High Vowel Deletion
Im.	Imst dialect
ILF	internally layered foot
L	light
LAB	LABIAL
LEX	lexical word
lOHG	Late Old High German
MNL	Middle Dutch
ME	Middle English
MHG	Middle High German
MS	manuscript
MSS	manuscripts
N	Norwegian
NE	Modern English
NGmc.	North Germanic
NHG	Modern German
NL	Dutch
NNL	Modern Dutch
OE	Old English
OHG	Old High German
ON	Old Norse
OS	Old Saxon
OSL	Open syllable lengthening
PGmc.	Proto-Germanic
S	Sehlem Dialect
s	strong (branch)
SBav.	South Bavarian
S_H	superheavy
SEM	syllable extrametricality
SON	SONORANT
TH	TONGUE HEIGHT
TSS	Trisyllabic shortening
UG	Upper German
V	vowel
w	weak (branch)
WGmc.	West Germanic
X	main stress
x	strong branch (of a foot); weak beat in a line of poetry
.	weak branch (of a foot)
μ	mora
σ	syllable
φ	phonological phrase
ω	prosodic word
$\breve{\sigma}$	light syllable
$\bar{\sigma}$	heavy syllable
$\bar{\bar{\sigma}}$	superheavy syllable
/	strong beat in a line of poetry
|	verse foot boundary in a line of poetry
‹(x)›	defooted foot
‹ ›	extrametrical unit
⟨ ⟩	orthographical spelling
$( )_\sigma$	syllable boundary
| |	foot head boundary
$( )_F$	foot boundary
$( )_\omega$	word boundary
Ý	stressed vowel

Chapter 1

Introduction

Middle High German (MHG)[1] is a member of the (West) Germanic language family which encompasses the varieties spoken in the High German dialect area during the later mediaeval period. It therefore includes the Central and Upper German dialects: West Central German (Central Franconian, Hessian and Rhenish Franconian), East Central German (Thuringian, Upper Saxon and Silesian) and the Upper German dialects, East Franconian, Alemannic (Upper Rhenish, Swabian and High Alemannic) and Bavarian (North, Central and South Bavarian). The location of these dialect groups can be seen in the map provided in Figure 1.1. As a High German dialect, MHG is distinguished from its contemporary West Germanic relatives, the Low German dialects (including Middle English, Middle Dutch and Middle Low German), which were unaffected by the Second Sound Shift (or 'High German Consonant Shift', which affected voiced and voiceless stops). MHG is traditionally dated to the period c.1050–1350, although the MHG Classical Period (c.1170–1230), which saw the output of much of the period's most significant poetic works, will also be relevant. MHG

[1] In this thesis, the following language abbreviations are used: Alemannic = Alem.; Bavarian = Bav.; Central German = CG; Classical Middle High German = Cl-MHG; East Franconian = EFr.; Early Modern High German = eNHG; Germanic = Gmc.; Imst dialect = Im.; Middle English = ME; Middle High German = MHG; Middle Dutch = MNL; Modern Dutch = NNL; Modern English = NE; Modern High German = NHG; Old English = OE; Old High German = OHG; Open Syllable Lengthening = OSL; Proto-Germanic = PGmc.; Upper German = UG. The letters *N*, *S*, *E* and *W* represent the relevant compass points.

is thus the precursor of Early Modern High German (eNHG; c.1350–1650) and Modern High German (NHG; c.1650–present), and the successor of Old High German (OHG; c.750–1050),[2] itself preceded by Proto-Germanic (or 'Common Germanic'), from which all of the North, East and West Germanic languages are descended. East Germanic is only attested in the written record by Gothic and has become extinct; modern North Germanic languages include Danish, Icelandic, Norwegian and Swedish, while West Germanic languages include Dutch, English, Frisian, German and Yiddish. Just as the High German dialects are distinguished by the Second Sound Shift, Germanic may be differentiated from other Indo-European languages by a sound change affecting certain stops, the First Sound Shift (otherwise known as 'Grimm's Law' or 'Rask's Rule').

This thesis is primarily concerned with the prosodic phonology of MHG. Prosodic phonology provides a theory of the organisation of phonological structures above the segmental level, often focusing on word or phrase-level phenomena. It seeks to establish the nature and role of phonological constituent structure, which is held to be hierarchically organised and tightly constrained, with the existence of any given constituent necessarily motivated by phonological phenomena. Scholarship on prosodic phonology has a long history, with much work of the late nineteenth and early twentieth centuries considering the prosodic structuring of speech to be rhythmically determined, even where this goes against morphological structure or syntactic phrasing (cf. Sweet 1876; Sievers 1901a,b; Saran 1907; for a thorough overview of the history of scholarship on phonological phrasing, see also Lahiri and Plank 2022). However, following the work of Selkirk (1978, 1984) and Nespor and Vogel (1986), works on prosodic phonology have often assumed phrasing to be syntactically determined, centring on the relationship between prosodic and syntactic structures, which remains the subject of lively debate; the level of isomorphy between phonology and

[2] The mid-eighth century marks the beginning of the OHG written record, but as the Fist Sound Shift is dated to the sixth century, the intervening period (c.500–750 CE) is often referred to as Pre-Old High German.

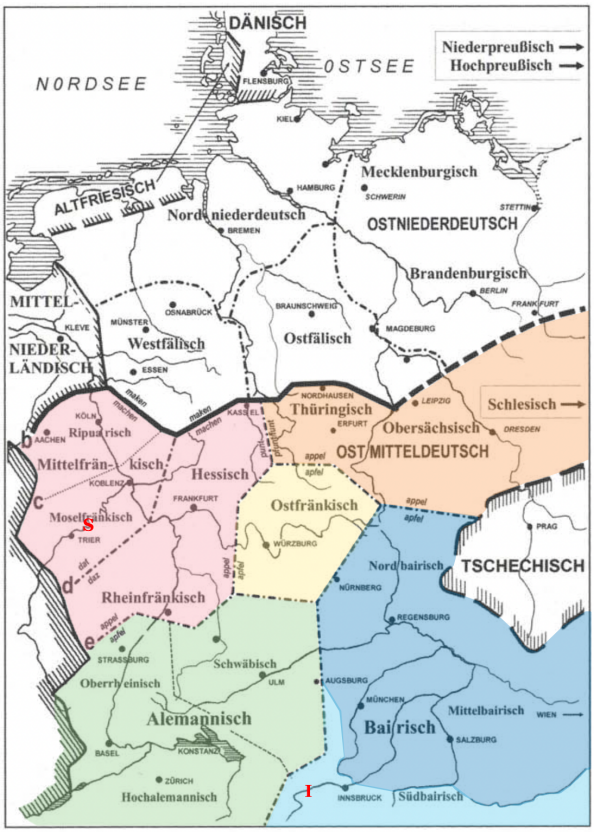


Figure 1.1 The High German dialect area, taken and adapted from Paul (2007, 3). West Central and East Central German are coloured red and orange, respectively. East Franconian is coloured yellow, Alemannic green and Bavarian blue, with South Bavarian picked out in light blue. The Imst (I) and Sehlem (S) dialects mentioned in this thesis are indicated by red letters.

syntax, the possibility of recursion within the prosodic hierarchy and even the number of phrasal constituents between the prosodic word and the intonational phrase remain open questions (see Chap. 2 for a discussion of these issues). This thesis contributes to this debate by providing a historical account of prosodic phenomena in MHG, from issues of segmental quantity and syllable weight to foot structure and the role of the prosodic word as a constituent. This will demonstrate the importance of prosodic structure in accounting for the phonological system as a whole, as well as the role of prosodic structures in certain key sound changes, such as open syllable lengthening (OSL, a general lengthening of stressed vowels in open syllables common to all of the

standard West Germanic languages) and the diphthongisation of the MHG high vowels /iː, yː, uː/ > NHG /aɪ̯, ɔɪ̯, aʊ̯/, contextualising such changes in segmental quality and quantity in relation to higher prosodic structures.

The development of prosodic structures from MHG to NHG has been substantial, involving changes which have at times been in conflict, such as OSL—which effectively eliminated light stressed syllables, as they all became heavy by virtue of their now long vowels—and degemination (which reintroduced a number of light stressed syllables by shortening geminate consonants, as these had previously closed the preceding syllable). Compare, for instance, MHG *edel* ('noble') and *machen* ('do, make INF') with their (Standard) NHG reflexes in Table 1.1. Intriguingly, this is not the case across all of the modern High German dialects, as illustrated by Table 1.1, which includes the reflexes of these words in the dialects of Imst (an Upper German, Bavarian dialect, as recorded by Schatz 1897) and Sehlem (a West Central German, Moselle-Franconian dialect, as recorded by Ludwig 1906). Both dialects are indicated on the map in Figure 1.1. Unlike the modern standard language, degemination never occurred in Imst dialect (meaning that such syllables remained heavy) and an additional process of compensatory lengthening maintained the weight of these syllables in Sehlem dialect (see also MHG *fallen* > standard NHG [faḷən], Imst [fɔl.lə], Sehlem [faː.lən] 'fall INF').

Table 1.1 Differing stress placement in Germanic and Romance vocabulary and the effects of diphthongisation (Diph.), OSL and degemination (Degem.), as illustrated by their forms in OHG, MHG and Modern Standard German, with reference to their reflexes in the Imst and Sehlem dialects.

	OHG	MHG	NHG	Imst	Sehlem	Gloss
Stress	ˈfa.ter	ˈfa.tər	ˈfaː.tɐ	ˈfɔː.tər	ˈfɔː.dɐ	*father*
	—	kap.(pə.)ˈlaːn	ka.ˈplaːn	k͡xɔ.ˈplɔ̃ʊ̯̃	ka.ˈplɔːn	*chaplain*
	—	—	za.ˈlaːt	ˈsɔː.lət	t͡sa.ˈlɔːt	*salad, lettuce*
Diph.	sliːx.xan	sliː.xən	ʃlaɪ̯.çən	ʃlaɪ̯.çə	ʃleɪ̯.çən	*creep*-INF
	buː.til	byː.təl	bɔɪ̯.təl	paɪ̯.tḷ	baɪ̯.dəl	*pouch*
	skuː.f(a.)la	ʃuː.fəl	ʃaʊ̯.fəl	ʃaʊ̯.flə	ʃɔʊ̯.fəl	*shovel*
OSL	e.dil, e.di.li	e.dəl, e.də.lə	eː.dəl	øɪ̯.dḷ	eː.dəl	*noble*
	max.xoːn	max.xən	maχən	mɔx.xə	maː.xən	*do, make*-INF
Degem.	fal.lan	fal.lən	faḷən	fɔl.lə	faː.lən	*fall*-INF

Even in the standard language, the placement of stress has remained remarkably constant in native, Germanic vocabulary, where stem-initial stress persists (cf. Wurzel 1980), despite significant upheavals in the metrical domain since the early period (e.g. MHG *váter* > NHG *Váter* 'father' in Table 1.1). In contrast, this is not necessarily true of Romance loan words, where stress often falls at the right edge (e.g. NHG *Kaplán* 'chaplain' and *Salát* 'salad' in Table 1.1). There is dialect variation here, too, with many Romance loans exhibiting a more Germanic pattern, even when borrowed comparatively recently (e.g. the Imst dialect form [ˈsɔː.lət]).[3] However, the same is crucially not true of Germanic words: where there is dialectal variation, it is restricted to a leftwards shift in Romance vocabulary. Compare, for instance Thurgovian [ˈka.ʁaʃ] 'garage', [ˈma.tʁa.t͡sə] 'mattress' (Kraehenmann 2003) and NHG [ga.ˈʁaː.ʒə], [ma.ˈtʁa.t͡sə].

In comparison to other historic languages, the mediaeval Germanic dialects are relatively understudied with respect to phonology; this is surprising, given the extensive linguistic record, which offers a great deal of data through which a much more thorough examination of their structure is possible. The phonological system of NHG is complex and still much-debated (see Chap. 2, Sect. 3.2.2), with much of this complexity having its roots in the mediaeval period. Particularly interesting in this context, therefore, is the high level of language contact in the MHG period, not only with other Germanic languages, but also with Romance languages, notably Old French (OF), which has had wide-ranging and profound consequences for the modern language (cf. Chap. 5).

Standard accounts of MHG typically provide a phonemic inventory and traditional grammar (discussing the major word classes, such as nouns, verbs and adjectives), but rarely provide a detailed treatment of the phonological system as a whole. Where phonology has been addressed, the focus is usually segmental and neglects issues of

[3] Compare also Austrian German [mateˈmatɪk]/[mateˈmaːtɪk] (*Mathematik* 'mathematics') and Modern Standard German [matemaˈtiːk], with final stress.

prosodic structure (although see, amongst others, Reis 1974; Auer 1990; Vennemann 1995). Such questions naturally pose more of a problem to the linguist interested in historical synchronic stages of a language than syntax, morphology or even segmental structure; nevertheless, as this thesis seeks to demonstrate, prosodic structure is an integral part of the phonological system which is essential to any proper understanding of its development as a whole.

This research takes a holistic approach, aiming to address this gap in the literature on MHG phonology and provide a focused discussion of a range of prosodic phenomena. It will explore not only featural and segmental contrasts (although these will prove highly relevant), but also their relationship to higher prosodic structures, including the syllable, foot and prosodic word. This thesis investigates the phonological system of a particular language at a key point in its history, but bears on questions of phonological theory more generally—including the role of recursivity within the prosodic hierarchy and the lack of isomorphism between surface syntax and phonological phrasing—and provides new insights into lexical stress and cliticisation, considering the role of metrical coherence (cf. Lahiri and Dresher 1999) in accounting for key sound changes.

As will be seen, poetry is able to provide an invaluable insight into questions of prosodic organisation (through its metre, rhyme and orthography) and will thus be utilised in every chapter of this thesis. The poem *Parzival* is central to this analysis, with evidence being drawn from a deep study of its verse. *Parzival* is a sprawling Arthurian grail romance of around 25,000 lines, composed by Wolfram von Eschenbach in the first decade of the thirteenth century in East Franconian (EFr.) dialect (a transitional Upper German dialect which shares a number of features with East Central German). The poem is a reworking and adaptation of Chrétien de Troyes's late twelfth-century unfinished work in OF, *Perceval ou le Conte du Graal*, and represents a large corpus of real poetic data from a single source. *Parzival* thus provides a

coherent picture of thirteenth-century Upper MHG, enabling a closer, more nuanced analysis of a particular synchronic snapshot of this historical period of the language, at a time when diphthongisation was present, but OSL and degemination were yet to occur. No surviving original manuscript (MS) survives, but the poem is inherited via a number of roughly contemporaneous MHG manuscripts, which provides additional insights into variation across the Upper MHG dialect area during the period. The majority of this analysis is based on a thirteenth-century *Parzival* MS, *St. Gallen, Stiftsbibliothek, Cod. 857* (Cod. 857), but reference will also be made to other MSS, particularly *München, Bayerische Staatsbibliothek, Cgm 19* (Cgm. 19).

The present research highlights the pertinacity of certain prosodic structures, despite the sometimes quite substantially different surface output between MHG and NHG. I borrow the term 'pertinacious' in its technical sense from Lahiri (2002) and Dresher and Lahiri (2005), specifically concentrating on the kind of pertinacity where a particular structure (such as the 'Germanic foot', an uneven moraic trochee, cf. Chap. 2) may persist over time, even though its outward realisation may change. In other words, one finds the same pattern, but with a different surface realisation. Fikkert et al. (2006) argue that the Germanic foot exhibited this quality in Old and Middle English. I aim to demonstrate that this was also true of MHG, although in different ways, due to the local facts of this language. Evidence from verse demonstrates that German phonology has been more constant than one might imagine, with pertinacity in the phonological grammar playing a significant role, particularly in relation to the uneven trochee, Prokosch's Law and the leftward prosodic incorporation of affixes and clitics through recursive feet and prosodic words. However, much of the complexity of the NHG phonological system has its roots in the mediaeval period: where change has occurred, it has resulted from the high level of language contact at this time, notably with Romance languages (and OF in particular). What is different is the adaptation

of such loanwords (invariably with right-edge prominence and final superheavy syllables), resulting in an automatic increase in the number of syllables and affecting the direction of foot parsing and edge-based prominence in lexical stress assignment.

The remainder of this chapter will outline in greater detail the content and aims of the following chapters, which comprise the substantive material of this thesis. Chapter 2 will provide the theoretical context for this thesis, which draws on the framework of prosodic and metrical phonology. As the precise structure of the foot at various stages in the history of German is of central concern to this research, a taxonomy of trochaic[4] foot types will be provided, relating this to issues of syllable structure and quantity. A further area of debate within current phonological theory which is directly relevant to this thesis is the possibility of recursivity in constituents above the level of the syllable and, if so, what role this might play within the phonological system. This thesis argues for the role of both recursive feet and prosodic words in German, with such structures having persisted over centuries (despite changes to the surface structure) and an overview of this debate will therefore also be provided. As this thesis is concerned with the diachronic development of the MHG prosodic system, Chap. 2 concludes with a brief discussion of previous literature on MHG and NHG syllable and foot structure (for key studies of the modern language's phonology, particularly in relation to word-prosodic phenomena, foot structure and the interaction of morphological structure, see, for example, Wurzel 1970a,b; Strauss 1982; Giegerich 1985; Féry 1986, 1998; Vennemann 1991; Yu 1992; Jessen 1999; Wiese 2000).

Chapter 3 considers metrical structure in poetry, with specific focus on *Parzival* and the thirteenth century. Due to the fact that the MHG prosodic foot is uncontroversially considered to be trochaic, scholars have traditionally assumed a preference for trochaic metre in poetry of the MHG Classical Period. However, given the trend elsewhere in mediaeval Europe (even in trochaic languages) to emulate French lyrics

[4] Despite a great deal of upheaval over the centuries, the foot has always been robustly and pertinaciously trochaic across Germanic.

and compose verse in iambic metre, the uncritical assumption of a trochaic metre in all MHG poetry seems inadequate. A close examination of *Parzival* suggests that the traditional analysis is not only insufficient but counter to the linguistic evidence. I argue for the first time that *Parzival* was in fact composed in iambic tetrameter, based on a close analysis of the rhythmic alternations within lines and the quantity and foot structure of line-final syllables. This analysis is further corroborated by the consistently iambic structure of line-final feet, as well as the foot structures avoided by the poet, identified according to the weight of the final, penultimate and antepenultimate syllables. The present analysis has the advantage of explaining the various patterns of alternating prominence in the metre of *Parzival* much more consistently than the complex system advocated by the traditional view.

Turning to segmental quantity, and hence prosodic structure, Chap. 4 presents a discussion of OSL and diphthongisation. Despite a long history of scholarly interest, the relative chronologies (and even origins) of these changes remain unclear. Drawing on orthographic evidence from Cod. 857, this chapter argues that they were independent and motivated by prosodic structure, challenging claims that diphthongisation was triggered by OSL via a phonological push-chain. These changes either maintained or increased the quantity of stressed vowels, having the net result of standardising the quantity of stressed syllables and ensuring that all stressed feet had the structure ($\acute{\sigma}$) or ($\acute{\sigma}\breve{\sigma}$) (where $\bar{\sigma}$ represents a heavy syllable and $\breve{\sigma}$ a light syllable). I argue that OSL was not a feature of the South Bavarian dialect of Cod. 857's Hand III, although diphthongisation was certainly active. It is difficult to reconcile this picture with claims by Penzl (1974, 1975, 1989), Kranzmayer (1956) and Wiesinger (1970, 2003) that OSL was present throughout the Bavarian dialect area by 1200.

Chapter 5 will discuss the pertinacity of the uneven trochee from OHG to NHG via MHG. Despite changes to a number of metrical parameters and the loss of resolution (whereby a sequence of ($\breve{\sigma}\sigma$) is metrically equivalent to ($\bar{\sigma}$), whether the second

syllable is light or heavy), feet have always been left-headed, weight sensitive and ideally disyllabic (with an additional requirement that the head of the foot be branching). MHG thus maintained the earlier Germanic foot, preferring to place main stress on more complex, branching feet. The persistence of this uneven moraic trochee can most clearly be seen in its effect on stress assignment in Romance loan words (the focus of this chapter), where right-edge stress results from the prosodic structure of such loans, borrowed with word-final superheavy syllables which consistently attract stress, e.g. *sur.kôt*. In line with Fikkert's (2000) account of Middle Dutch (MNL),[5] I argue that MHG continued to defoot final non-branching feet, but that superheavy syllables ($\bar{\sigma}$) were metrically equivalent to branching ($\bar{\sigma}\breve{\sigma}$) feet. The consistency with which stress mirrors native patterns in heavy-final words but is shifted to final branching feet provides clear evidence for the continued coherence of the Germanic Foot (e.g. *hár.nasc* /ˈhar.naʃ/ and *Sma.ráid* /sma.ˈraɪ̯d/ 'emerald'). Native simplex words rarely comprised more than one foot, with superheavy syllables largely restricted to derivational affixes, so will have been unaffected by such stress shifts. If MHG did not continue to exploit the Germanic foot, both ($\bar{\sigma}$) and ($\bar{\sigma}\breve{\sigma}$) feet would behave in exactly the same way as a monosyllabic ($\bar{\sigma}$), with word-final heavy syllables defooted and unable to bear stress.

Chapter 6 will discuss the prosodic representation of German clitics, particularly enclitic personal pronouns and [FNC=FNC] *Verschmelzungsformen* ('fused forms'), such as *zum* and *unter'm*. Discussion of cliticisation in the literature is often morphosyntactic in focus (e.g. Scalise 1984), but it is argued here that an understanding of the phonological structure of such forms is essential in accounting for their behaviour. There appears to have been remarkably little change in relation to cliticisation between MHG and NHG (and indeed OHG, cf. Somers Wicka 2009), with reduced function words by preference continuing to associte leftwards. Encliticisation is thus preferred

[5] For an account of modern Dutch stress, see van der Hulst (1984), Kager (1989), Booij (1995) and Trommelen and Zonneveld (1999).

over procliticisation, resulting in prosodic grouping which is frequently counter to syntactic phrasing (cf. Lahiri and Plank 2010). This chapter proposes a new distinction between (i) 'plain' clitics on the one hand (e.g. [kanzɪ] < *kann=sie* 'can=she') and (ii) 'morphologised' clitics on the other (e.g. [aʊ̯fm̩] < *auf=dem* 'on=DEF.DAT.M.SG'). Plain clitics, added at the postlexical level, are phonologically transparent and relatively unconstrained. In contrast, morphologised clitics (distinct from 'special' clitics, e.g. Zwicky 1977; Zwicky and Pullum 1983) attach to other function words at the lexical level and are integrated into the foot structure of their host. It is argued that recursivity is an essential quality of the prosodic hierarchy and nested feet and prosodic words are crucial to an account of the prosodic behaviour of clitics in both MHG and NHG. These clitics already demonstrated evidence of sensitivity to the foot structure of their host in MHG and the prosodic structure proposed here (exploiting a minimally recursive foot, cf. Booij 1995; Kager and Martínez-Paricio 2018 for Dutch) is argued to have survived into NHG intact, providing further evidence for the pertinacity of the uneven moraic trochee in German. Finally, Chap. 7 summarises and concludes this thesis.

Chapter 2

Theoretical background and assumptions

In order to examine the suprasegmental and prosodic phenomena at the heart of this thesis and provide a thorough account of the prosodic structure of MHG, certain theoretical assumptions and principles must first be established, in particular issues of prosodic structure and organisation. This chapter lays out the theoretical background and key assumptions of this thesis, especially in relation to the prosodic hierarchy and metrical phonology (Sect. 1 and Sect. 2 respectively). Foot structure is a particular focus of this thesis and is discussed in detail in Sect. 2.2. A foot is an organising unit of prosodic structure built on moras and syllables; prominence falls on the heads of feet, which can be right or left-headed (i.e. an iamb or a trochee). Each prosodic word minimally comprises a stressed foot and feet can be constructed from the right or the left edge, with lexical stress falling on the head of the leftmost or rightmost foot. The metrical system of a language can thus be defined by (i) the nature of the foot (trochee/iamb), (ii) the direction of parsing and (iii) the foot that carries main stress. Section 3 situates these issues in relation to the history of German.

1 Prosodic phonology and the prosodic hierarchy

Prosodic phonology concerns itself with phonological constituent structure and provides an account of the organisation of phonological structures above the segmental level. According to the standard theory of prosodic phonology, an utterance's

phonological representation is constructed from—but is not necessarily isomorphic with—its morphosyntactic representation (cf. Inkelas and Zec 1990; Selkirk 1986, 1996) and this phonological structure consists of hierarchically organised prosodic constituents generated by the phonological module, with each unit functioning as the domain of particular phonological rules and contraints. The prosodic hierarchy first proposed by Nespor and Vogel (1986) is provided in Figure 2.1:

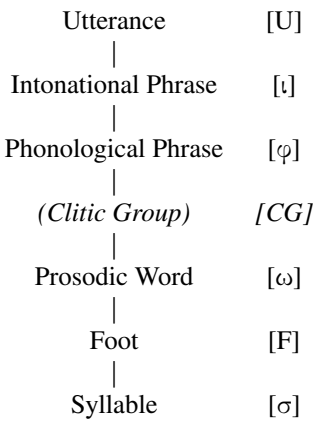


Figure 2.1 The prosodic hierarchy (after Nespor and Vogel 1986).

In the received model, each constituent is thus composed of (dominates) a number of units at the level immediately below. One of these will have greater prominence than the others and is referred to as the 'head' of the dominating constituent. Due to the longstanding tradition of representing prosodic structure via trees, the head unit is often referred to as occupying the 'strong branch', with non-head elements ('dependents') occupying a 'weak branch'. 'Strong' syllables are thus those which form the head of a foot and the most prominent foot in a word carries main stress. This thesis will not address units above the φ, meaning that these can be set aside for current purposes (although see Féry 1993 for a discussion of intonational patterns in German). In current phonological theory, the reality of the syllable and the foot as constituents of prosodic structure in German is uncontroversial and the salience of

the ω as a constituent is well attested (although see Giegerich 1985 for an alternative perspective). However, the Clitic Group (CG) is superfluous and clitic behaviour can be better accounted for with reference to the ω, as has been argued by Wheeldon and Lahiri (1997), Selkirk (1986) and Itô and Mester (2009), amongst others. For a detailed overview of the scholarship on the subject, see Dresher and van der Hulst (2022), in particular Lahiri and Plank (2022), which evaluates approaches to prosodic phrasing at lower levels of the hierarchy, supporting the view that—in spontaneous, casual speech—such prosodic grouping is normally phonologically, rather than syntactically, determined.

Certainly, there is no need for such a constituent in German (see Wiese 2000; Hall 1999) and its inclusion in the hierarchy was largely justified by the theory-internal principle of the Strict Layer Hypothesis (Selkirk 1984; Nespor and Vogel 1986), which prohibited recursivity. However, the need for recursion within the prosodic hierarchy is increasingly recognised (cf. Gussenhoven 1986; Zec and Inkelas 1991; Itô and Mester [1992]/2003; McCarthy 1993; Booij 1995; Selkirk 1996; Wiese 2000; Lahiri and Plank 2010, amongst others). In the context of German, this is not only true of the ω (Wiese 2000; Raffelsiefen 2000; Bögel 2021), including compounds (see also Booij 1995, 2002; Wheeldon and Lahiri 1997 for Dutch and Wynne et al. 2018 for English), but also of the φ (Wiese 2000; Féry 2010; Kentner and Féry 2013). Recursivity below the level of the ω is less frequently discussed, but recursive feet have been proposed for Dutch by Booij (1995,2002) and Kager and Martínez-Paricio (2018: the 'internally layered foot').[1]

Prosodic structure and the constituents of the prosodic hierarchy form the focus of the following chapters and the issue of recursivity within the prosodic hierarchy will be crucial to the discussion of F and ω-related phenomena presented in Chap. 6 in particular. The model of prosodic phonology adopted here thus rejects the Strict Layer

[1] Recursivity at lower levels of the hierarchy is not assumed here and is controversial in the literature, but for a proposal incorporating recursivity within the syllable, see van der Hulst (2010a).

Hypothesis and permits recursivity at the level of the F, ω and φ. As this thesis focuses primarily on word-prosodic structures (and therefore the lower levels of the prosodic hierarchy, i.e. below the level of the φ), the relevant constituents are thus the F (see Sect. 2.2) and the ω. This thesis furthermore rejects the principle of 'exhaustivity' proposed in earlier works on prosodic phonology, which holds that no constituent may immediately dominate a constituent more than one level below it on the hierarchy (i.e. no ω may dominate a σ), as exceptions to this constraint are well-documented in the literature (cf. Itô and Mester [1992]/2003; Kager 1989; Selkirk 1996, 190 and references therein). However, a lower constituent may not dominate a higher one, such that an F cannot dominate an ω or span ω boundaries, e.g. *$(\omega\ \omega)_{F}$. Examples of some possible structures reflecting these facts are thus given in Figure 2.2 (this list is, of course, not exhaustive).

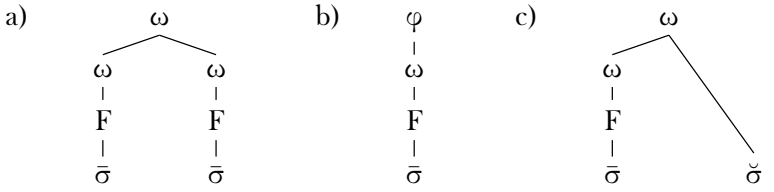


Figure 2.2 Examples of possible structures within the prosodic hierarchy, with constituent *n* dominated by (a) *n*, (b) *n+1* and (c) *n+2*, counter to the Strict Layer Hypothesis and the principle of exhaustivity.

A constituent *n* may therfore not only be directly dominated by *n+1* (Figure 2.2b), e.g. /vaɪ̯n/ *Wein* 'wine', but also by another *n* (Figure 2.2a), as in compounds, e.g. /ˈʁoːt.vaɪ̯n/ *Rotwein* 'red wine' (cf. Wynne et al. 2018). Furthermore, although a constituent may not be dominated by a *lower* constituent, it may be adjoined to a recursive constituent *further up* the hierarchy, such as *n+2* in Figure 2.2c (Selkirk's 1996 'affixal clitic'; see also Itô and Mester [1992]/2003; Wheeldon and Lahiri 1997; Lahiri and Plank 2010; Bögel 2021). Structures such as $(\sigma\ \omega)_{\varphi}$—where a constituent is dominated by *n+3*, i.e. a 'free clitic' in Selkirk's (1996) terminology—have also been proposed to account for certain clitic structures (cf. Hall 1999; Kabak and Schiering

2006), but it is unclear that this is necessary, as Itô and Mester (2009) argue (see Chap. 6).

2 Metrical phonology and the foot

This thesis relies on the theory of metrical phonology (see Liberman and Prince 1977; van der Hulst and Smith 1982; Hogg and McCully 1987; Goldsmith 1990; Hayes 1995 and references therein), a generative framework which draws on the insights of autosegmental phonology (see Goldsmith 1990, 195) and aims to account for lexical stress and other rhythmic phenomena. This tradition began with Liberman and Prince (1977), who challenged the earlier generative approach to stress proposed in *The Sound Pattern of English* (SPE, Chomsky and Halle 1968). SPE presented stress as an *n*-ary feature of vowel segments such that, for example, primary stress would be determined by a generative rule assigning the segmental feature [1 stress] to a given vowel, based purely on its segmental environment (see, for example, Chomsky and Halle 1968, 69ff.). However, whilst the SPE approach sees phonological representations simply as linear, concatenated strings of segments (with no overarching hierarchical structure or organisation), metrical phonology rejects the idea of stress as a segmental feature, recognising that it is necessarily a suprasegmental property of multiple segments. As such, it relies on the assumption that stress and other rhythmic phenomena involve phonological constituents above the level of the segment, namely the syllable and foot. Stress results from the relative prominence of these prosodic constituents, which are hierarchically organised and determined by suprasegmental properties such as quantity and weight. The remainder of Sect. 2 addresses these prosodic constituents, beginning with the syllable, and describes the approach to metrical stress and foot structure assumed in this thesis (for a thorough discussion of this topic, see Lahiri 2001).

2.1 Syllable structure and weight

In standard phonological theory, syllables are understood to have their own internal structure, and the received view is that this structure is hierarchical, with syllables maximally comprising an onset and a rhyme, itself comprising a nucleus and any coda consonants. Furthermore, prosodic structure is not considered to be part of the underlying representation, and syllable structure is thus a predictable product of the phonological grammar, namely the syllabification algorithm. In generative accounts, this algorithm is usually assumed to apply cyclically throughout the derivation (for a general discussion, see Kenstowicz 1994, 250–309; Blevins 1995; Hayes 2009a, 250–70). This process must be to an extent language specific (given languages' differing inventories of permissible syllable structures), but broadly speaking, this algorithm first identifies [VOCALIC] segments as syllabic nuclei, before constructing onsets to their left, according to the 'sonority sequencing principle' (SSP, cf. Blevins 1995) and the specific language's phonotactic constraints. Remaining [CONSONANTAL] segments are then syllabified into the coda according to the same principles. Syllabification is thus governed by the 'maximal onset principle' (MOP), whereby intervocalic consonants are syllabified such that they form part of a syllable onset if possible. The key points of NHG syllabification are discussed in Sect. 3.2.1.

Continuing the arboreal metaphor introduced in Sect. 1, syllable rhymes may be described as being either branching or non-branching. A non-branching rhyme would have a single short vowel and no coda consonants (e.g. [pa]), whereas a syllable with a branching rhyme would have a (branching) nucleus containing a long vowel (or diphthong) or at least one coda consonant, e.g. [paː]/[paʊ̯], [pat]. In addition to this, it is possible for a syllable to have both a branching rhyme *and* a branching nucleus or coda, such as a closed syllable with a long vowel (e.g. [paːt]). Such structures are illustrated in Figure 2.3.

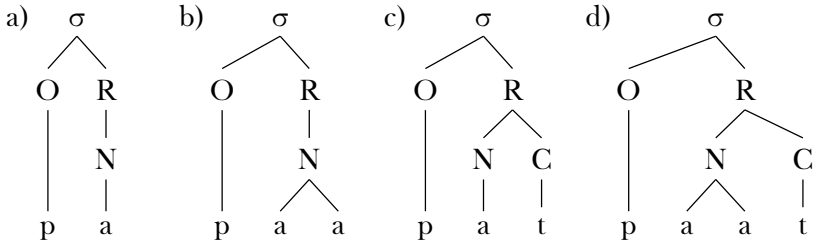


Figure 2.3 Examples of (a) non-branching, (b–c) branching and (d) doubly-branching rhymes.

Any open syllable with a short vowel will be non-branching, whereas branching rhymes may result from vowel quantity (either a long vowel or a diphthong) or from being closed by a coda consonant. Word-medially, closed syllables may result from a vowel followed by (i) consonants which cannot be syllabified as the onset of the following syllable (ii) a geminate consonant or potentially (iii) an affricate. This is summarised in (1), with examples taken from Imst dialect (Schatz 1897), which, like MHG, has examples of all of these possibilities, maintaining contrasts in vowel and consonant quantity. Note that, in the case of the closed medial syllables provided in (1), the vowel preceding the coda consonant is also short.

(1) Possible branching rhyme structures word-medially. Examples are taken from the dialect of Imst (Schatz 1897).

- Long vowel [ʃɔː.də] ‘damage’
- Diphthong [løɪ̯.sə] ‘read-INF’
- Closed by coda consonant [ʃœl.fə] ‘fruit skin’
- Closed by geminate [rɔp̚ːə] ‘raven-PL’
- Closed by affricate [hup̚͡pfə] ‘hop-INF’

Whether or not a syllable can be described as having a branching structure is not only useful in terms of describing subsyllabic constituent structure, but is also essential in accounting for metrical structure in quantity-sensitive languages, as it is this property which determines syllable weight, which is itself central to stress

assignment, as it in turn affects the rhythmic organisation of syllables into feet. Syllables can therefore be characterised as 'heavy' (H) or 'light' (L); broadly speaking, heavy syllables ($\bar{\sigma}$) are those with a branching rhyme and light syllables ($\breve{\sigma}$) are those with a non-branching rhyme. However, syllables may also be 'superheavy' (S_H), with doubly-branching rhymes (as in Figure 2.3d). Languages may thus make a further distinction between heavy and superheavy syllables ($\bar{\bar{\sigma}}$). This distinction is highly relevant for MHG, as discussed in Sect. 3 (see also Chap. 3 and Chap. 5 in particular). However, weight distinctions are highly language-specific; some languages may not consider them significant, whilst others may, for example, only consider syllables with a branching *nucleus* to be heavy (e.g. Huasteco, Lahiri and Koreman 1988, 218). Others still (e.g. Cayapa, Lahiri and Koreman 1988, 219) treat both syllables with a long vowel and syllables closed by a coda consonant as heavy (known as 'weight-by-position', cf. Hayes 1995; Lahiri 2001).

According to moraic theory, the unit of syllable weight is the mora (μ). Units which contribute weight to a syllable (in a given language) are therefore each linked to one or more moras, according to their quantity, as illustrated in Figure 2.4. Vowels are thus underlyingly moraic, with a short vowel associated to one mora (Figure 2.4a) and a long vowel to two (Figure 2.4b). Geminate consonants are likewise inherently moraic and occupy both coda and onset position word-medially. In quantity-sensitive languages with weight-by-position, a coda consonant may also be assigned one mora (Figure 2.4c); otherwise, it contributes none (Figure 2.4d). Generally, onset consonants do not contribute weight to a syllable. In this framework, a heavy syllable is bimoraic (i.e. it carries two moras) and a light syllable is monomoraic. Crosslinguistically, trimoraic (superheavy) syllables tend to be avoided (cf. Lahiri 2001), but they are found across Germanic.

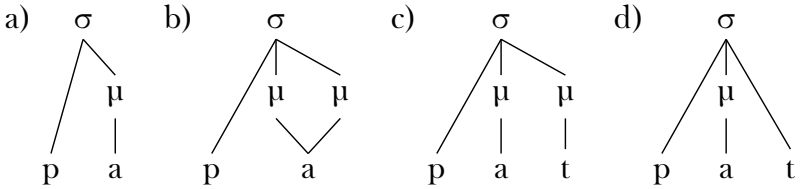


Figure 2.4 Moraic representation of light (a,d) and heavy (b,c) syllables.

In contrast to moraic approaches, which link the segmental tier to the syllable via moras, skeletal approaches assume that segments (or rather, their root nodes) are attached to syllable structure via a separate melodic or timing tier, with syllable weight being a product of branching structure in the rhyme or the nucleus. In such approaches, long vowels or consonants are a product of a single root node on the segmental tier being doubly linked to two slots on the timing tier. Earlier models featured C (consonantal) and V (vocalic) slots on the melodic tier (e.g. Clements and Keyser 1983), but later models (e.g. Levin 1985) propose undifferentiated X-slots, due to the redundancy of specifying C or V status (i.e. syllabic information) on the melodic tier. The representation of light, heavy and superheavy syllables in terms of skeletal slots is provided in Figure 2.5. Note that the representation of Figure 2.5c–d would be the same whether the language has weight by position or not.

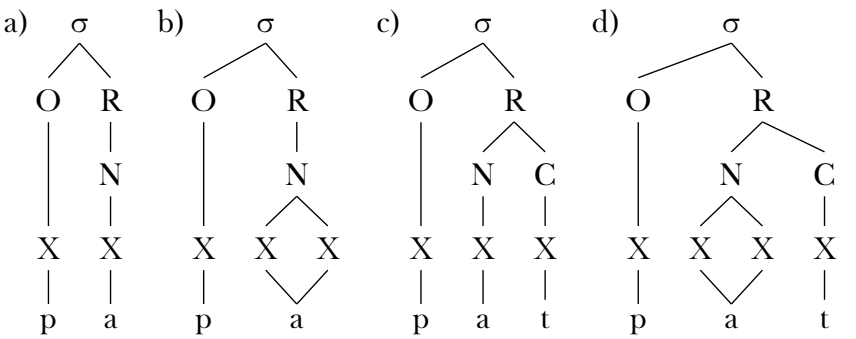


Figure 2.5 X-slot representation of the (a) light, (b–c) heavy and (d) superheavy syllables in Figure 2.3.

For a thorough discussion of the advantages and limitations of both approaches, see Broselow (1995) and Kraehenmann (2003, 16–27). The complex interactions of length and weight are discussed in Lahiri and Koreman (1988) and it seems necessary to separate weight and length and represent each independently, as languages exist where only VV syllables or only VC syllables count as heavy, as well as languages where both count as heavy;[2] in other words, the level within the syllable's internal structure at which the branching occurs seems to be relevant in defining syllable weight. Moraic accounts struggle to account for systems which count both V and VV as light, but VC as heavy (e.g. Seneca, Lahiri and Koreman 1988, 218), as long vowels are by definition bimoraic (cf. Figure 2.4b). On the other hand, X-slots alone struggle to account for languages which do not have weight-by-position (cf. Figure 2.5c–d). As such, this thesis follows (Kraehenmann 2003, 28) in assuming that length is represented by X-slots, with automatic syllabification rules determining the internal syllabic structure. The weight tier is then projected from the rhyme structure, such that weight is the product of branching within the rhyme: V syllables are always light (as their rhyme does not branch at all), but languages may count only syllables with branching N nodes or branching R nodes (or both) as heavy.

2.2 Foot structure and metrical stress

Assigning word stress is not merely a question of identifying which syllable carries maximum prominence, but is rather determined by metrical structure, the product of a number of separate but interrelated parameters. Central to theories of metrical stress assignment is the insight that all word stress is assigned on the basis of feet. The foot is a constituent of the prosodic hierarchy which is constructed from groups of syllables, which could be light or heavy. If the language is quantity-sensitive, the construction of the foot is affected by syllable weight. In quantity-sensitive languages, the foot can

[2] Or even where both are heavy, but one seems somehow heavier than the other (cf. Lahiri and Koreman 1988).

be either left or right-headed; left-headed feet are referred to as trochees, and right-headed feet are referred to as iambs. Iambs are therefore the reverse of trochees and can be built on two light syllables (σ̆σ́), a light-heavy sequence (σ̆σ̄́) or a single heavy syllable (σ̄́).[3]

Headedness is only relevant if the foot is branching; whether it is a trochee or an iamb, a monosyllabic foot will comprise a single strong (heavy) syllable, necessarily the head of the foot. Germanic languages have all always constructed trochaic feet, and trochees are thus central to any discussion of foot structure in Germanic. Possible trochaic foot structures are therefore illustrated in (2). If a trochee is insensitive to weight, as in Pintupi (Hayes 1995, 62–4), it is referred to as a syllabic trochee ((2)a). In contrast, a moraic trochee ((2)b) is weight-sensitive and maximally bimoraic. A moraic trochee may be built on two light syllables (σ̆́σ̆) or a single heavy syllable (σ̄́). An asymmetric trochee, on the other hand, ideally comprises a bimoraic head and a monomoraic dependent, as demonstrated in (2)c.

Resolution, a prosodic phenomenon whereby a sequence of (|σ̆σ|) is metrically equivalent to (|σ̄|), whether the second syllable is light or heavy, was central to early Germanic languages' metrical systems. This prosodic phenomenon was first noted by Sievers (see in particular Sievers 1893), who observed the necessity of such a structure in accounting for a range of metrical phenomena in Old English verse. It has been argued by Dresher and Lahiri (1991) and Dresher and Lahiri (2022) that early Germanic exploited a resolved, uneven moraic trochee. Authors such as Isardi (1994) and Sohn (1998) have similarly argued for the necessity of resolved (σ̆σ̄) feet in OE, as has Goering (2016a; 2023), although he argues against Dresher and Lahiri's (1991) 'Germanic foot' and maintains that—although OE tolerated σ̄̄s—(σ̆σ̄) feet were restricted to initial position. This thesis follows Dresher and Lahiri (1991) in assuming that early Germanic exploited a resolved uneven trochee (see also Lahiri and Dresher

[3] Iambs are not relevant for a discussion of Germanic foot structure, but for a thorough discussion, see Hayes (1995), Lahiri (2001) and Lahiri (2015).

1999; Lahiri et al. 1999; Fikkert 2000; Fikkert et al. 2006; Dresher and Lahiri 2022; Booth and Lahiri 2023), as demonstrated in (2)d. This issue will be revisited in Chap. 3 (Sect. 4) and Chap. 5, where this structure will be discussed in greater detail.

Nevertheless, the question remains: what status do the two units 'head' and 'dependent' have? In many ways, these terms simply amount to the weak and strong branch of a foot. However, conceived in such terms, they have no reality as independent constituents. This becomes an issue when one considers the fact that the head may itself be branching in the case of an uneven moraic trochee, and does not simply equate to a syllable, the next unit down on the prosodic hierarchy. The head certainly behaves as an independent constituent, with its own language-specific constraints, but how may this constituent be licensed or defined? If one considers (2), it soon becomes apparent that the head is in fact equivalent to a foot (minimally bimoraic and maximally binary branching). Acknowledging the possibility of recursion within the prosodic hierarchy, this issue can easily be dealt with by assuming that an asymmetric trochee represents a minimally recursive foot, such that a light syllable is incorporated into an F with a monosyllabic F as its sister. The head is thus an independent foot (subject to the usual minimality constraints and foot-related phonological processes), dominated by another foot, to which may be adjoined a single light syllable (which may not itself form a foot): $((\text{HEAD})_{\text{F}}\text{DEPENDENT})_{\text{F}}$. This predicts that phonological phenomena relating to the right-edge F boundary should apply at the right edge of the head and the dependent (i.e. the internal and the dominating foot) but, as the left edge of both feet coincide, phenomena applying to the left-edge F boundary should not apply between the internal F and the adjoined light syllable. Indeed, this appears to be the case, and this issue will be revisited in Chap. 6.

(2) Trochaic foot structures. The foot is enclosed in parentheses, with the strong branch indicated by [x] and the weak branch by a dot [.]. In the case of the uneven moraic trochees, the head is enclosed by vertical bars [|x|]. Main stress is indicated by [X].

a. Syllabic trochee

```
   X
( x . )
  σ σ
```

b. Moraic trochee (two options)

```
   X          X
( x )      ( x . )
  μμ         μ μ
  σ̄          σ̆ σ̆
```

c. Uneven trochee (a bimoraic head with an optional σ̆ dependent)

```
   X          X
( |x| )    ( |x  | )
  μμ         μ  μ
  H          L  L
  σ̄          σ̆  σ̆

   X          X
( |x| . )  ( |x  | . )
  μμ μ       μ  μ μ
  H  L       L  L L
  σ̄  σ̆       σ̆  σ̆ σ̆
```

d. Resolved (uneven) trochee (incorporating |σ̆σ̄| heads)[4]

```
   X          X          X
( |x| )    ( |x  | )  ( |x   | )
  μμ         μ  μ       μ  μμ
  H          L  L       L  H
  σ̄          σ̆  σ̆       σ̆  σ̄

   X          X          X
( |x| . )  ( |x  | . )  ( |x   | . )
  μμ μ       μ  μ μ     μ  μμ μ
  H  L       L  L L     L  H  L
  σ̄  σ̆       σ̆  σ̆ σ̆     σ̆  σ̄  σ̆
```

[4]The head must be minimally bimoraic (even if this means containing two syllables) and can form a foot on its own, without a dependent. Possible head structures are thus |H|, |LL| or |LH|.

Similar analyses have been proposed for Dutch and a number of other languages (cf. Booij 1995; Jensen 2000; Davis and Cho 2003; Davis 2005; Martínez-Paricio and Kager 2015; Martínez-Paricio and Torres-Tamarit 2019; Kager and Martínez-Paricio 2018, 2021) and the approach taken in this thesis follows that of Kager and Martínez-Paricio's (2018) 'internally layered foot' (ILF), although, in contrast to the ILF—which they stress is distinct from Dresher and Lahiri's (1991) Germanic Foot (Kager and Martínez-Paricio 2018, 107f.)—it is assumed here that the left edge of both the internal and outer foot must align in the case of the uneven trochee. Throughout this thesis, therefore, references to an uneven moraic trochee may thus be understood as referring to a nested F structure, with 'head' referring to the F-internal F and 'dependent' the adjoined σ̆.

2.3 Direction of parsing

In addition to foot type, the direction of parsing in foot construction is also significant, as this can determine which syllable constitutes the head of a foot (Lahiri 2015). Feet can be constructed from the right or the left edge of the word and main stress is placed on the strong branch of either the rightmost or leftmost foot of the word ('End Rule left/right'). Finally, in certain stress systems, an element at the right word edge (e.g. consonant, syllable, foot) is ignored in stress assignment, referred to as extrametricality. For instance, differences in stress placement in English nouns and verbs result from the fact that in the former case, the extrametrical unit is the syllable and in the latter the final consonant (e.g. [(ˈtɔː)‹mɛnt›] *tórment* vs. [(tɔː)(ˈmɛn)‹t›] *torménT*). Thus, the four parameters for assigning words stress are foot type, direction of parsing, end rule and extrametricality. A change in any one may alter the placement of stress, although this may only be visible in words of certain structures, as illustrated in (3). For instance, HL and LHL sequences have the same stressed syllable in (3)a–e, and each parameter set is disambiguated from at least one other by only a single syllable

sequence. In other words, only certain lexical items may disambiguate the underlying parameters, and when such words are in short supply, the system is ripe for reanalysis and change. The direction of parsing in particular becomes relevant during the mediaeval period and is discussed in detail in Chap. 5.

(3) Illustration of ambiguities and differing surface stress placement resulting from changing a single parameter from those given in (a). For clarity, the differences in (b–e) are picked out in bold and red. Extrametrical units are enclosed in angled brackets.

a. Moraic trochee, left-to-right, End Rule right, No extrametricality

(**X**	)	(**X**		)	(	**X**	)	(	**X**	)	(	**X**	)						
(x)		(x	.)			(x)			(x)	(x	.)	(x)	(x)						
H	L	**L**	L	L	L	**H**	L	H	**L**	L	H	**H**	L						

b. **Iamb**, left-to-right, End Rule right, No extrametricality

(X	)	(	**X**	)	(	X	)	(		**X**)	(	X	)						
(x)		(.	x)		(.	x)		(x)	(.	x)	(x)	(x)							
H	L	L	**L**	L	L	H	L	H	L	**L**	H	H	L						

c. Moraic trochee, **right-to-left**, End Rule right, No extrametricality

(X	)	(	**X**	)	(	X	)	(	X	)	(	X	)						
(x)			(x	.)		(x)		(x)	(x	.)	(x)	(x)							
H	L	L	**L**	L	L	H	L	H	L	L	H	H	L						

d. Moraic trochee, left-to-right, **End Rule left**, No extrametricality

(X	)	(X		)	(	X	)	(**X**		)	(**X**		)						
(x)		(x	.)			(x)		(x)	(x	.)	(x)	(x)							
H	L	L	L	L	L	H	L	**H**	L	L	**H**	H	L						

e. Moraic trochee, left-to-right, End Rule right, **extrametrical syllable**

(X	)	(X		)	(	X	)	(**X**		)	(	X	)						
(x)		(x	.)			(x)		(x)			(x)	(x)							
H	‹L›	L	L	‹L›	L	H	‹L›	**H**	L	‹L›	H	H	‹L›						

A shift in any metrical parameter represents a major change to the prosodic system, although the effects on surface prominence patterns may be more subtle. As can be seen from the examples in (3), a difference in parsing direction might markedly alter underlying metrical organisation, but many words would continue to carry the same surface prominence patterns (especially in monopedal forms). Whilst foot structure

can differ more markedly in longer words (with multiple feet), there are relatively few examples where primary stress placement would differ on the surface, e.g. (LLL) in (3)c, and disambiguating evidence for the learner must therefore be found in such environments. A change in any one parameter must not inevitably result in a change in any of the others, however, and, following such a change, the system may persist in the same state for generations, with no further parametric change. This appears to have been the case for WGmc., where the shift in parsing direction seems to have occurred in the mediaeval or early modern period (apparently later in English than in German, see Sect. 3.1), although End Rule did not shift to the right edge until much later (Chap. 5; see also Lahiri 2015; Booth and Lahiri 2023).

3 Quantity and stress in MHG and NHG: Previous literature

3.1 Middle High German

This section provides a brief overview of the relevant aspects of quantity and lexical stress in MHG (the precise structure of the foot in MHG will be discussed in greater detail in Chap. 5). The synchronic stage of MHG of interest here, specifically the EFr. dialect spoken by Wolfram von Eschenbach around the turn of the thirteenth century (an Upper German dialect, see Chap. 1), maintained a contrast in both vowel and consonant quantity and appears to have predated both open syllable lengthening and later degemination (cf. Chap. 4). This is of considerable importance, as this stage of the language still maintained a transparent relationship between quantity and weight, unlike Modern Standard German. OSL was one of several sound changes defining Early Modern German (eNHG) but had its origins in the MHG period, active during the thirteenth and fourteenth centuries (cf. Paul 2007, 81ff.; Lahiri and Dresher 1999). The five key sound changes defining NHG in opposition to MHG are given in

(4). Diphthongisation and monophthongisation were changes to syllable quality only, maintaining the quantity of the relevant vowels.[5] However, OSL, degemination and schwa apocope or syncope had substantial effects on the German quantity system: OSL and schwa loss led to an increase in the number of heavy syllables, with the former increasing vowel quantity and the latter resulting in a greater number of closed syllables. In contrast, degemination eradicated contrasts in consonant quantity and resulted in the introduction of new stressed light syllables (which had previously been eliminated by OSL).

(4) Key sound changes differentiating NHG from MHG.

a. Diphthongisation of the MHG long high vowels /iː, yː, uː/ > NHG /aɪ̯, ɔɪ̯, aʊ̯/
b. Monophthongisation of the MHG diphthongs /iə̯, yə̯, uə̯/ > NHG /iː, yː, uː/
c. Lengthening of stressed vowels in open syllables (OSL), e.g. MHG /na.mə/ > NHG [naː.mə] ‘name’
d. Loss of unstressed schwa in many medial and final syllables (syncope and apocope), e.g. MHG /ar.muə̯.tə/ > NHG [aːɐ̯.muːt] ‘poverty’; MHG /ni.mət/ > NHG [nɪmt] ‘take 3SG.PRES’
e. Degemination, e.g. MHG /waːsːər/ > NHG [vaːsɐ/] ‘water’

In the UG of this period (including Wolfram’s EFr.), therefore, geminate consonants (orthographically doubled) were still genuinely long and stressed initial light syllables were still possible. However, even prior to OSL, initial ŏs were rare, due to the effects of the Second Sound Shift, which resulted in a great many more closed syllables in High German dialects than in the other WGmc. dialects. For instance, all medial PGmc. geminate voiceless stops became affricates (compare MHG *sitzen* and OS *sittian*, OE *sittan*) and singleton voiceless stops became geminates (compare MHG *wachen* /waxːən/ and OS *wakôn*, OE *wacian*). As a result, light syllables are

[5] A number of more minor changes also occurred, but are of less relevance to the current discussion, including changes to the quality of certain vowels, such as rounding, unrounding and lowering. Some vowels were also shortened in closed syllables, although these syllables remained heavy. Lengthening in closed syllables resulted primarily from analogical levelling, e.g. MHG /tak, taːgə/ > NHG [taːk, taːgə] (‘day, days’), otherwise sometimes resulting from a following [SON] coda consonant, e.g. MHG /wol/ > NHG [voːl] ‘probably’.

only expected before [SONORANT] consonants or the reflexes of PGmc. voiced stops and fricatives (as opposed to those resulting from the Second Sound Shift). Furthermore, syllabification seems to have stictly followed the MOP. This can be seen in Cod. 857, where Hand III systematically respects syllable boundaries (but not necessarily morpheme boundaries) when separating words across lines in the *Nibelungenlied* MS (e.g. ⟨gro-zen, versin-ne, vor-sten, vorh-ten⟩ Witte 1927, 348). Syllable weight can thus be defined as in Table 2.1.[6]

Table 2.1 Syllable weight assumed for MHG.

Superheavy			Heavy			Light		
VVC)$_\sigma$	***bîh**.te* ‘confession’	***kluoc*** ‘clever’	VV)$_\sigma$	***zou**.ber* ‘magic’	***sê*** ‘lake’	V)$_\sigma$	***ne**.men* ‘take INF’	***stu**.be* ‘parlour’
VCC)$_\sigma$	***worh**.te* ‘work 3SG.PRET’	***hant*** ‘hand’	VC)$_\sigma$	***min**.ne* ‘love’	***gras*** ‘grass’			

Only full vowels could occur in stressed syllables in MHG and all of the plain monophthongs could be long or short: /a,e,ɛ,[7]i,o,u/[8] ⟨a,e,i,o,u⟩ vs. /aː,eː,iː,oː,uː/ ⟨â,ê,î,ô,û⟩. So too could the umlauts: /æ,ø,y/ ⟨ä,ö,ü⟩ vs. /æː,øː,yː/ ⟨æ,œ,iu⟩. In contrast, diphthongs were always bimoraic and patterned with long vowels (there were no short diphthongs): /ei,iə,ou,øy,yə,uə/ ⟨ei,ie,ou,öu,üe,uo⟩. The orthographic representation of the various vowels provided here follows the conventions of standardised ‘Classical Middle High German’ (Cl-MHG), but there is substantial variation in the written record, as will become clear when the focus turns to manuscript evidence.[9] Schwa

[6] Heavy and superheavy syllables are not differentiated in the grammars, e.g. de Boor and Wisniewski (1965) (which only refers to ‘long’ and ‘short’ syllables), but this distinction is made throughout this paper. Consonant extrametricality is not a feature of MHG and monosyllabic words are only possible if the syllable is either heavy or superheavy, due to the language’s bimoraic minimal word constraint.

[7] There was a distinction between three short e-phonemes in MHG, /e,ɛ,æ/ ⟨e,e,ä⟩, but this distinction was not maintained in all dialects and all three have fallen together in NHG. The distinction between /e/ and /ɛ/ need not concern us here, as it is not relevant to the analysis.

[8] The short vowels were likely more open than the long vowels, as in the tense∼lax distinction between short and long NHG vowels. However, the precise nature of these vowels is unclear from the written record, so for the sake of clarity, the IPA transcriptions provided in this thesis simply use the same symbols as for the corresponding long vowels.

[9] Scribal orthography differs from the conventions of standardised editions of MHG texts in many respects; of particular importance for this paper is the use various diacritics in the representation of certain VV phonemes. The relevant graphemes for the examples appearing in this paper are ⟨e̊,o̊,o̊,ẘ,iẘ⟩, representing /øy,ou,uə,uːw,yː/ respectively (Cl-MHG ⟨öu,ou,uo,ûw,iu⟩).

could only occur in unstressed syllables and is represented by ⟨e⟩ in manuscripts. In this work, the term 'schwa syllable', refers to such syllables, including ⟨-en, -el, -er⟩.

As was described in Sect. 2.2, comparative evidence demonstrates that the foot in Proto-Gmc. and the East, West and North Gmc. dialects of the early period was unambiguously quantity-sensitive and trochaic. Foot structure is largely neglected in the MHG grammars; however, I argue that the accommodation of Romance loans into the native system (as simplex words) led to the adjustment of certain metrical parameters during the MHG period (cf. Chap. 5). Foot structure was thus inherited intact from Gmc. (via OHG), but the direction of parsing had changed, starting at the right edge rather than the left. This represented a substantial change to the phonological grammar (cf. Sect. 2.3) and its impact is not to be underestimated. This change appears to have taken place across WGmc. in the mediaeval or early modern periods and is clearly in evidence in English by the sixteenth century (although End Rule left still persisted, cf. Lahiri 2015). In German, this change in parsing direction appears to have happened earlier, as can be seen in (5). The word [kaˈpɛl̩ə] (*Kapelle* 'chapel') was borrowed into OHG with initial stress as *káp(p)ella*, but by the MHG period, we find variants with initial and penultimate stress, with differing syllabic structure *káp.pel(le)* ~ *ka.pélle*. It is also attested with penultimate stress in the sixteenth century, by which time resolution had been lost and degemination had changed its syllabic structure from $(LHL)_{\omega}$ to $(LLL)_{\omega}$. For instance, it appears in Erasmus Alberus's 1540 rhyming dictionary, *Novum dictionarii genus*, as ⟨Capell⟩, rhyming with words such as ⟨Gesell⟩ (final schwas were elided). Similarly, Johann Hübner's 1696 *Poetisches Handbuch* lists ⟨Capelle⟩ under ⟨Elle⟩, rhyming with words such as ⟨bey dem Qvelle⟩, ⟨die Bålle⟩ and ⟨Geselle⟩.

(5) Evidence of right-to-left parsing in mediaeval and eNHG German.

i. MHG c.1200

```
(   X   )
   (|x|  .)
(σ̆  σ̄  σ̆)ω
⟨ka **pel** le⟩
```

ii. eNHG c.1540

```
(   X   )
   (x   .)
(σ̆  σ̆  σ̆)ω
⟨ka **pe** lle⟩
```

These changes will not have greatly affected most native vocabulary, which was almost exclusively mono- or disyllabic and rarely comprised more than a single foot. However, longer words did exist, and some monomorphemic native words have undergone a stress shift as a result of these parametric changes, such as OHG *hórnuz* > MHG /hor.nus/ > NHG *Hornísse* 'hornet'; OHG *hóluntar* > MHG /ho.lun.dər/ > NHG *Holúnder* 'elder(berry)'; OHG *fór(a)hana* > MHG /for.hel.lə/[10] > NHG *Forélle* 'trout' (cf. Wurzel 1970a). Moreover, it aided the accommodation of non-native vocabulary with right-edge stress. It is often assumed that Romance loans were not of sufficient number to cause any lasting change to the native stress system before the fifteenth century (and beyond), with Wells referring to them as mere 'stylish enhancements', restricted to poetry and a courtly sociolect (2005, 1403f.). This is surprising; as Vennemann (1995) notes, the shift of stress in simplex words from the initial syllable to the end of the word had already begun in the middle period,[11] most notably in OF loans ending in *-ieren* and *-îe* (NHG *-ieren* [-iːʁən, -iːn̥] and *-ei* [-aɪ̯]). The right-edge stress of Romance loans is of particular importance in Sect. 2 and the precise structure of the foot in MHG will be discussed in greater detail in Chap. 5 (for a comprehensive, diachronic overview of stress and foot structure across Germanic, see Lahiri et al. 1999; Booth and Lahiri 2023).

[10] A variant form of *forhel, forhen*.

[11] In contrast to early OHG, which nativised the stress of Romance loans: *Kőln* < Lat. *Colónia*.

3.2 Modern Standard German

3.2.1 The syllable

The syllable in German is maximally trimoraic and such syllables are possible word medially as well as finally. Onset consonants rise in sonority towards the syllabic peak and coda consonants fall in sonority away from it, in line with the SSP. A notable exception is /s/, which may precede a less sonorous stop in the onset, or follow a stop in the coda. Similarly, [CONSONANTAL, CORONAL][12] stops may follow a trimoraic VVC or VCC sequence without apparently contributing further weight. This has led to various analyses, such as final [COR] obstruents being extrasyllabic (cf. Wiese 2000, 47f.) or occupying a syllable appendix (cf. Kraehenmann 2003, 10), or even that all final consonants are dominated by a single mora (Hall 2000). Hall (2000) additionally suggests a constraint whereby trimoraic $\bar{\bar{\sigma}}$s are only tolerated in ω-final position, assuming an ω boundary to follow any $\bar{\bar{\sigma}}$. However, this largely serves to justify his chosen syllable structure, which assumes a number of controversial syllabifications[13] with no independent justification and is undermined by a large number of ω-internal $\bar{\bar{\sigma}}$s, such as [ˈmoːn.də] *Monde* 'moon-PL'.[14] This is perhaps best considered a tendency (rather than a strict constraint) and set aside; it simply falls out from the typological markedness of $\bar{\bar{\sigma}}$s and the fact that final consonant extrametricality (CEM) results in ω-final -VVC and -VCC syllables becoming simply heavy ($\bar{\sigma}$).

Given the trimoraic upper limit on medial syllables in simplex German words (with Figure 2.6a representing the largest possible ω-internal syllable), it is assumed here that stray [COR] obstruents at the word edge are prosodically licensed by adjunction to a higher prosodic constituent, namely the ω, as such extrasyllabic consonants

[12] As discussed in Chap. 4, this thesis assumes the FUL feature system (Lahiri and Reetz 2010; Lahiri 2018).

[13] For instance, this model controversially relies on up to three σ-final consonants being jointly directly dominated by a third mora, as well as assuming syllabifications such as [ˈt͡saɪ̯.çnən] and [ˈaː.tmən], with no phonetic evidence.

[14] Further examples include [ˈfʁɔɪ̯n.də] 'friend-PL', [ˈoːɐ̯.jɛnt] 'Orient', [ˈfeːɐ̯.jən] 'holiday-PL' (where *r*-vocalisation demonstrates that the /ʁ/ is in coda position), [ˈzʏmp.toːm] 'symptom' and [ˈplaŋk.tɔn] 'plankton'. Hall (2000) claims that all such words are to an extent predictable, or contain non-native strings, adopting an optimality-theoretic (OT) account which places certain constraints (such as /ʁj/ sequences σ-internally) above the 'third mora restriction'. However, exceptionality must ultimately still be appealed to in a number of cases.

are not found in ω-internal feet. Indeed, it has been repeatedly noted that German exhibits a preference for a maximum of one coda consonant word-internally (cf. Hall 2000; Kraehenmann 2003). This is illustrated in Figure 2.6. However, trimoraic syllables are still possible ω-internally, as disyllabic words with a superheavy initial syllable (e.g. /mɛːɐ̯çən/ 'fairytale') demonstrate. Note also that word-internal ωs are possible, as in compounds or prefixed words, meaning that extrasyllabic sequences are thus also possible within an *orthographic* word comprising nested ωs, e.g. [ˈʔaŋst.ʃvaɪ̯s], 'cold sweat', a compound of the structure $((Angst)_{\omega}(schweiß)_{\omega})_{\omega}$.

Unlike the analysis of Noske (1993), who maintains that German syllabification is exclusively postcyclic, this thesis assumes that the syllabification algorithm is active in the cyclic component (it is difficult to see how prosodic structure can be built in the cyclic component without access to syllables) and is ordinarily only structure-building (i.e. it does not alter existing syllabic structure and only applies to free, unparsed segments, cf. Kenstowicz 1994). The exception to this is resyllabification found in certain complex words involving a vowel-initial derivational suffix, such as [ˈneː.blɪç] (< *nebel+ig* 'foggy'). In order to account for this, accounts typically rely on a language-specific, structure-changing resyllabification rule which avoids onsetless syllables by resyllabifying a coda consonant to the onset of a vowel-initial suffix, although details differ. See, for example, Rubach (1990) and Hall (1992) (following Levin 1985).[15] A comprehensive description of German syllabification is beyond the scope of this thesis, but for a thorough discussion (from various theoretical standpoints), see Vennemann (1972), Rubach (1990), Hall (1992, 2000), Noske (1993) and Wiese (2000).

[15]Both accounts suggest that resyllabification is minimal, involving a universal 'CV Rule' which assigns consonants preceding a syllable nucleus to onset position and is endowed with the ability to change syllable structure (cf. Levin 1985).

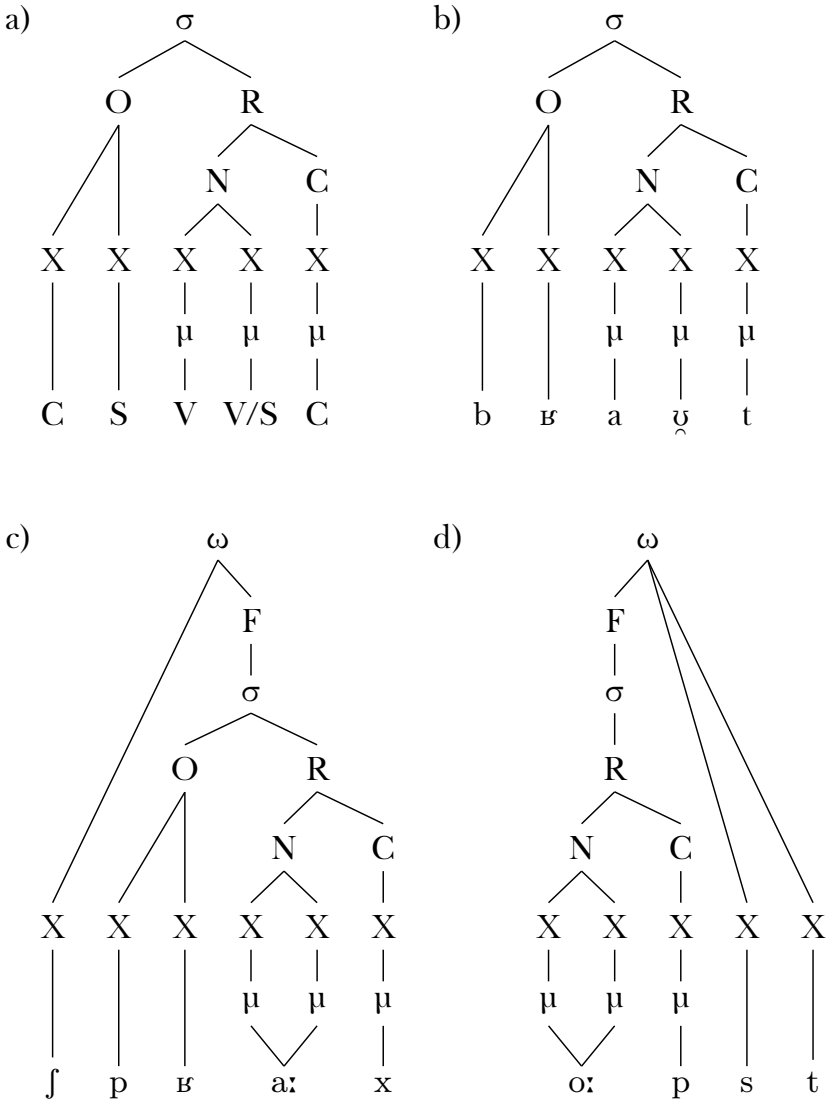


Figure 2.6 Syllabification in German: (a) the maximal word-internal syllable, as in (b) *Braut* 'bride', and (c–d) examples of extrasyllabic [COR] consonants at the word edge: word-initially in *sprach* 'speak 3.SG.PRET' and word-finally in *Obst* 'fruit'.

3.2.2 The foot

In contrast to English, the metrical system of modern German is the subject of substantial debate (for a comprehensive overview, see Jessen 1999). It is accepted that

German requires the foot as a constituent of prosodic structure, with past literature drawing on evidence from phonological rules, such as glottal stop insertion in foot-initial position, and word-formation processes, such as plural and hypocoristic formation (see Wiese 2000, Sect. 3.3 for a summary of these arguments). However, the foot has received comparatively less attention than other areas of German prosody and the discussion has unsurprisingly focused on lexical stress, where the foot is necessary to account for the assignment of relative prominence (despite some past attempts to do so without reference to the foot, e.g. Wurzel 1970a, 1980; Vennemann 1990; see also Strauss 1982).

It is generally accepted in the literature that feet are trochaic and constructed from the right edge of the word, with stress falling within a three-syllable window and adhering to certain principles or tendencies. However, fundamental aspects of the stress system, such as quantity sensitivity, definitions of weight, foot (and even syllable) structure and extrametricality, are still fiercely debated. Furthermore, although Standard NHG is not typically argued to exploit the Germanic foot, accounts suggesting that NHG exploits disyllabic trochees with $\bar{\sigma}$ stressed syllables in at least some aspects of its phonology suggest that things may not be so simple. It is therefore argued here that the uneven trochee (in the form of a recursive F) remains a pertinacious feature of NHG (see Chap. 6).

Although accounts proposing a dual system do exist (e.g. Wurzel 1980; Benware 1980), with native vocabulary governed by one (stem-initial) stress system and non-native vocabulary governed by another (assigning stress from the right edge, for instance to the rightmost $\bar{\sigma}$), these have been superseded by the unitary approach (e.g. Giegerich 1985; Féry 1986, 1998, 2003; Vennemann 1990; Yu 1992; Ramers 1992, 1999; Wiese 2000). Jessen (1999, 516–517) illustrates the flaws of such a dual system with examples both of patently non-native words, such as *Champignon*, borrowed comparatively recently but stressed on the first syllable, and native words inherited

from OHG, such as *Holúnder* and *Hornísse*, with non-initial accent (cf. Sect. 3.1).[16] Such words are particularly challenging, as they had initial accent in OHG, but it shifted rightwards at a later stage. A more parsimonious account which does not require lexically marking words as native or non-native seems preferable. As Vennemann (1995, 209–210) demonstrates with reference to the word *Pínguin*, ostensibly initial stress can be an illusion; the only words with true initial stress are grammatical terms, such as *Nóminativ*, or certain proper names, such as *Túrandot* (notably non-native words). Both of these defy powerful generalisations: *Nóminativ* is counter to the three-syllable restriction and *Túrandot* the penultimate restriction (Vennemann 1995, 206–207).

Regardless of framework, such generalisations are broadly accepted, particularly the four most reliable: schwa syllables are incapable of bearing stress; main stress in simplex words is required to fall within the last three syllables ('the three-syllable restriction', a strong typological tendency); stress is prevented from falling to the left of a closed penultimate syllable (the 'closed penult' restriction); and a final schwa syllable leads to penultimate stress, unless it has no onset, in which case stress is antepenultimate (the 'final schwa' restriction). These generalisations, after Vennemann (1992) are powerful, but, as Féry (1998) notes, they have no explanatory power. Jessen (1999) additionally list three less reliable tendencies: superheavy finals and diphthongs tend to attract stress, while final -VC syllables sometimes receive main stress and sometimes do not (a division reflected in the literature, with some authors considering final -VC stress to be regular, others exceptional). Final -V_iV_i syllables are likewise inconsistently stressed. Giegerich (1985) treats stressed final -V_iV_i syllables as regular, but most other authors, such as Wiese (2000), assume that these are irregular.

A significant controversy in the literature is the question of quantity sensitivity. Unlike MHG, the situation in NHG is much more complex, where segmental quantity

[16] It is for these reasons that Wurzel (1970a) stresses the difference between the non-native stress pattern (based on the phonological shape of the word) and the actual etymology of the word, to which learners do not have access.

and weight are no longer isomorphic. What has not changed is the maximal permitted weight of a syllable. However, what counts as heavy could have changed as a result of OSL and diphthongisation. Indeed, as Wiese notes, 'surface vowel length in German does depend on stress, but [...] stress does not depend on length' (2000, 277), with vowel length neutralised in unstressed syllables (e.g. *Musí:k~Musikálisch*), leading him to abandon quantity sensitivity altogether. This issue is central to the debate over German foot structure. The fact that Vennemann's generalisations hold so well testifies to the fact that syllable structure has an impact on foot construction, but it cannot be as simple as the transparent system proposed by authors such as Giegerich (1985) and Yu (1992) (where both long vowels and closed syllables contribute to syllable weight). This is illustrated by the fact that Yu is forced to appeal to consonant extrametricality, suggesting that syllables behave differently word-medially and word-finally. However, this requires that the whole final coda be extrametrical (as opposed to the final consonant only, a not uncontroversial position). The possibilities and constraints of German stress placement are summarised in (6).

(6) Main stress in German: possibilities, constraints and tendencies (cf. Vennemann 1992; Jessen 1999).

- Schwa is never stressed *ə́
- Stress does not fall to the left of a closed penult *σ́.VC.σ
- Stress falls within a three-syllable window at the right edge *σ́.σ.σ.σ
- Final schwa syllables predict penultimate stress σ́.ə
- Open penults (with closed final syllables) predict antepenultimate stress
- Final $\bar{\sigma}$s and diphthongs tend to attract stress
- Final -V_iV_i and VC are sometimes stressed, sometimes not.

Controversy centres on the relationship between vowel quantity and weight, with much of the difficulty stemming from Romance loans, where the medial consonant is suspect, leading many authors to deny a transparent link between segmental quantity

and syllable weight. For instance, Wiese (2000) advocates a quantity-insensitive analysis (see also Eisenberg 1991 and Kaltenbacher 1994), although he does suggest that schwas are 'skipped' in stress rules. An alternative perspective is provided by Wurzel (1970a; 1980), who considers long vowels to contribute weight and posits both a tenseness and length contrast for vowels. He argues that the relationship is transparent in native vocabulary, with lax vowels short and tense vowels long (handled by redundancy rules). In non-native vocabulary, however, there are short tense vowels in open syllables (which are not followed by an ambisyllabic consonant), but the length distinction is neutralised in unstressed syllables, as only stressed vowels surface as long in German. Wurzel (1980) therefore argues that underlying differences in quantity account for differences in stress between, e.g. *Ténor* /ˈteː.noʁ/ and *Tenór* /te.ˈnoːʁ/ (see also Giegerich 1985).[17]

Nevertheless, the more common position, maintained by Vennemann (1991, 1994, 1995) and Hall (1992) amongst others, is that vowel length does not contribute weight to a syllable and only closed syllables are heavy, although vowel length is phonemically distinctive (cf. Hall 1992). Vennemann states that a full vowel is light if it is monophthongal and open, or 'smooth cut', else heavy; if you allow a syllable to be closed ('virtually' in his terminology) by the offglide of a diphthong or through ambisyllabicity (caused by 'sharp cut'), this can be rephrased as follows: 'Im Standarddeutschen ist eine Silbe schwer, wenn sie (naturā oder virtuell) geschlossen ist, sonst leicht' (1995, 190, n.10). This is supported by the closed penult restriction, which suggests that closed syllables, but not long vowels, count as heavy (if diphthongs count as closed). Indeed, it has even been proposed that a syllable is considered closed if it is followed by a syllable with an onset consonant, even though German has no geminate consonants.

[17] Similar arguments suggesting opaque differences in underlying vowel length have been made by Rice (2006) for Norwegian (but his identification of underlyingly long vowels is based solely on stress placement).

In excluding quantity sensitivity, Wiese (2000) is obliged to posit the penultimate syllable as the default position of stress. Binary trochaic feet are then constructed from right to left or, 'if not possible', a monosyllabic foot is formed (2000, 282). However, as Féry (1998) notes, a binary foot should always be possible if German is truly quantity insensitive. This highlights a core concern with Wiese's approach; whilst many words in German do exhibit penultimate stress, any other stress placement is completely unpredictable and has to be lexically stored (one almost has to know the stress in advance in order to apply the stress rules). His approach has the advantage of accounting for problematic words such as *Arbeit* and *Ameise* (assuming schwa lacks a nucleus and thus permits the first two syllables to form a foot), which are for instance treated as pseudo-compounds by Yu (1992). However, all examples of marked stress (antepenultimate or final) are obliged to have a lexically specified marker in the underlying representation, either of a foot or extrametricality (Wiese 2000, 282–285). Unlike other proposals, which include minimal and maximal feet, usually restricted to one or two syllables, Wiese proposes a quantity-insensitive analysis with no upper limit on the number of syllables contained within a foot, which contains all syllables from one stressed syllable up to (but not including) the next. Wiese's adjunction rule thus allows for feet longer than two syllables, but he never accounts for the internal structure of such feet, despite acknowledging the undefined 's' constituent to be suspicious, as in the word *Abenteuer* (Figure 2.7).

His conception of extrametricality, whilst still observing the peripherality condition, differs from that of Hayes (1995), as it is lexically specified for individual words, not the product of a general rule or parameter. Even more troublingly, it is specified in the underlying representation, where there is no syllabification, obliging him to specify individual segments as extrametrical, with this extrametricality then inherited by the syllables they form. To justify specifying a foot in the lexical entry, he appeals to

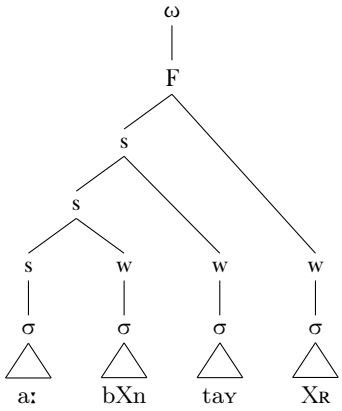


Figure 2.7 Foot structure of *Abenteuer* 'adventure' (from Wiese 2000, 286).

(Kiparsky 1982, 50), although this is controversial. Following his stress rules (2000, 282), the words *Fázit*, *Samurái* and *Harmónika* would be stressed as in Figure 2.8.

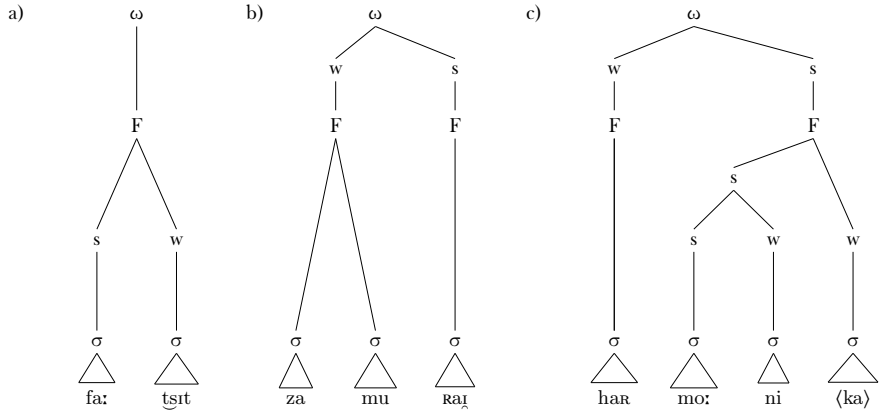


Figure 2.8 The foot structure of *Fazit* 'conclusion', *Samurai* and *Harmonika* 'harmonica' (from Wiese 2000).

Reliance upon extrametricality is common to most accounts, although the precise nature of the extrametrical unit is still debated, from Wiese's lexically specified syllable extrametricality and Yu's final coda to the more recent proposal of final -VC syllables, as summarised by (van der Hulst 2010b, 445–446), repeated in (7).

(7) Stress placemnt in NHG (after van der Hulst 2010b, 445–446).

- Primary stress is final if the vowel is long or there are two closing consonants.
- In other cases, stress falls on the penult if closed by a consonant.
- Else, stress falls on the antepenult.
- Secondary stress falls on alternate syllables to the left (many exceptions)

According to this approach, final VC syllables are extrametrical and only closed syllables are heavy, with stress assigned to the rightmost heavy syllable. It thus broadly adheres to Giegerich's main stress rule (1985, 31) and the weight system proposed by Vennemann (1994). Indeed, amongst quantity-sensitive accounts, much of the difficulty comes from the variable behaviour of final syllables. The insight that final superheavy syllables ($\bar{\sigma}$s) attract stress, but CVV or CVC syllables typically do not, has been discussed by a number of authors. For instance, Janßen (2003) found that 88% of all trisyllabic nouns ending with a superheavy syllable attracted stress. In a data-based approach within an OT framework, Féry (1998) suggests that German does exhibit a weight distinction, but of a different kind, feeling that Vennemann's (1992) claim that all and only closed syllables are heavy is too strong. In her analysis, all CV, CVV and CVC syllables pattern as light and only superheavy syllables (CVCC or CVVC) are heavy, accounting for their tendency to attract stress at the end of words. Schwa syllables are defective and stressless. According to this classification of weight, main stress falls on a final trochee constructed from the right edge, with final stress resulting from a stressed final monosyllabic foot or exceptional stress assignment, noting that heavy syllables (by her classification) are generally final and stressed, schwas are never stressed and the penult or antepenult is stressed if there is no final heavy syllable. These generalisations clearly demonstrate the relationship between weight and stress. It is claimed that the three types of exceptional stress are simply prespecified in the lexicon, but she admits that her model is unable to account for the restriction of antepenultimate stress to words with an open penult and falls back on an assertion

that segmental quantity only plays a role in this one special context (Féry 1998, 130). However, Féry (2003) ultimately rejects this analysis of weight, suggesting instead that all syllables are minimally *and* maximally bimoraic, rejecting her earlier conception of superheavy syllables. Instead, she advocates a syllabic trochee, suggesting that final consonants contributing weight in fact project a semisyllable forming the weak member of a final trochee (Féry 2003, 213).

Results from ERP studies, such as Domahs et al. (2008), provide further, experimental evidence for the foot as a constituent of prosodic structure, suggesting that 'German word stress relies not only on the distinction between default stress and lexically specified stress, but also on the structural properties of a word determining its foot structure' (2008, 29). In their experiment, they found that stress errors only produced effects when they necessitated a restructuring of feet, suggesting that different stress positions are produced by different metrical groupings, with trisyllabic words with an open final syllable generally parsed $\sigma(\sigma\sigma)$ and stressed on the penultimate syllable, but words ending in a closed syllable parsed as $(\sigma\sigma)(\sigma)$ and stressed either on the first or second foot. Much work remains to be done on the precise nature of the foot in Modern Standard German, but its existence and importance to German phonology is clear. Past scholarship strongly suggests that the fundamental foot structure is a minimally bimoraic, quantity-sensitive (moraic) trochee, either monosyllabic or disyllabic, built from right to left, with main stress falling on the rightmost foot. The precise nature of weight and how this relates to segmental quantity, remains an area for further research, but it seems clear that the syllabic structure of the final three syllables is crucial in determining foot construction and stress placement, leading to the powerful generalisations identified in the literature. The relevant arguments are summarised in Table 2.2. As can be seen, quantity-sensitive accounts disagree primarily on the relationship between vowel quantity and syllable weight; although vowel length is acknowledged to be phonemically distinctive, a number of accounts suggest

that weight correlates exclusively with closure (including ambisyllabic consonants, e.g. Vennemann 1990; Ramers 1999), with open syllables not contributing weight, even if they are long on the surface.

Table 2.2 Approaches to the German foot in previous literature.

	Wurzel	Vennemann	Giegerich	Ramers; Yu	Féry	Wiese
Weight sensitive?	yes	yes	yes	yes	yes	no
Heavy	VVC, VCC, VV, VC	VVC, VCC, VC	VVC, VCC, VV, VC	VVC, VCC, VV, VC	VVC, VCC	–
Light	V	V, VV	V	V	V, VV, VC	–
Foot	–	–	trochee	trochee	trochee	trochee
Main stress	[+Native] stem-initial, [-Native] rightmost $\bar{\sigma}$	R	R	R	R	R

Chapter 3

Rethinking the metre of *Parzival*: Iambic verse for a trochaic language

1 Introduction

The fact that the MHG foot (in continuity with OHG and NHG) was weight-sensitive and trochaic has led scholars to assume a preference for trochaic metre in poetry of the mediaeval period. Courtly epics and romances of the MHG Classical Period (c.1170–1230) are traditionally considered to be composed in rhyming *Viertakte* couplets. Vennemann (1995, 200f.) defines the *Viertakter* as a sequence of four *Takte*[1] ('measures'), preceded by an optional anacrusis comprising one or more unstressed syllables. Each of the first three *Takte* comprises a minimal (bimoraic) foot or 'parasitic' foot (an unstressed light or schwa syllable which never bears stress in natural speech but is obliged to form a stressed foot for the purposes of poetic metre) to which a further light syllable can optionally be added to form an 'expanded' (disyllabic) foot. The fourth measure, often referred to as the 'cadence', comprises an unexpanded bimoraic or parasitic foot and, in the case of feminine rhymes, can be followed by a final light syllable. The cadence contains the rhyming syllables, unless it is a parasitic foot (in which case the penultimate foot contains the rhyming syllable). The literature relies on a broad taxonomy of possible rhyme structures and the *Viertakter* analysis is

[1] This term is borrowed from musical terminology and is essentially refers to a poetic foot (compare Sievers's 1901b *Sprechtakte* 'speech measures'.

critically reviewed in Sect. 3.1. An example of this analysis (including a final parasitic foot) is given in Figure 3.1, with the dotted lines representing an analysis including the cadence as a separate constituent (adapted from Vennemann 1995):

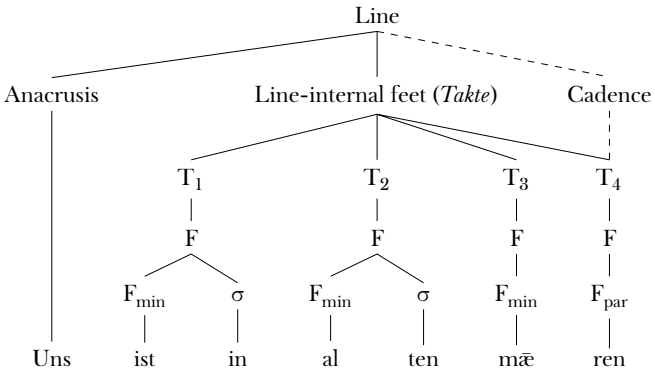


Figure 3.1 An example parsing of a line, assuming a *Viertakter*: 'We are [told] in old tales'.

This chapter provides a close examination of the metre of the poem *Parzival* and demonstrates that the traditional *Viertakter* analysis is unsupported by the linguistic evidence. It is argued that *Parzival* is in fact written in an iambic metre, specifically iambic tetrameter. The use of iambic pentameter parallels developments elsewhere in the Germanic linguistic area, where a number of poets of the period, particularly those writing in Middle English (ME) and Middle Dutch (MNL), developed a preference for iambic metre, as can be seen in the work of Chaucer (cf. Halle and Keyser 1966) and the poems *Lutgart* (cf. Fikkert 2000) and *Saladijn* (cf. Lahiri and Sytsema 2018). The prestige of French and Low German courtly culture is most likely the driving force behind Wolfram von Eschenbach's use of iambic metre in his composition of *Parzival* (for a discussion of French prestige and its influence on MHG poetry, see Sect. 2). Given the popularity of French romances in the High German courts, Wolfram's (albeit apparently incomplete) mastery of French and the trend elsewhere in Europe (even in cultures writing in trochaic languages) to emulate French lyrics and

compose verse in iambic metre,[2] it seems inadequate unquestioningly to assume a trochaic metre in poems of the Classical Period. The dominance in *Parzival* of the pattern *wswswsws*, beginning on a weak beat and ending on a strong, offers convincing evidence of iambic metre, as well as the large number of heavy and superheavy syllables terminating lines, the vast majority of which are immediately preceded by an unstressed syllable containing a schwa.

This claim is supported by a close analysis of a selection of 450 lines of the poem, which suggests that, rather than requiring the additional machinery traditionally employed to account for classical MHG metre in literary studies, a simple iambic reading is perfectly adequate; any apparent irregularities simply arise from the difficulties associated with attempting to write iambic verse in a trochaic language. This chapter takes a quantitative approach, identifying five key line structures in Sect. 3.1 and demonstrating that the variation in the poem's metre can be much more neatly accounted for by simply constructing iambic feet from left to right, allowing for monosyllabic feet and feminine rhyme (rhymes followed by a final extrametrical schwa syllable). This eliminates a great deal of the complexities required by a *Viertakter* analysis and better reflects the distribution of line structures in the poem. The quantity of line-final syllables is considered in Sect. 3.2. A trochaic analysis would expect most final syllables to be light; however, the majority of lines begin with a light syllable and end with a stress-attracting heavy or superheavy syllable, making it difficult to motivate a trochaic analysis.

Following the analysis of *Parzival*'s metre and the quantity of line-final syllables, the prosodic structure of line-final rhyming feet is considered, drawing on a larger sample of the text (2,160 lines) and providing further evidence in favour of an iambic analysis. If Wolfram chose to compose verse in iambic metre, ideally terminating

[2]OF poetry of the period is usually considered to lack alternating rhythm and the binary structure found in Germanic iambic verse, composed instead in octosyllabic rhyming couplets. However, see Noyer (2002) for a data-driven analysis of OF verse, which identifies a pervasive underlying iambic structure to these octosyllables. This iambic pattern appears to have been extremely consistent in earlier verse but underwent a gradual decline through the course of the twelfth century.

lines with a final stressed rhyming syllable, he would quickly have come into conflict with the largely initial stress of MHG, where monomorphemic native words were rarely more than one (trochaic) foot long. The way in which he approaches this conflict is revealing, not only in terms of the poet's sensitivity to quantity and stress, but also in relation to the structure of the prosodic foot in MHG. Wolfram's choice of iambic metre resulted in a preference for line-final monosyllables, feminine rhymes and Romance loan words, but a complete avoidance of words of the structure ($\breve{\sigma}\bar{\sigma}$).

In discussion of the poem's scansion, the following notation is used throughout: *x* represents a weak position and / a strong position, with | separating (poetic) feet. Similarly, $\breve{\sigma}$ denotes a light syllable, $\bar{\sigma}$ a heavy syllable and $\bar{\bar{\sigma}}$ a superheavy syllable. Elided syllables are underlined. No original manuscript of *Parzival* remains, so MS *St. Gallen, Stiftsbibliothek, Cod. 857* (Cod. 857) formed the basis of this study. Otherwise known as MS D in *Parzival* literature, Cod. 857 forms the basis of Lachmann's edition of *Parzival* ([c. 1210]/1981) and is one of the earliest extant non-fragmentary copies of the poem. This MS was selected due to its Upper German origin, most likely copied in the South-West Bavarian dialect area (cf. Hoffmann 2000),[3] and relative proximity in time to the original composition of *Parzival* (being likely less than 50 years younger). Quotes are taken from Cod. 857, rather than Lachmann's edition, which alters the text to better conform to the *Viertakter*.[4] However, as vowel length is often unmarked in MHG manuscripts, length marks (ː) are placed after long vowels for the reader's convenience.

The structure of this chapter is as follows: Section 2 outlines the linguistic and cultural context relevant to a discussion of *Parzival*'s metre, providing a general discussion of *Parzival*'s oral performance and the influence of French courtly culture and

[3] Although see also Witte (1927), who argues for an Alemannic provenance, based largely on a small number of ⟨tt⟩ spellings for /t/.

[4] Given the fact that *Parzival* appears to have been composed instead in iambic tetrameter, this is problematic (not least because this edition forms the basis of most modern *Parzival* scholarship).

poetic form in the period. Section 3.1 reviews the traditional approach to MHG metre and argues that an iambic analysis is perfectly adequate to account for the patterns of alternation observed in the metre of *Parzival*. Section 3.2 considers the quantity of line-final syllables, which are invariably heavy or superheavy (unless they represent the final extrametrical syllable of a feminine rhyme). Section 4 provides additional evidence for an iambic analysis, considering the foot structure of line-final words. Concluding remarks are provided in Sect. 5.

2 The linguistic and cultural context of *Parzival*

Verse romances, such as *Parzival*, were not sung, but instead read aloud or recited by a performer (either the poets themselves or a literate *clericus*, cf. Green 1994, 191). This is in contrast to the *Minnelieder* ('*minnesongs*' or 'love songs'), lyric poems which were sung and set to music; this was possibly also true of heroic epics, such as the *Nibelungenlied* (Jones and Jones 2019, 303). Romances were read aloud for the entertainment of lay aristocratic courts, an audience including both literate and non-literate auditors. Although Wolfram (or rather his narrator persona) claimed illiteracy, this is rarely taken at face value in modern scholarship. Instead, this claim can be regarded as a signal of identity, belonging to contemporary lay knightly culture and distinct from the court clerics and those knights who had received a clerical education in Latin (cf. Green 1994, 292; Curschmann 1984, 235; see also von Eschenbach [c.1210]/1980, 10). Regardless of Wolfram's supposed analphabetism, it is certain from references within the text that *Parzival* existed in a written form and in a culture where such texts were expected to be both read aloud and circulated for private reading by individuals, particularly noble women, who enjoyed a higher rate of literacy (cf. Green 1994, 192).[5]

[5]Heinrich von Veldeke explicitly states in his *Eneide* that he lent the countess of Cleves the incomplete MS to read (which was subsequently stolen) and Wolfram directly addresses ladies on several occasions (e.g. in his 'apology' and at the close of Book VI). He even hints in the poem's final couplet that *Parzival* was commissioned by a noble lady: *ist daz dvrch ein wip gescehn / div mv̊z mir sv̊zer worte iehN*. ('if this [i.e. his telling of the full tale] has happened for the sake of a woman,/ she might avow that I spoke sweet words.').

The developing courtly culture of the secular German nobility looked to France for its models, and literature of the twelfth century was dominated by French influence (cf. Hirsch 1883, 163; Bumke 1991, 88). By the end of the thirteenth century, there were over forty German romances based on OF sources and much of the popularity of such literature stems from its portrayal of the social and material culture of the French courts (Bumke 1991, 100). Of all OF poets, Chrétien de Troyes was the most influential in the German courts, with four of his five romances adapted into German: Hartmann von Aue's *Erec* and *Iwein*, Wolfram's *Parzival* and Konrad Fleck's (now lost) translation of *Cligés* (followed by a subsequent version by Ulrich von Türheim which survives in fragments). Only Chrétien's *Le chevalier de la charrete* was not translated (possibly due to its adulterous themes, cf. Bumke 1991, 94).

Heroic epics, *Minnelieder* and other forms of vernacular poetry originated before the age of courtly romances and were based on 'indigenous traditions', but romance as a genre was fundamentally shaped by the imitation and adaptation of OF models (Bumke 1991, 88; Rasmussen 2000, 183f.). There is substantial evidence that this French influence extended beyond MHG poets' choice of subject matter and lexis, also shaping poetic form and structure. For instance, the majority of the work of late twelfth-century *Minnesänger* were 'characterised by a strict thematic and formal adherence to their French models' (Bumke 1991, 96). Like Wolfram, these poets followed strict principles of line structure and avoided the older indigenous use of assonance in favour of the pure rhymes which characterised OF poetry. Many *Minnesänger* borrowed strophic structures and rhyme schemes directly (in so-called *contrafacta*) and 'with the rapid growth of intercourse with France and Provence foreign forms were introduced in great variety' (Waterhouse 1959, 28).

This was no less true of metrical structure, where the rhyming couplets used by the MHG poets were intended as an approximation of OF octosyllabic verse (Waterhouse

1959, 17). Indeed, the French octosyllable appears to have been ultimately responsible for the development of iambic metre in Germanic poetic traditions, despite their native trochaic stress patterns. As Tarlinskaja notes, 'poets frequently choose a form that is not optimal for the language givens' (2006, 64), often driven by extralinguistic factors, such as cultural prestige. She provides a more modern parallel to the situation in MHG, where Czech poets followed a German iambic pattern. Here, they were driven by the prestige of this foreign model, even though the iamb is sub-optimal given the prosodic facts of Czech (where stress is word-initial). Furthermore, 'even in French syllabic verse there is a vague "iambic" cadence, felt in particular by non-native speakers of French used to syllabo-tonic verse' (Tarlinskaja 2006, 56; see also Noyer 2002). Certainly, poets were sufficiently conscious of these abstract structures to parody them, as in Chaucer's *Sir Thopas*, which mimics the three or four-stress lines of earlier ME verse romances (cf. Stanley 2003).

In the context of ME, Russom (2017) argues that iambic metre developed as a compromise between the characteristically short Germanic vocabulary and longer Romance loan words with right-edge stress. The metre was thus abstracted from the iambic prosodic pattern of such loans, but lines beginning with a weak beat were crucially also compatible with the native language. Although prosodic phrasing in the natural language has always been left-leaning and trochaic (i.e. counter to an iambic rhythm), an alternating rhythm of *wswswsws* was achievable, beginning with a weak-strong sequence, as the old inflexional endings had been replaced by periphrastic constructions involving weak function words, such as articles and prepositions. This resulted in an increase in the number of phrase-initial #(ŏǒ) sequences of unstressed (reduced) function words followed by initially-stressed content words which could approximate the beginning of an iambic line (Russom 2017, 260).[6] Similarly, the use of final monosyllabic words or Romance loan words with final stress were similarly

[6] (Russom 2017, 260) provides the example of Beowulf 1507a, *hrínga / þéngel* (/ *x* | / *x*), which would have become *the lórd of rings*. Whilst in natural speech this sequence would be grouped (the LORD of)(RINGS) phrase-initially, imposing an iambic metre upon it would result in the following *verse* phrasing: (*x* / | *x* /).

compatible with the alternation required by iambic verse, beginning with a weak beat and ending with a strong. Iambic metre thus offered the opportunity to incorporate large quantities of prestigious loans and approximate OF octosyllabic or decasyllabic verse whilst remaining compatible with native vocabulary, directly paralleling the situation in MHG. Although this meant that syllables which are phrased together in natural speech may be split across a verse foot boundary, as will be seen in Sect. 3, Wolfram's work further parallels *Sir Gawain and the Green Knight*, insofar as the *Gawain* poet 'placed iambic words with conspicuous frequency at the end of the line and placed trochaic words toward the beginning of the line with equally conspicuous frequency' (Russom 2017, 270f.), drawing on the principle of closure (whereby poets adhere most strictly to metrical principles at the end of a line).

3 The metre of *Parzival*

3.1 Patterns of alternating stress

Traditionally, literary scholarship on MHG verse assumes a trochaic metre in verse of the MHG Classical Period and, whilst no rule book existed of the kind we find in Opitz's later treatise on German poetics, *Buch von der Deutschen Poeterey* ([1624]/1966), there exists a set of received conventions, based on the behaviour and practices of the poets of the period.[7] The details of this system are intricate and complex, assuming a line-internal structure comprising an optional anacrusis, three trochaic feet and a cadence (containing the rhyming syllables), along with a repertoire of various permissible foot structures for the rhyme and additional machinery to account for the apparent variation observed in the metre. One of the most troubling aspects of this approach is that it frequently obliges a schwa syllable, which can never

[7] See Jones and Jones (2019) for a comprehensive overview of this literary account of the conventions of the Classical Period (c.1170–1230).

carry stress in speech, to bear stress for the sake of the metre, as can be seen in the following taxonomy of rhyme structures (Table 3.1):

Table 3.1 The traditional taxonomy of rhyme structures in MHG poetry of the Classical period.

Masculine monosyllabic	Single $\breve{\sigma}$ or $\bar{\sigma}$
Masculine disyllabic	Stressed $\breve{\sigma}$ followed by an unstressed $\breve{\sigma}$ or $\bar{\sigma}$
Feminine	Stressed $\bar{\sigma}$ followed by an unstressed $\breve{\sigma}$ or $\bar{\sigma}$
Klingend disyllabic	A single $\bar{\sigma}$ in the penultimate foot with the final foot formed by a single $\bar{\sigma}$ or $\breve{\sigma}$ which does not bear stress in speech but bears secondary stress for metre.
Klingend trisyllabic	Stressed σ followed by an unstressed σ in the penultimate foot with the final foot formed by a single $\bar{\sigma}$ or $\breve{\sigma}$ which does not bear stress in speech but bears secondary stress for metre.

This problem is demonstrated by the examples in (1), both taken from *Parzival*. The lines have remarkably similar structures, both beginning with the unstressed prefix /gə-/ and rhyming on the same word, *mære* ('tidings'), differing only in their total syllable count (seven vs. nine), with (1)b essentially one foot longer than (1)a. However, in order to construct four trochaic feet in each, the traditional approach assumes the metrical structure of these identical rhymes to be fundamentally different: (1)b forms a feminine rhyme, with the syllable bearing main stress in natural speech forming the rhyme and occupying the strong position of the final foot, followed by a schwa syllable occupying a weak beat. In contrast, *mære* in (1)a forms two feet, rhyming on the head of the penultimate foot and forcing a single schwa syllable to form a foot and bear stress, both impossible in the natural language.

(1) Examples from *Parzival* rhyming on the same word, *mære*.

a. 652,14 [x] | / x | / x | / | /
/gə. ˈnus. sən ˈdir. rə ˈmæː. rə/
⟨ge. nvz. zen dir. re mæː. re⟩
rejoiced at these tidings

b. 652,14 [x] | / x | / x | / x | / x
/gə. ˈlou. bət von. ir ˈguə. tər ˈmæː. rə/
⟨ge. lŏ. bet von ir gv̊. t[e]r mæː. re⟩
believe good tidings of her

Although stress deviating from natural language is occasionally found in English folk songs and nursery rhymes, this phenomenon is peculiar to sung or chanted (i.e. musical) verse, distinct from written or spoken poetry (or ‘art verse’, cf. Hayes and Kaun 1996; Hayes and MacEachern 1998), and results from predictable rules of musical ‘textsetting’ (Halle and Lerdahl 1993; Hayes 2009b). In these musical, highly rhythmic performance styles, lines comprise a consistent number of isochronous measures, occasionally obliging the mapping of unstressed or reduced syllables onto strong positions (i.e. in lines which contain fewer syllables than the abstract musical structure requires), even when this is at odds with natural language prominence and poetic metre.[8] However, this does not apply to verse romances such as *Parzival*, which were neither sung nor set to music (being instead recited or privately read). In such verse, metrically shorter lines were perfectly acceptable; variations in line length were used to provide emphasis or serve aesthetic purposes, playing with expectations and adding interest by breaking the potentially monotonous rhythm of four-stress lines.

It will be argued here that *Parzival*, despite the assumption of most scholars, is in fact composed in an iambic metre, drawing on evidence from line scansion and syllable weight in the antepenultimate, penultimate and final syllables. As Zonneveld notes, ‘what makes a poem iambic is not so much that it can be recited in the usual

[8] Hayes’s approach does not distinguish between metre and music, but Kiparsky (2006) argues that musical rhythm represents its own tier of rhythmic structure, autonomous from those of linguistic prominence and metre, all of which are subject to their own constraints (cf. Kiparsky 2006, 7; see also Fabb and Halle 2008). ‘Short’ lines, such as (1)a, comprise only three metrical feet; if the principles of sung verse were applied to (1)a (and it were not recited or read, as was in fact the case), the final syllable of the feminine rhyme might conceivably be mapped onto a strong rhythmic position (otherwise empty due to the lack of a fourth metrical foot). This is illustrated below (the iambic metre proposed in this chapter is provided below the line and a potential musical rhythm above it, represented by an abstract grid adapted from Hayes 2009b):

```
            x                 x                 x                 x
x           x     x           x     x           x     x           x
x     x     x     x     x     x     x     x     x     x     x     x
/gə.        ˈnus. sən         ˈdir. rə          ˈmæː.             rə/
x           /   | x           /   | x           /   |             [x]
```

This pattern is crucially always optional, reflecting the autonomy of musical rhythm, metre and linguistic prominence. The line *to fétch a páil of wáter* (from *Jack and Jill*) can be realised with stress on the final syllable (*ŏf wá* |— *tér*) but—even when set to music, as in *Mother Goose* (Elliott 1873, 2)—this syllable commonly occupies an unstressed position, followed by a rest (*ŏf wá* |*tĕr* Ø). Such reduced syllables essentially fall on ‘beat 3 ½’ (Kiparsky 2006, 11), preceding an empty final strong position. As (Blumenfeld 2015, 92) notes, unlike written verse (where the ‘covert’ metre must be recovered by the reader), ‘practically any sequence of words of reasonable length is metrical in sung verse, in the sense that it can be parsed by the template. Thus, sung verse typically has looser meters than written verse’.

"thumping" fashion (da-DUM da-DUM da-DUM...), but rather that it shows a number of formal features which define it as such' (Zonneveld 2000a, 34). These features constitute the 'abstract pattern that is satisfied by particular arrangements of linguistic givens' referred to by (Halle and Keyser 1966, 191). In categorising this pattern, they constructed a set of principles defining iambic pentameter for their analysis of Chaucer (Halle and Keyser 1966, 197). Given the fact that *Parzival* constructs lines with four strong beats (i.e. iambic tetrameter rather than pentameter), these principles require adjustment, following the adaptations suggested for analysis of the MNL poems *Lutgart* (Fikkert 2000; Zonneveld 2000b) and *Saladijn* (Lahiri and Sytsema 2018). Rather than ten, lines should ideally comprise eight positions in the order *x / x / x / x /*, with the possibility of up to two extrametrical syllables, as in (2).[9]

(2) Principles for iambic pentameter (adapted from Halle and Keyser 1966, 197)

a. Principle I
The iambic tetrameter verse consists of eight positions to which may be appended one or two extrametrical syllables.

b. Principle II
A position is normally occupied by a single syllable, but under certain conditions, it may be occupied by more than one syllable or none.
Condition 1. Two vowels may constitute a single position, provided that they adjoin or are separated by a liquid or coronal consonant or by a word-boundary, which may be followed by *h*-, and provided that one of them is a weakly stressed or unstressed vowel.
Condition 2. An unstressed or weakly stressed monosyllabic word may constitute a single metrical position with a preceding stressed or unstressed syllable.

c. Principle III
A stress maximum is constituted by a syllable bearing linguistically determined stress that is greater than that of the two syllables adjacent to it in the same verse. A stress maximum may only occupy even positions within a verse, but not every even position need be so occupied.

Example (3)a therefore represents the ideal line structure. To this an extrametrical syllable may be added, either line-finally, creating a feminine rhyme, as in (3)b, or at

[9]Note that a number of these features are shared by trochaic metre and the principles may thus also be adapted to describe trochaic pentameter or tetrameter by adjusting Principles I and III to allow only one initial extrametrical syllable and stipulate that stress maxima may only occupy odd positions, as in Lahiri and Sytsema (2018, 8).

the beginning of the line, resulting in an initial sequence of two weak beats, as in (3)c. However, line-initial sequences of two weak syllables more commonly result in elision, as in (3)d. Lines should therefore contain a minimum of eight and maximum of ten syllables, although in practice lines rarely exceed nine, as in (3)b. However, as will be seen, in the context of *Parzival*, this is not always the case; Wolfram is comfortable with deviating from this principle and includes infrequent lines in iambic trimeter or pentameter, such as (3)e and (3)f respectively, as well as allowing a single stressed heavy syllable to occupy an entire foot, demonstrated by (3)g, which is is only five syllables long. This is in keeping with Principle II, which also permits the elision of schwa in lines such as (3)f and (3)h (through Condition 1, cf. Fikkert 2000, 308f.). In addition to these principles, 'lines with "inverted first feet" are perfectly regular in iambic verse' (Halle and Keyser 1966, 190); a potential example is (3)i, although such lines are extremely rare in *Parzival* and are invariably also candidates for elision (an alternative parsing of this line exists, namely *lébĕnde̲ wás ĕr sǽlděn rích*). Similarly, (3)j demonstrates that weakly stressed or reduced monosyllables (particularly clitic prepositions, articles and pronouns) are capable of occupying a single metrical position with a neighbouring syllable, in line with Condition II. Inverted feet are not possible in trochaic metre and the frequency of lines beginning with a weak beat, such as (3)a–f and (3)h, is a clear early indication of the fact that *Parzival* is in fact an iambic text.

(3) Sample of possible line structures in *Parzival*. Polysyllabic words are separated into syllables (word-internal syllable boundaries are represented by a full stop) and are marked for both ˈprimary and ˌsecondary stress.[10]

a. 789,02 x / | x / | x / | x /
vnt ˌFei. re. ˈfiːz der veːch ge. ˈmaːl.
*And Feirefiz the particoloured**

b. 827,21 x / | x / | x / | x / | [x]
der ˈseː. le dvrch [de]s ˈliː. bes ˈscvl. de.
*Of the soul through the body's guilt**

c. 789,09 [x] x / | x / | x / | x /
dar si sich von ˈsprvn. ge ˈhv̊. ben ê.
To where they had leapt forth from before

d. 797,25 x / | x / | x / | x /
ˈo. der[11] wer weiz ˈen. de ˈsiː. ner chraft.
Or who knows the limits of His power?

e. 403,17 x / | x / | x / | [x]
von ˈdi. s[e]s ˈbẘː. es ˈve. ste.
*About this building's strength**

f. 416,10 x / | x / | x / | x / | x /
Ga. ˌli. ˈciː ˈaː. ne vnt di von ˌ[P]vn. tvr. ˈtôys.
Galicians and those of Punturtoys

g. 797,04 / | / | / | x /
der ˈher. zo. ge kyoːt.
*the Duke Kyot**

h. 805,01 x / | x / | x / | x /
[D]iu ˈmag. tv̊m. ˌliː. ch[e] ˈmin. ne im gap.
Who had given maidenly love to him

i. 159,08 / x | x / | x / | x /
ˈle. ben. de was er ˈsæl. den riːch
in life he was favoured by fortune

j. 159,11 / | x / | x / | /
braːht ez der ˈwiː. se ˌClin. ˈscor
*the wise Clinschor brought it**

The above principles of iambic tetrameter perfectly capture *Parzival*'s metre and, as will be shown, this analysis is much better supported by the linguistic evidence than

[10]Translations marked with an asterisk (*) are my own, otherwise all translated text is taken from Cyril Edward's English translation (Wolfram von Eschenbach [c.1210]/2006).

[11]Elision is also assumed to be possible in words which existed in a monosyllabic or schwa-final variant, as with ⟨od, ode⟩ /od, o.də/ (< OHG *odo*) besides ⟨oder⟩ /o.dər/ ('or'), or ⟨künc⟩ /kʏnɡ/ besides ⟨künec, künic⟩ /ky.nɛɡ/ ('king').

one relying on the *Viertakter*. In addition to its division into sixteen books, *Parzival* is by convention additionally sub-divided into 827 30-line sections. For the present analysis, five of these sections each were randomly selected from Books II, VIII and XVI in order to exclude the possibility of Wolfram's practice changing throughout the composition.[12] These 450 lines were then parsed into alternating strong and weak beats in line with Principle III, according to the words' structure, grammatical function and their arrangement within the line (adapted from Zonneveld's 2000b approach to *Lutgart*). By preference, all monosyllabic content words bear stress, words with only one full vowel bear stress on that vowel and those with more than one full vowel bear stress on the root syllable if native, with alternating secondary stress (as described in MHG grammars, cf. Paul 1975). Schwa syllables, inflexional suffixes and unstressed prefixes cannot bear stress, and rhyming syllables obligatorily bear stress. Having thus scanned the lines, they were grouped according to their structure and analysed according to the adapted principles of Halle and Keyser (1966) to determine the metre of the poem. Having established the poem's conformity to iambic principles, additional evidence was drawn from the weight of the final, penultimate and antepenultimate syllables and those syllables constituting the first foot of each line, in order further to motivate the analysis of an iambic poetic foot structure, contrasting with the language's trochaic prosodic structure.

If one takes Halle and Keyser's strict iambic principles, ignoring their 'allowable deviations' (1966, 190), then a line of iambic tetrameter should have the structure $x/\,|\,x/\,|\,x/\,|\,x/$, contrasting with the canonically[13] trochaic $/\,x\,|\,/\,x\,|\,/\,x\,|\,/\,x$ structure. In the selection, 196 lines are canonically iambic and 34 canonically trochaic, with the remaining lines deviating in some way from these ideals. The extreme imbalance

[12]These 30-line sections were: Book II 60, 66, 71, 77 and 82; Book VIII 403, 409, 416, 425 and 430; and Book XVI 789, 797, 805, 818 and 827.

[13]The terms 'canonically trochaic' or 'canonically iambic' refer to the abstract, idealised structure of iambic or trochaic tetrameter, comprising four feet in a binary alternating rhythm, with no deviations, elisions or additions of weak positions. In other words, these structures are (i) x/|x/|x/|x/ (iambic) or (ii) /x|/x|/x/x (trochaic). It is possible to argue that the former represents a trochee with an initial anacrucis and a final catalectic syllable. However, as will be demonstrated, the evidence suggests that Wolfram was attempting to adhere to an iambic metre, despite it being at odds with the left-leaning (trochaic) grouping of the natural language.

between the distribution of these two patterns (43.6% vs 7.6%) strongly indicates an iambic structure. Setting aside 59 less-regular lines (which all result from the 'allowable deviations' permitting empty weak positions), the remaining 51 lines follow one of three regular patterns: type A (*x/ x/ x/ x/ x*), type B (*x/ x/ x/ x*) or type C (*/ x/ x/ x/*). These patterns are all alternating, but ambiguous as to whether they are iambic or trochaic, as they involve a deleted or additional weak position (type B is the same as type A, but one foot shorter). An example of each line type is provided in (4), with their distribution presented in Table 3.2 and Figure 3.2.

Table 3.2 The number of lines categorised as iambic, trochaic, type A, type B, type C and 'other'.

	Iambic	Trochaic	A	B	C	Other
Book II	67	9	4	29	17	24
Book VIII	56	15	5	31	25	18
Book XVI	73	10	7	17	26	17
Total	196	34	16	77	68	59
%	43.6	7.6	3.6	17.1	15.1	13.1

(4) Examples of lines categorised as (a) iambic, (b) trochaic, (c) type A, (d) type B or (e) type C.

a. 818,09 x / x / x / x /
al ˈmiː. ne ˈgo. te sint ver. ˈchorn
All my gods are renounced!

b. 071,13 / x / x / x / x
biː der naht ein ˈqvec. hes ˈfi. wer
*A lively fire in the night**

c. 789,03 x / x / x / x / x
mit ˈfrv̊. den̲ vf ˌMvn. sal. ˈvæː. sce ˈri. ten
Rode joyously up to Munsalvæsche

d. 409,05 x / x / x / x
div ˈkv. ne. ˌgin. ne ˈriːc. he
The mighty queen

e. 818,15 / x / x / x /
doː der ˈhei. den tv̊f en. ˈpfiench
When the heathen had received baptism

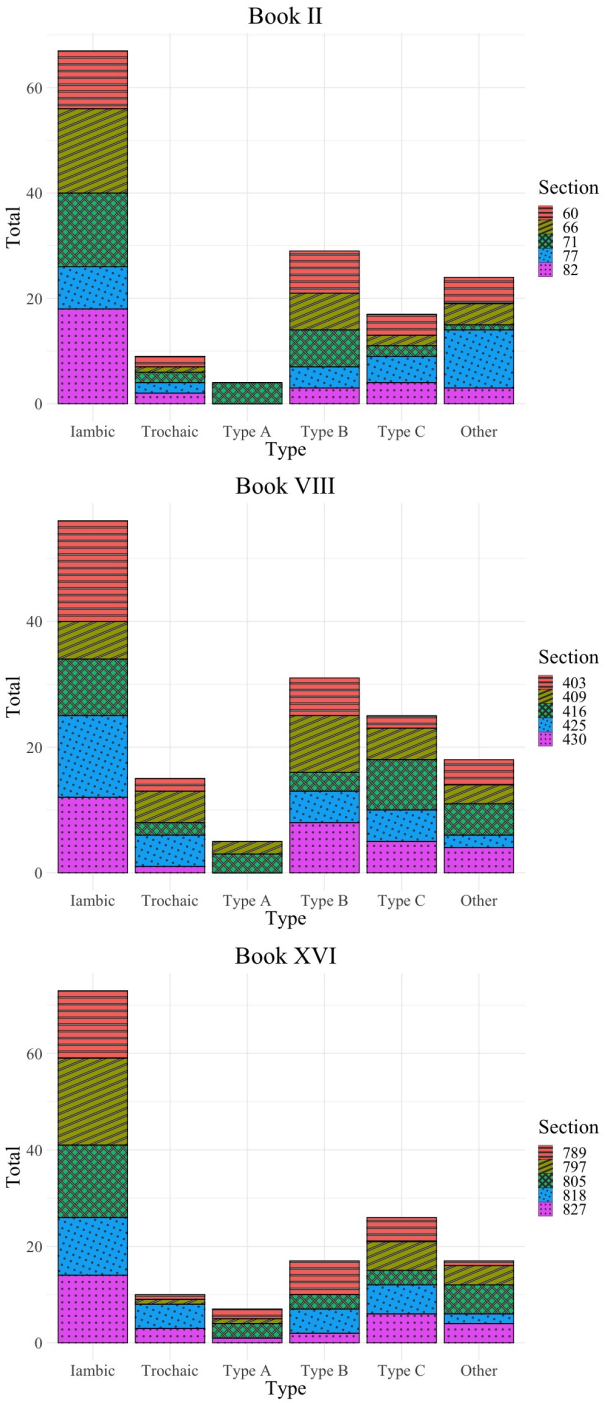


Figure 3.2 Distribution of line types in Books II, VIII and XVI.

In lines of type A and B, the initial syllable suggests an iamb but the final two syllables suggest a trochee, whereas the reverse is the case in lines of type C. Regardless of how they are analysed, they maintain an alternating pattern of strong and weak beats, and the uneven number of syllables requires that (i) some stressed syllables constitute a foot on their own and that (ii) an unstressed beat may be unfooted at one end of a line (or possibly elided). Both of these situations are perfectly permissible for an iamb according to Principles I and II. Given the preponderance of iambic lines elsewhere in the selection, it seems reasonable to treat lines of type C as iambic with the first syllable constituting an entire iambic foot. This is perfectly possible for an iamb, although a binary foot is preferred if possible, and the poet's use of monosyllabic feet elsewhere in the poem is well-attested (termed *beschwerte Hebung*), often used stylistically to stress particular words, especially the first occurrence of names; it is in any case impossible to scan lines such as l.187,21 (the tetrasyllabic name, *Condwiramurs*) as anything other than four monosyllabic feet and still retain four strong beats.

(5) 187,21 / | / | / | /
Cond. wí:r. a:. mv:rs

Allowing for this structure, uncontroversial in the literature and consistent with Hayes's (1995) taxonomy of metrical feet (which allows an iamb to form a monosyllabic foot if heavy), one can easily parse lines of type C as iambic. The line would consequently simply begin with a monosyllabic iambic foot: $/ \mid x/ \mid x/ \mid x/$. This would have the effect of increasing the number of iambic lines to 264 (59% of the selection). Combined with the relative scarcity of simple, alternating trochaic lines and evidence based on the weight of the final two syllables of each line, discussed below, treating such lines as trochaic seems counter to the data; it requires recourse to a much more complex and less parsimonious metrical structure, whereas an iambic analysis

captures the data with reference only to structures unambiguously attested elsewhere in the text.

As lines of type A and B require a weak syllable at one end of the line to be outside the foot structure, one therefore has to determine which edge to make extrametrical. Given the mounting evidence in favour of an iambic analysis, the final syllable seems more likely. Justification for this solution and indeed the strongest evidence in favour of an iambic metre is to be found in the last two syllables of each line. In every case of type A or B, the line ends in a feminine rhyme. Principle I allows the addition of extrametrical final syllables to create such rhymes and the fact that there is no example in the selection of a line ending with a weak beat and a masculine rhyme is strong evidence in favour of the present analysis. This would therefore mean that the lines should be analysed as *x*/ | *x*/ | *x*/ | *x*/ | [*x*] and *x*/ | *x*/ | *x*/ | [*x*] respectively, which would raise the number of iambic lines to 357 (79.3%). Of the remaining 'other' lines, most necessitate the use of at least one monosyllabic foot, as they contain fewer than eight syllables, such as l.797,04 and l.805,11. Both are identical (*der herzoge Kyôt*; 'the Duke Kyôt') and contain five syllables, having to be scanned / | / | / | *x*/ (the only schwa syllable has to occupy the sole weak beat available). All such lines can be scanned as iambic lines (whether canonical or of type A, B or C) with multiple monosyllabic feets, except for lines such as (6), problematic given their length, which must be scanned with elided unstressed syllables in order to avoid inappropriately stressed syllables or becoming overlong in terms of feet:

(6) 805,13 x / | x / | x / | x / | [x]
des ˈkv. nec̄ ˌkar. ˈdey. zes ˈma. g[e]t. ˌzo. ge
King Kardeiz's tutor

An analysis of the poem as trochaic does not fit the data, firstly due to the small proportion of lines which can be described as canonically trochaic, but also due to the

fact that, even allowing the absence of a final weak syllable in order to produce a masculine rhyme (catalexis), the lines which follow the ideal iambic pattern would also require the addition of an extrametrical weak syllable at the start of the line. Indeed, lines which have been analysed as iambic with an initial extrametrical weak syllable (therefore beginning with two weak beats) would be disallowed by the first of Lahiri and Sytsema's adapted principles for trochaic tetrameter: 'trochaic tetrameter verse consists of eight positions to which may be appended one initial extrametrical syllable' (2018, 8). Given that line-initial foot reversal is disallowed in trochaic metre, it is difficult to see how lines such as (3)i are to be parsed as trochaic. How, then, are the 34 apparently trochaic lines in the selection to be understood? Given the iambic metre used elsewhere, two possibilities exist: either the lines are indeed iambic, beginning with a single heavy monosyllabic foot and ending with a feminine rhyme (and therefore an extrametrical syllable), grouped as $/ \mid x/ \mid x/ \mid x/ \mid [x]$; or these lines represent cases where the poet admits defeat and is unable to reconcile the trochaic feet of the language with the iambic feet he is trying to construct in the poem, constituting a small minority of truly trochaic lines, deviating from the metre governing the rest of the poem. As Halle and Keyser note, 'there are lines [...] which must be deemed unmetrical' (1966, 214). When the poet is attempting to force a language with stress on the left branch of a foot into a metre with stress on the right, this will in some cases simply not be possible, meaning that the poet will either have to employ the monosyllabic iamb or settle for an exceptional trochaic line.

3.2 The quantity of line-final syllables

In addition to the above analysis, further evidence for an iambic metre comes from a consideration of the final, penultimate and antepenultimate syllables of each line. If the metre were trochaic, one would expect to find lines ending with light or schwa syllables dominating the poem; if a line ended in a heavy syllable, it would be unlikely

to be trochaic, as it would mean ending on a stressed syllable. A bias towards line-final heavy and superheavy syllables is far more indicative of iambic metre, and indeed this is what we find in *Parzival*, as can be seen in Table 3.3. In the selection, 206 lines end with a stress-attracting superheavy syllable, 100 end with a heavy syllable and 144 end with a schwa syllable, as can be seen in (7)a–c. However, as previously suggested, such line-final schwa syllables only appear as part of a feminine rhyme and are indeed always preceded by a heavier syllable bearing the rhyming element. This rhyming syllable is itself invariably preceded by an unstressed schwa syllable, prefix, pronoun or article, with very few exceptions, such as (7)d, which ends in the polysyllabic word *Schoysîâne*.

Table 3.3 The number of lines in the selection ending with a $\bar{\bar{\sigma}}$, $\bar{\sigma}$ or ə.

	$\bar{\bar{\sigma}}$	$\bar{\sigma}$	ə
Book II	82	20	48
Book VIII	55	37	58
Book XVI	69	43	38
Total	206	100	144
%	46	22	32

(7) Examples of line-final words ending with a $\bar{\bar{\sigma}}$, $\bar{\sigma}$ or ə.

a. 789,02 ə $\bar{\bar{\sigma}}$
vnt Feirefiːz der veːch ge. ˈmaːl
And Feirefiz of the dappled hue

b. 818,01 ə $\bar{\sigma}$
[F]eirefiːz zem prie. ster sprach
*Feirefiz said to the priest**

c. 818,03 ə $\bar{\sigma}$ ə
ich gelo̊be swes ir ge. ˈbie. tet
I'll believe all that you command

d. 805,06 $\bar{\sigma}$ $\bar{\sigma}$ ə
wande si Scoy. siː. aː. ne
*For Schoysiane [had raised] her**

e. 805,06 $\bar{\sigma}$ $\bar{\sigma}$ $\bar{\sigma}$
doː in verworhte An. for tas
When Anfortas forfeited it

Lines ending in a feminine rhyme all therefore essentially end with a ($\breve{\sigma}\bar{\sigma}$) iambic foot followed by an extrametrical syllable: x / | [x]. Similarly, the majority of lines ending with a heavy or superheavy syllable are preceded by a schwa syllable. For instance, in Book XVI alone, 68 of the 112 $\bar{\bar{\sigma}}$ or $\bar{\sigma}$-final lines fall into this category (over 60%), forming a ($\breve{\sigma}\bar{\sigma}$) iambic foot, as in (7)b. All of the rest are preceded by a lighter syllable, unless they end in two stressed syllables (as with l.797,10) or polysyllabic words with heavy but unaccented penultimate syllables, such as the name *Ánfortás*, as exemplified in (7)e. The small number of remaining cases involve function words. As Zonneveld points out, if lines end in an iambic foot and, 'moreover, initial syllables of the lines of the poem at hand are usually weak, we have an iamb' (2000a, 34). Again, the situation found in the poem conforms to this suggestion, with 310 of the 450 lines beginning with a weak syllable, invariably a function word such as *unt* ('and'), *daz* ('the NOM/ACC.N.SG') or *ze* ('to'). If one adds to this the lines beginning with a reversed initial foot or a monosyllabic iambic foot, the only remaining exceptions are the 34 'trochaic' lines.

It seems most probable that line-final schwa syllables, incapable of bearing stress, are reduced or elided, as is often the case in speech, or at most form an unfooted weak beat. The exclusive co-occurrence of apparently trochaic lines and lines of type A and B with schwa-final feminine rhymes weakens an argument for trochaic feet in such cases. When one has to exclude from the foot structure either an unstressed inflexional suffix containing a schwa and forming the second part of a feminine rhyme, or a line initial unstressed content word with a full vowel, such as *gæb* ('give 3SG.PRET.SBJV': l.818,27), the former seems a much more likely candidate. This can be seen in the orthography of the text itself, where such elisions are sometimes even reflected in the spelling, as with the forms *geschehn* (Cl-MHG ⟨geschehen⟩ 'happen PST.PTCP': l.827,29) and *jehn* (Cl-MHG ⟨jehen⟩, 'attribute INF': l.827,30). As Jones and Jones put it: 'While scribes, concentrating on written forms, may not have been sensitive to the need for elision, we may assume that performers of texts will have made the necessary adjustment automatically' (2019, 232).

3.3 Summary

Given the striking tendency in the poem towards iambic metrical patterns, with around half of the lines unambiguously constituting an ideal iamb, one would require highly convincing evidence to justify treating these as irregularities in an otherwise trochaic metre. Indeed, such an analysis of the poem is contrary to the linguistic evidence, with only 34 lines written in what could be convincingly argued as a trochaic metre. These 'trochaic' lines can also be treated as iambic, exploiting Halle and Keyser's (1966) principles for metrical analysis, but even if one continues to allow them as irregularities, their comparative rarity in the text speaks to the poet's intent to write iambic verse; deviations from perfect iambic metre result from the occasional impossibility of reconciling iambic and trochaic structures. Indeed, the poet's occasional

deviations from strict tetrameter speak to his willingness to compromise on strict adherence to metre where necessary. The remaining lines can be neatly described as iambic by allowing an extrametrical syllable—either an unstressed, line-initial function word (in so-called 'headless' lines) or a line-final schwa syllable (to create a feminine rhyme)—and the use of heavy syllables as monosyllabic iambic feet. With lines of as little as four syllables existing in the poem, it is in any case necessary to allow empty weak positions in the line. In the present selection, these fall most commonly at the beginning of a line. Simply building iambic feet from left-to-right, allowing Halle and Keyser's conservative permissible deviations thus captures the picture remarkably neatly and removes the need for a complex repertoire of rhyme structures and additional constituents, such as the cadence and optional anacrusis. An iambic analysis neatly captures the common prosodic generalisations observable across the poem in a way that the *Viertakter* is unable to do.

The iambic metre of *Parzival* is thus apparently in conflict with the trochaic feet of the natural language: how does one reconcile initial stress with a poetic metre which ideally rhymes on line-final stressed syllables? The following section analyses the foot structure of final rhyming words and argues that Wolfram relied on words ending in monosyllabic ($\bar{\sigma}$) feet or formed feminine rhymes from disyllabic feet ending with a schwa syllable. His total avoidance of words with ($\breve{\sigma}\bar{\sigma}$) structure not only strengthens the iambic analysis outlined above, but also provides evidence for the continued salience of the resolved moraic trochee in MHG, which is first briefly explained in Sect. 1.

4 The foot structure of rhyming pairs

4.1 The Germanic foot

In Sect. 1, it was explained that stress in MHG was largely initial and that the language relied on weight-sensitive trochees, as in OHG. However, beyond this, the precise

structure of the MHG foot was not elaborated upon. As this is of greater relevance for Sect. 2, it will be briefly outlined here. I assume in this analysis that MHG continued to exploit the Germanic foot, a resolved, uneven moraic trochee of the form (|HEAD|DEP), comprising an obligatory head and an optional dependent (see Chap. 2, Sect. 2.2). The head of the foot must be *at least* bimoraic (even if this means comprising two syllables) but the dependent can *only* be monomoraic (i.e. a single -V syllable). The ideal foot thus has the branching structure (|σ̄|ŏ). The head of the foot can form a foot on its own, without a dependent, meaning that possible head structures are thus |σ̄|, |ŏŏ|or |ŏσ̄|. Lahiri and Dresher (1999) provide a thorough discussion of the issue, drawing on a range of evidence from early Germanic languages in support of this analysis, such as Sievers's Law in Gothic or the syncope of medial unstressed high vowels in Old English and OHG[14] (see also Lahiri et al. 1999; Lahiri 2001, 2015; Fikkert et al. 2006; Dresher and Lahiri 2022 for Germanic and Jacobs 2000 for Latin). The Germanic foot can be represented as in Figure 3.3:

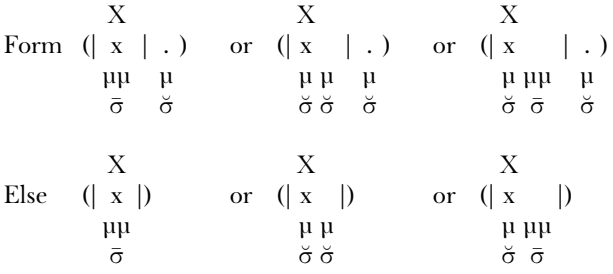


Figure 3.3 Possible structures of the Germanic foot (adapted from Lahiri et al. 1999). The foot is enclosed in parentheses *(…)*, with the strong branch indicated by *x* and the weak branch by a dot. The head is enclosed by bars |*x*|. Main stress is indicated by *X*.

Examples of (|ŏσ̄|) words include *künec/künic* ('king'), *herinc* ('herring') and *ahorn* ('maple') (/ˈky.nɛg, ˈhe.ring, ˈa.horn/ > NHG [ˈkøː.nɪç, ˈheː.ʁɪŋ, ˈʔaː.hɔɐ̯n]).

[14] Lahiri and Dresher (1999) argue that this process of High Vowel Deletion served to improve metrical structures. Compare, for example, OHG *lērta* < **lēr-i-ta* ('teach 3SG.PRET'), as opposed to *werita* ('tell 3SG.PRET'). In the former case, deletion results in the structure (|μμ| μ) rather than the less optimal (|μμ| μ) μ, whilst the latter already forms an exhaustive resolved moraic trochee (|μμ| μ) and deletion would result in the less preferred (|μμ|) (cf. Lahiri et al. 1999).

As the modern reflexes of these words demonstrate, German no longer tolerates resolved heads and all such words have undergone OSL in the transition from MHG to eNHG, resulting in words with the structure (|σ̄|)(|σ̄|). For present purposes, as iambic tetrameter favours mono- or disyllabic feet, this essentially means that the foot structures potentially available to Wolfram were (|σ̄|), (|σ̄|σ̆), (|σ̆σ̆|) (or (|σ̆σ̆|σ̆) with elision) and (|σ̆σ̄|), where | encloses the head of the foot (the locus of stress). As will be shown in the following section, only the first three are compatible with iambic metre and Wolfram's avoidance of (|σ̆́σ̄|) words line finally provides further support for the present iambic analysis, as well as the continued salience of the Germanic foot.

4.2 Line-final feet

This section turns again to the structure of line-final rhyming words, considering the structure of line-final feet, which form the rhyme. For this analysis, four sections of the poem were randomly selected, all comprising seventeen 30-line sections, resulting in a sample of 2,160 lines (roughly 11,500 words).[15] The results of a preliminary analysis of the structure of rhyming pairs are displayed graphically in Figure 3.4 (a full list of the data is provided in Appendix A). Unstressed prefixes, such as *ge-*, *be-* and *ver-* were ignored in these descriptions, as they are unable to bear stress and are, from a metrical perspective, effectively invisible (cf. Paul 2007). What is particularly remarkable here is the consistency of the proportion of rhymes made up by each structure across the four samples: each contains around 300 (σ̄) words (e.g. *not* 'need, peril'), followed by an average of 118 (σ̄ə) words (e.g. *brahte* 'bring 3SG.PRET', *chranze* 'garland DAT.M.SG'). The third most frequent structure is (σ̆σ̆), exclusively (σ̆ə), with an average of 54 (e.g. *losen* 'listen INF', *site* 'custom'). Also relatively common are (σ̄σ̄ə) and (σ̄σ̆σ̄) (e.g. *arbeiten* 'strive, endeavour INF', *herzogin* 'duchess'). By separating these words into feet and comparing these to the ideal line structure, it is possible

[15] These sections were ll.19,01–36,30; 361,01–378,30; 602,01–619,30 and 701,01–718,30, taken from Books I, VII, XI and XIV respectively.

to draw conclusions about permissible and impermissible rhyme structures, further strengthening the argument presented in Sect. 3.1 and Sect. 3.2.

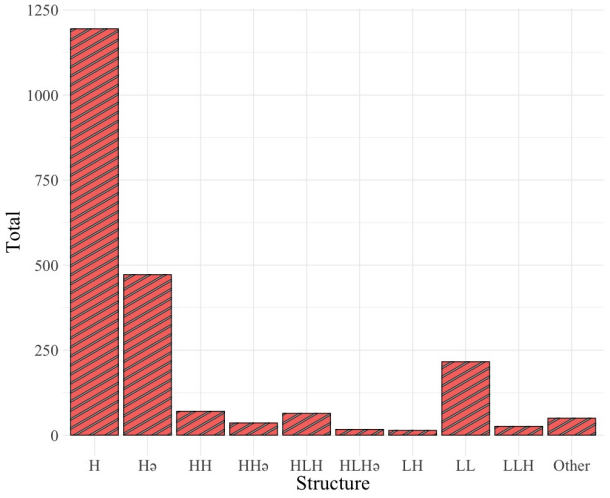


Figure 3.4 Total number of rhyming words of each syllable structure.[16]

According to the iambic analysis, one would expect rhymes to be formed on final monosyllabic (|σ̄|) feet, or in the case of the less-favoured feminine rhymes, (|σ̄|ə) and (|ŏə|) feet. Due to the weakening of vowels in unstressed syllables which occurred between OHG and MHG, the second syllable of all (ŏŏ) words would be a schwa syllable (unlike OHG, which featured both long and short full vowels in unstressed syllables, cf. MHG *rehte* 'straightness, justice', *zunge* 'tongue' < OHG *rehtî*, *zunga*). In contrast, disyllabic feet with initial stress which do not end in a schwa syllable would not be permissible in rhyme position, as they conflict with the iambic metre (due to their prominence on the first, rather than their second syllable) and would not be able to form a feminine rhyme. As vowels in unstressed final syllables were reduced and (σ̄σ̄) sequences formed two monosyllabic (|σ̄|) feet, this leaves only words of (|σ́σ̄|) structure, e.g. *kranech* /ˈkra.nɛx/ ('crane'; NHG *Kranich* [ˈkʁaː.nɪç]).

[16]The sixteen structures appearing fewer than ten times each were grouped as 'other'.

What is immediately apparent from Figure 3.4 is that the three most common word structures are in fact single feet. Crucially, these feet are the three possibilities predicted by an iambic analysis: (|σ̄|), (|σ̄|ə) and (|σ̆ə|), whilst words of (|σ̆σ̄|) structure are far less common (and, as will be shown, are not true examples of (|σ̆σ̄|) feet). Longer words comprise multiple feet; (σ̄σ̄) words rhyme on the second of two consecutive monosyllabic (|σ̄|) feet and (σ̄σ̆σ̄) words rhyme a final monosyllabic (|σ̄|) foot, preceded by a (|σ̄|σ̆) foot. Table 3.4 presents the distribution of foot structures when the final foot is parsed out of each rhyme, with examples of such lines provided in (8). (σ̄σ̄) words might initially seem to be more problematic. However, in line with Principle II in (2), not all weak positions need be occupied and successive monosyllabic feet are possible; in all but eleven cases of (|σ̄|)(|σ̄|)-final lines, both syllables occupy a stressed position (e.g. l.703,24: *ĕin stár.chĕz spér vŏn Án.grám*; 'a sturdy spear from Angram'). Indeed, in (8)d, only one syllable does not carry a strong beat. However, in a number of cases, it is also apparently possible to defoot a heavy syllable immediately preceding another heavy syllable and have it occupy a weak beat, provided it forms the head of a foot (unlike the σ̄ in a resolved (|σ̆σ̄|) foot). This can be seen in (8)e (for a discussion of the same phenomenon in MNL verse, see Lahiri and Sytsema 2018; Fikkert 2000).

Table 3.4 Frequency of different foot structures in rhyming position.

Final Foot	Count	Percentage
(|σ̄|)	1,378	64
(|σ̄|ə)	537	25
(|σ̆σ̆|)	229	11
(|σ̆σ̄|)	16	<1

(8) Possible final foot structures.

a. (|σ̄|): 363,14 x / | x / | x / | x /
(|σ̄|) (|σ̄| ŏ) (|σ̄|) (|σ̄|) (|σ̄| ŏ) (|σ̄̄|)
ich ˈriː. te dem ˌtrvg. ˈnæː. re naːch
*I am riding after the swindler**

b. (|σ̄|ŏ): 27,07 / | x / | x / | x / | [x]
(|σ̄| ŏ) (|ŏ ŏ|) (|σ̄|) (|σ̄̄|) (|σ̄|) (|σ̄| ŏ)
ˈmiː. ne ˈgo. te vnt o͡ch die ˈsiː. ne
My gods, and his gods, too

c. (|σ̄|ŏ)(|σ̄|): 376,14 x / | x / | x / | x /
(ŏ) (|σ̄| ŏ) (|σ̄̄|) (|σ̄|) (|σ̄| ŏ) (|σ̄̄|)
ze[17] ˈor. se v̂z driː ˌbar. be ˈgaːn
Three barbicans for mounted sorties

d. (|σ̄|)(|σ̄|): 707,05 / | / | x / | /
(|σ̄| (|σ̄̄|) (|σ̄|) (|σ̄|) (|σ̄̄|)
ˌAr. ˈtvːs vnt ˌGaː. ˈwaːn
*Arthur and Gawain**

e. (|σ̄|)(|σ̄|): 702,06 / | x / | x / | x /
(|ŏ ŏ| ŏ) (|σ̄|) ŏ) (|σ̄|) (|σ̄|) (|σ̄̄|)
ˈma. ne. gen ˈtiẘ. ern chopf ˌgvl. ˈdiːn
*Many a precious golden cup**

f. (|ŏŏ|): 710,20 x / | x / | x / | x / | [x]
(|σ̄|) (|ŏ ŏ|) (|σ̄̄| ŏ) (|σ̄| ŏ) (|ŏ ŏ|)
diː ˈma. get ˈfv̊r. ten ˈsvn. der ˈda. ne
[Her mother and grandmother] led the maiden apart

What we find, therefore, is that Wolfram is essentially rhyming on the head of the final foot, with any line-final (schwa) syllables being extrametrical (for the purposes of metre, not prosodically extrametrical). In this way, (σ̄ə) words are therefore metrically equivalent to a single heavy syllable (in terms of poetic metre) and words ending with a (|σ̄|) or (|σ̄|ə) foot comprise 89% of all rhymes. Similarly, (|ŏə|) feet are capable of forming a feminine rhyme on the first stressed syllable, compatible with iambic metre. Notably, there are no (|σ̄|ŏ) or (|ŏŏ|) words where the final ŏ is not a schwa syllable and the vast majority of (|ŏə|) words comprises inflected verbs, such as *sagen* ('say INF') and *chlage* ('lament 1SG.PRES'), but also occasional

[17] *ze* ('to') is an unstressed function word and therefore exempt from the bimoraic minimal word requirement. Here it would likely be cliticised to a neighbouring prosodic word. When focused, it surfaces as *zuo*, capable of forming a prosodic word, due to its long, full vowel (and therefore two morae).

adverbs, as in (8)f. Examples of (|σ̄|σ̆) words are typically plural nouns, adverbs, inflected adjectives or verbs with heavy stems, even after suffixation, such as *ŏ̈gen* (‘eyes’), *vmbe* (‘about, around’), *riche* (‘mighty’), *strîten* (‘fight INF’) and *genı̊tet* (‘enjoy PST.PTCP’). Line-final schwas are frequently even orthographically elided in Cod. 857, e.g. *sagn:tragn*, *gegebn:lebn* and *ab:hab* (Cl-MHG ⟨sagen:tragen⟩ (‘say INF’:‘wear INF’) ll.22,19:20; ⟨gegeben:leben⟩ (‘give PST.PTCP’:‘life’) 29,15:16 and ⟨abe:habe⟩ (‘from’:‘possessions’) 31,21:22), effectively producing a final (σ̄):

(9) a. 366,07 x / | x / | x / | x /
Do: sp[ra]ch er ˈhe:r. re ˈiw. er chvmn
He said: ‘Lord, your arrival
b. 366,08 x / | x / | x / | x /
daz mach mit ˈsæ:l. den vns ge. ˈfrvmn
may bring us profit in bliss

More interesting are words of (|σ̆σ̄|) structure, such as MHG *habech/habich* /ˈha.bɛx/ (< OHG *habuh*; cf. NHG *Habicht* [ˈha:.bɪçt] ‘hawk’). Although (σ̆σ̄) sequences form the ideal foot in iambic languages, in a language with a resolved moraic trochee, like MHG, stress fell on the initial syllable (provided it is not one of the aforementioned unstressed prefixes) and the final, heavy syllable would be unstressed. However, the heavy syllable crucially forms part of the head of the foot and not the dependent or a separate foot. It thus cannot be defooted, unlike one of two consecutive monosyllabic feet (the light syllable is unable to form the head of a foot alone). Nor can this syllable be poetically extrametrical (like the feminine rhymes), as it is heavy. Due to this, natural stress would be fundamentally opposed to the required poetic stress pattern, as an unstressed syllable would be forced to form the rhyme. (|σ̆σ̄|) feet are thus incompatible with iambic metre, whereas it would be perfectly acceptable to have a final unstressed heavy syllable occupy the last weak beat in trochaic metre. A poet choosing to compose a poem in iambic metre would thus be forced to avoid line-final (|σ̆σ̄|) feet. However, if the metre were trochaic, (σ̆σ̄) words would be

expected to occur just as frequently in line-final position as they do line-medially. As Table 3.4 demonstrates, this is clearly not the case; less than 1% of rhymes are (σ̆σ̄) words. In fact, the situation is even more striking, as in all 2,160 lines, there is not a single example of a native word in this position.[18] For example, the word *künec*/*künic* ('king') occurs 351 times throughout the poem, but never once in line-final position (cf. Hall 1990).

The sixteen examples of (σ̆σ̄) words in rhyme position are all Romance proper nouns or loan words, such as *rubin* /ru.ˈbiːn/ ('ruby'; Cl-MHG *rubîn*). As mentioned in Chap. 2, such words were systematically borrowed with right-edge stress, invariably ending in a superheavy syllable (cf. Wiener 1895). In this way, they do not actually behave like native (|σ̆σ̄|) words and constitute a kind of get-out-of-jail-free card for the poet; if one is using a foreign metre, foreign words provide an easy solution. An example of this can be seen in (10):

(10) a. (σ̆σ̿): 24,04
x / | x / | x / | x /
(|σ̄|) (|σ̄| σ̆) (|σ̄|) (|σ̄|) σ̆ (|σ̄| σ̆) σ̆ (|σ̿|)
v̂f ˈei. ne̱n kvl. ˈter ge. ˈstep. pe̱t sa. ˈmiːt[19]
On a cushion piled with samite

b. (σ̆σ̄): 23,15
/ | x / | x / | x /
(|σ̄|) σ̆ (|σ̄| σ̆) (|σ̄|) = σ̆ σ̆ (|σ̄|)
vnt er. ˈbêiz. ten vor de̱m Pa. ˈlas

We therefore have an explanation for why (|σ̆́σ̄|) words only appear line-internally, never finally. It is only in Romance loan words with non-native final stress that (σ̆σ̄́)

[18] The words *tvgent* (< OHG *tugend*, *tugind*; NHG *Tugend* [ˈtuːgn̩t] 'virtue') and *ivgent* (< OHG *jugund*, *jugend*; NHG *Jugend* [ˈjuːgn̩t] 'youth') are the only possible native candidates. However, their spelling reflects the fact that the formerly full vowels of the OHG suffix have already been dramatically reduced, as in *tvgnt* (l.139,25 of Cod. 857). Furthermore, elsewhere in the poem, the second syllable is elided line medially, as in '*sô máne̱ge túge̱nt diu gótes kráft*' (l.559,06: 'so many a virtue God's might'). This suggests that it is in fact treated as a light syllable with a syllabic nasal, available for elision (if not even a monosyllable), enabling the rhyme seen in ll.613,09–10.

[19] In these examples, unbracketed σ̆represents an unfooted light syllable, such as the unstressed verbal prefixes *ge-* and *er-* or encliticised definite article. It should be noted that *kulter* is also of Romance origin and therefore stressed on the final syllable, allowing the previous (σ̄) to be defooted. Similarly, *samît* is stressed on the final superheavy syllable and the initial light syllable can be considered degenerate.

words are tolerated. This total avoidance speaks to the continued salience of this structure as the resolved head of a single foot, as well as the fact that Wolfram's grammar predated OSL, a general sound change which lengthened all vowels in stressed open syllables (see Chap. 4), accounting for the difference between MHG *name*, *ahorn* /ˈna.mə, ˈa.horn/ ('name', 'maple') and NHG *Name*, *Ahorn* [ˈnaː.mə, ˈʔaː.hɔɐ̯n]. Had OSL been a part of Wolfram's grammar, there would have been no reason to avoid the originally (ŏ̄ŏ̄) words, as they would all have become (|ō|)(|ō|) words, which would be perfectly acceptable at the end of a line in iambic tetrameter, as discussed above. (ŏ̄ŏ̄) words would thus be expected to occur just as frequently in line-final position as they do line-medially (and certainly no less frequently than words inherited from OHG with the structure (ō̄ō̄) (with which they would then pattern).

The evidence from metre demonstrates that Wolfram was highly sensitive to quantity and stress and took great care to adhere to his chosen iambic pentameter. His decision to compose iambic verse in a trochaic language engendered a number of difficulties in line-final position; if one's language has largely initial stress, how does one produce a line with a stressed final rhyming syllable? The dominance of monosyllabic words line finally (64%) clearly demonstrates Wolfram's usual solution. Failing this, he falls back on a feminine rhyme or even 'cheats' with a foreign loan word. In 89% of lines, the rhyme is formed on a heavy syllable and in the present selection, the poet never once rhymes a native (|ŏ̄ŏ̄|) word. This complete absence is strong evidence in favour of an iambic analysis and the continued salience of the Germanic foot in Wolfram's EFr. (which was yet to undergo OSL), as it is the only word structure which is incompatible with iambic tetrameter.

5 Conclusions

This research has sought to clarify the precise nature of the metre of Wolfram von Eschenbach's *Parzival*, challenging the traditional assumption in the literature of a

preference for trochaic metre in poetry of the MHG Classical Period. This assumption, based on the fact that MHG, like OHG before it and NHG afterwards, is an undeniably trochaic language, has meant that *Parzival* has generally been regarded as an example of trochaic verse, the *Viertakter* outlined in Sect. 3.1. However, this chapter demonstrates for the first time that this standard trochaic analysis is not only insufficient but counter to the linguistic evidence and that the patterns of alternation observable in *Parzival* are accounted for much more simply by an iambic analysis.

After a summary of the linguistic and literary context of the poem, focusing on MHG stress and the influence of French prestige models in Sect. 2, Sect. 3 began with a critical review of the traditional approach to poetry of the MHG Classical Period. This was followed by an analysis of a representative sample of the poem, identifying five key patterns of alternation, with ideal iambs dominating and ideal trochees being extremely rare. In line with the principles identified by Halle and Keyser (1966), it is argued that *Parzival* is in fact an example of disciplined iambic tetrameter. The dominance of the *wswswsws* pattern, beginning on a weak beat and ending on a strong, offers convincing evidence in favour of iambic metre. In the selection, 44% of the lines were found to constitute unambiguous iambs, whilst only 8% were written in what could convincingly be argued to be trochaic metre. The remaining lines can be neatly categorised as iambic by allowing a line-final extrametrical syllable (creating a feminine rhyme) or the construction of monosyllabic iambic feet when the syllable is heavy (i.e. allowing weak positions to be unoccupied). With lines of as little as four syllables existing in the poem, it is in any case necessary to permit empty weak positions in the line. The iambic analysis accounts for the patterns of alternation much more parsimoniously, as a visual comparison of the two analyses of the dominant *wswswsws* pattern illustrates. Compare, for instance, Figure 3.5 (the *Viertakter*) and Figure 3.6 (iambic tetrameter):

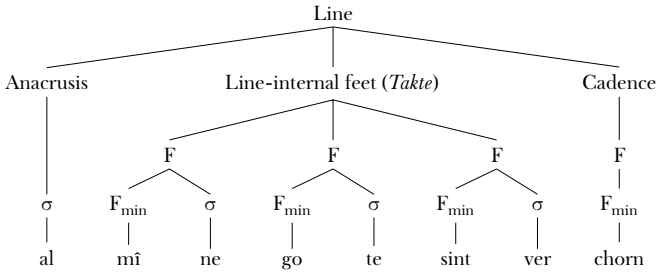


Figure 3.5 An arboreal representation of the traditional parsing of l.818,09: 'All my gods are renounced!'

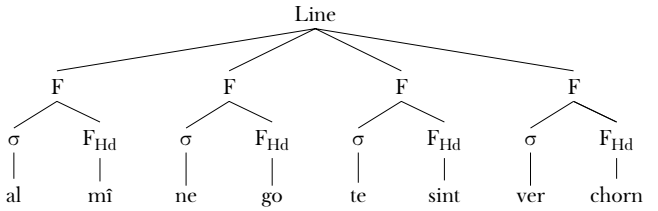


Figure 3.6 An arboreal representation of the proposed iambic parsing of l.818,09: 'All my gods are renounced!'

An iambic analysis is further corroborated by the large number of heavy and superheavy syllables terminating lines, the vast majority of which are immediately preceded by an unstressed schwa syllable, thus forming a final iambic foot. A trochaic analysis would predict most final syllables to be light, but instead one finds the reverse: a marked preference for heavy, stressed syllables. Lines *always* end with either a final iamb or an iamb followed by an extrametrical schwa syllable (the feminine rhyme required under both analyses). Furthermore, initial syllables are usually weak, invariably function words, such as *unt* ('and'). When 69% of lines begin with a weak beat and 68% of lines end with an iambic foot (indeed every line, if one includes iambic feet followed by a schwa), an iambic analysis seems much more appropriate.

Attempting to write iambic verse in a trochaic language naturally results in tensions which will constrain the poet's verse. It is therefore possible, through careful analysis of the prosodic structure of rhyme words—as well as which words he conspicuously avoids rhyming—to provide further evidence not only of iambic metre, but

also of the pertinacity of the Germanic foot (a resolved, uneven trochee, cf. Lahiri and Dresher 1999). In iambic tetrameter, the final (poetic) foot of the line should rhyme on the head of the final (prosodic) foot of the word. Given the trochaic nature of the language, with largely initial stress, this limits him to certain prosodic structures. (|σ̄|) is no obstacle and, allowing for feminine rhymes, nor are final feet of structures (|σ̄|ə) or (|σ̆ə|), provided the first syllable occupies a stressed beat. Similarly, (|σ̄|)(|σ̄|) strings can be dealt with either by stressing both syllables or defooting the first to achieve the required alternation.

However, resolved (|σ̆σ̄|) feet cannot form a feminine rhyme, due to the fact that the final syllable is heavy (albeit unstressed). In addition, this σ̄ cannot be defooted, as this is only possible for entire feet. It does not form the head of a foot alone, but rather allows the preceding σ to form a foot with a maximal head and initial stress. Prior to OSL, such structures should therefore be incompatible with iambic metre and are indeed avoided by Wolfram. The proportion of various line-final foot structures was remarkably consistent across the sample, with 89% of lines ending with a (|σ̄|) or (|σ̄|ə) foot and 11% a (|σ̆ə|) foot. (σ̆σ́) rhymes form less than 1% and are all Romance loan words borrowed with right-edge stress. The complete absence of (|σ̆́σ̄|) structures line finally (despite their appearance in other line positions) provides evidence for its continued salience as a prosodic unit. This furthermore supports an iambic account of *Parzival*'s metre; if the verse were trochaic, it would be perfectly acceptable to have a final unstressed heavy syllable occupy the final weak beat. The tension between Wolfram's chosen iambic metre and the trochaic structure of MHG is thus most pronounced in line-final position, where the largely initial stress of the natural language is at odds with the desire for final stressed rhyming syllables. Wolfram's preferred solution—representing 64% of cases—appears to have been the use of monosyllabic (|σ̄|) words, otherwise relying on feminine rhymes, longer (|σ̄|)-final words or even foreign loan words (with convenient right-edge stress).

It is thus the position of this thesis that *Parzival* represents an early example of German poetry composed in alternating iambic metre, contrary to the traditional literary view. Given the trend elsewhere in Europe to emulate French lyrics and compose verse in iambic metre, even in trochaic languages, it seems inadequate to assume a trochaic metre in a work of MHG poetry without good evidence. No such evidence was found in this study, based on a quantitative analysis of linguistic evidence. Indeed, the evidence consistently supports an iambic interpretation. The present analysis has the advantage of explaining the peculiarities of scansion in *Parzival* much more parsimoniously than the traditional literary view, which relies on the overgeneralisation of a complex system involving a large amount of additional machinery and a questionable reliance on metrical stress which deviates from natural language. A simple iambic reading is perfectly adequate, with any apparent irregularities or deviations from an ideal iambic metre resulting from the occasional impossibility of reconciling iambic and trochaic structures; of attempting to write iambic verse in a trochaic language.

Chapter 4

Open syllable lengthening and diphthongisation in Upper Middle High German: Evidence from verse

1 Introduction

Drawing on evidence from verse, this chapter aims to provide insights into the relative chronologies and interactions of two key phonological changes to the underlying representation of MHG vowels. These changes are (i) open syllable lengthening (OSL), a process whereby short vowels were lengthened in all stressed open syllables, with no loss or reduction of any other syllables or segments (e.g. /ˈtra.gən/ > /ˈtraː.gən/, 'wear INF'), and (ii) the diphthongisation of the MHG long vowels /iː,yː,uː/ ⟨î,iu,û⟩ > /ei,øy,ou/ (> NHG /aɪ,ɔɪ,aʊ/): *mîn niuweȝ hûs* /miːn nyːwəs huːs/ > *mein neues Haus* [maɪn nɔɪəs haʊs] ('my new house').[1] Diphthongisation only operated on the long high vowels inherited from OHG and left those arising from OSL unaffected; these new long vowels therefore remain monophthongal in NHG, as Table 4.1 illustrates.

OSL in particular has had profound and enduring effects on the phonology of Modern Standard German (NHG) and South Bavarian (SBav.), having resulted in paradigm alternations which were subsequently reanalysed as lengthening before

[1] The third key sound change, 'eNHG monophthongisation', the monophthongisation of the MHG diphthongs /iə,yə,uə/ ⟨ie,üe,uo⟩ (*Liebe* [ˈliːbə], *müde* [ˈmyːdə], *Bruder* [ˈbʁuːdɐ] < *liebe* /ˈliəbə/, *müede* /ˈmyədə/, *bruoder* /ˈbruədər/, 'love', 'tired', 'brother') is not relevant to this analysis, as it never reached SBav. and did not even reach East Franconian (EFr.) until the early modern period.

Table 4.1 The effects of OSL and diphthongisation on the high vowels inherited from late OHG (lOHG) by early MHG (eMHG). Unlike the originally long high vowels (V:$_{[\text{HIGH}]}$), those resulting from OSL did not undergo diphthongisation, inherited from late MHG/early NHG as /i:,y:,u:/, not */a$\underset{\frown}{\text{ɪ}}$,ɔ$\underset{\frown}{\text{ɪ}}$,a$\underset{\frown}{\text{ʊ}}$/.

	V:$_{[\text{HIGH}]}$			V)$_{\sigma}$		
OHG	i: swi:n	i$\underset{\frown}{\text{u}}$/u:(...)i l$\underset{\frown}{\text{i}}$uti/hu:ti	u: hu:s	i bibar	y lugi:	u stuba
lOHG/ eMHG	i: swi:n	y: ly:tə/hy:tə	u: hu:s	i bibər	y lugə	u stubə
lMHG/ eNHG	e$\underset{\frown}{\text{i}}$ swe$\underset{\frown}{\text{i}}$n	ø$\underset{\frown}{\text{y}}$ løy$\underset{\frown}{\text{t}}$ə/høy$\underset{\frown}{\text{t}}$ə	o$\underset{\frown}{\text{u}}$ ho$\underset{\frown}{\text{u}}$s	i: bi:bər	y: ly:gə	u: stu:bə
NHG	a$\underset{\frown}{\text{ɪ}}$ ʃva$\underset{\frown}{\text{ɪ}}$n	ɔ$\underset{\frown}{\text{ɪ}}$ lɔ$\underset{\frown}{\text{ɪ}}$tə/hɔ$\underset{\frown}{\text{ɪ}}$tə	a$\underset{\frown}{\text{ʊ}}$ ha$\underset{\frown}{\text{ʊ}}$s	i: *a$\underset{\frown}{\text{ɪ}}$ bi:bɐ *ba$\underset{\frown}{\text{ɪ}}$bɐ	y: *ɔ$\underset{\frown}{\text{ɪ}}$ ly:gə *lɔ$\underset{\frown}{\text{ɪ}}$gə	u: *a$\underset{\frown}{\text{ʊ}}$ ʃtu:bə *ʃta$\underset{\frown}{\text{ʊ}}$bə
Gloss	‘swine, pig’	‘people’/‘hides’	‘house’	‘beaver’	‘lie’	‘room, parlour’

voiced consonants and levelled (see below). However, although these changes are widely discussed in the literature and grammars, and are accepted to have originated in the mediaeval period, spreading throughout the High German dialect area over subsequent centuries, their interactions and relative rates of spread through space and time are much less well defined. This chapter attempts to demonstrate the independence of OSL and diphthongisation, focusing on SBav., an Upper German (UG) dialect. Evidence is drawn from the *Parzival* MS found in Cod. 857. Often referred to as MS D in *Parzival* literature, this thirteenth century SBav. copy of the text provides early evidence of advanced diphthongisation in the scribe’s dialect, but shows no traces of OSL.

The structure of this chapter is as follows: Section 2 surveys the discussion of OSL and diphthongisation in the previous literature, introducing Cod. 857 and placing it in a linguistic and historical context. Section 3 describes OSL and diphthongisation in formal terms, followed by Sect. 4, which argues that OSL was absent from UG in the thirteenth century, challenging claims of an early independent origin in UG, based on the orthography of Cod. 857’s Hand III (as well as other scribes active in the same scriptorium, notably Hand V) and Sect. 5 argues that diphthongisation was

well-progressed in the scribe's dialect and must have been independent from OSL. It is furthermore suggested that the circumflex accent is systematically employed in Cod. 857, not to denote vowel *quantity* (which the scribe appears to have considered redundant), but diphthongal *quality*. Section 6 summarises the findings of this chapter.

2 Previous literature

Diphthongisation[2] left the whole Alemannic (Alem.) and Low German dialect areas (as well as certain Central German (CG) dialects) untouched. Bav. sources provide the earliest evidence for diphthongisation and its spread, first appearing in place names in the early eleventh century, particularly in Carinthia. Diphthongisation was complete in Bavaria by the end of the twelfth century and digraph representations became more common in writing as the thirteenth century progressed, although the old coronal vowel graphemes ⟨î,iu⟩ are retained longer than dorsal ⟨û⟩ (see Paul 2007, 74–5). Given the fact that orthographic change is naturally accepted to lag behind the spoken language, it is therefore reasonable to expect diphthongisation to have affected the SBav. dialect of the scribe who produced Cod. 857's *Parzival* MS.

In contrast to diphthongisation, the origins and spread of OSL are less clear. The debate centres around two key questions: firstly, the nature of its inception and transmission, and secondly, the relative ordering of OSL and diphthongisation during the MHG period (i.e., whether the two changes are linked, with one relying on or being necessarily preceded by the other). The traditional account still found in the most recent editions of the relevant grammars and textbooks (e.g., Ebert et al. 1993; Paul 2007; Bergmann et al. 2011; Jones and Jones 2019) presents the spread of these changes across the High German dialect area in wave-theoretic terms, assuming a

[2]This process is sometimes referred to as 'Early Modern German (eNHG) Diphthongisation'. However, in this thesis, the term 'diphthongisation' (or 'diphthongisation of the MHG high vowels') is preferred, as the designation 'eNHG' is misleading. Although the change continued well into the sixteenth century and is considered to be one of several changes which characterise NHG, its origins were in very early MHG and it was complete in Bavaria before the end of the twelfth century.

single point of origin for each (monogenesis). OSL is said to have begun in Low Franconian during the OHG period, spreading to WCG in the twelfth century, the whole of CG in the thirteenth century and only reaching UG in the fourteenth century, never reaching High Alem. (see Paul 2007, 80–1 and references therein). This would mean that OSL would not be expected to have affected the dialect of Wolfram von Eschenbach, who wrote the poem *Parzival* in the first decade of the thirteenth century in East Franconian (EFr., a transitional UG dialect which shares a number of features with ECG). Nor would it be expected to have reached the more southern SWBav. dialect of the scribe who copied the MS of interest to this chapter, Cod. 857, half a century later.

However, an alternative view, namely that both OSL and diphthongisation arose independently in multiple dialect areas, where they underwent parallel developments (polygenesis), has much to recommend it (cf. Moser 1909, 9; Wiesinger 1970, 2003, 2446, 2453; von Polenz 2000, 149; Young and Gloning 2004[2013], 134; Goblirsch 2018, 115–6).[3] The fact that there is so much regional variation and complexity in relation to these changes speaks for polygenesis, as well as the fact that these changes both occurred repeatedly across the different WGmc. languages (e.g., similar diphthongisations in Dutch dialects, the Middle English Great Vowel Shift and OSL in English and Dutch). Even within the same WGmc. language, OSL has been known to be manifested at different times (cf. Sytsema and Lahiri 2018 for evidence from MNL). After all, OSL appears to have been motivated by prosodic structure, increasing metrical uniformity across the phonological system (cf. Lahiri and Dresher 1999) and a tendency towards the diphthongisation of long (or lengthened) vowels seems to have been common across WGmc. dialects.[4] For instance, NBav. has developed a distinct system of rising diphthongs from MHG /iə,uə,yə,aː,eː,oː,æː/: [ei,ou,ei,ɔu,ɛi,ɔu,ɛi], e.g. [blɔusn] for NHG [blaːsən] 'blow INF' (Reiffenstein 2003b, 2928).

[3] For an overview of the various models and theoretical frameworks, see Reis (1974) or Wiesinger (2003).

[4] In SBav. dialects, the reflexes of the other MHG long vowels /eː,æː,oː/ have commonly diphthongised (cf. Reiffenstein 2003a, 2968), e.g. [ɛa,ɛa,ɔa] in the Tirolean dialect of Imst (Schatz 1897).

The present research does not assume a wave-theoretic spread of OSL or diphthongisation from a single point of origin. However, it does challenge the persistent proposal that there was a specific independent instantiation of OSL in the UG (SBav.) dialect space in the eleventh or twelfth century, more or less contemporaneous with its origin in the northwest. As Paul puts it, lengthening of open syllables is now *accepted* as early as the eleventh century in SBav. and 'Polygenese ist also nicht auszuschließen'[5] (2007, 81). This claim has been made by a number of authors, based on similar evidence but in service of slightly different theoretical positions. Major proponents of this view include Kranzmayer (1956), Wiesinger (1970, 2003), Penzl (1974, 1975, 118, 1989, 55) and, more recently, Seidelmann (1999). These claims are repeated in the key MHG and eNHG grammars (Ebert et al. 1993 and Paul 2007), as well as a large number of linguistic histories and textbooks (e.g., Keller 1978, 272; Wells 1985, 113; Penzl 1989, 55; Young and Gloning 2004[2013], 134) and papers (e.g., Auer 1989; Kyes 1989; Seidelmann 1999; Page 2007; Seiler 2009; Cercignani 2022). The motivation for this independent, early SBav. development is often held to be the tendency towards standardisation of the quantity of syllables or words (cf. Riad 1995; Ramers 1999, 88; Goblirsch 2018, 157). However, Penzl's proposal (discussed at length in his 1974 paper, but repeated and more widely cited in his later works, such as Penzl 1975) is of particular significance, since he suggests that OSL triggered diphthongisation via a 'push-chain', as OSL crowded the high vowel space and necessitated the phonological differentiation of the old long high vowels from the new series (see Sect. 4.1 and Sect. 5.1).

Penzl's arguments, following similar claims by Trost (1939), draw on evidence from Lessiak's (1908) survey of twelfth-century Carinthian chancery documents and are part of a problematic trend often found in the literature which attempts to link OSL and diphthongisation, either causally, as in Penzl's work, or sequentially, as with claims that diphthongisation had to precede OSL to prevent the merger of old and

[5] 'Polygenesis cannot be ruled out.'

new /iː,yː,uː/. As will be seen, this latter claim is contradicted by modern dialects which maintain this contrast without diphthongisation. Bürgisser (1988, 8) has cast some doubt on Penzl's claims, suggesting that OSL was not present in UG before 1300, and then only inconsistently until the sixteenth century. Similarly, Reiffenstein (2003b, 2914) notes that 'die seltenen Akzentschreibungen reichen nicht aus, um die Hypothese einer früheren Dehnung im (Süd?)Bair. und der dadurch bewirkten Dipthongierung (als phonologischen Schubs) zu tragen.'[6]

However, such assertions are far from conclusive; even amongst proponents of the traditional, wave-theoretic account, there has been a lack of clarity over the precise relative chronologies of OSL and diphthongisation across the dialects. Many remain silent on the earliest dating of OSL in UG, simply stating that it occurred in CG prior to UG (Paul 1894, 44, 1939) or that OSL began in UG during the middle period (Behagel 1891, 559). Others claim it reached UG by the thirteenth (Priebsch and Collinson 1966, 153; Ebert et al. 1993) or the fourteenth century (Paul 2007). There is even variation when it comes to its attestation in Low German: late OHG (Ebert et al. 1993), the twelfth (Behagel 1891; Schirmunski 1962, 183) or the thirteenth century (Paul 1894; Moser 1969, 123). It is thus important to provide some clarity to this fuzzy topic and take steps towards a coherent timeline for UG.

The need remains for a thorough study which revisits the evidence proposed by Penzl and others, providing new quantitative data in order to challenge their alternative proposals and establish conclusively whether OSL could have predated or even caused diphthongisation. The continued repetition of Penzl's claims (see above), despite occasional scepticism, is problematic, especially when, as will be demonstrated in Sect. 4, the strength of evidence on which his claims rest has been exaggerated. As Jones puts it, 'it is advisable to suspend judgement on Penzl's problematic though interesting suggestion, until we possess, as we now urgently need, a broadly-based and

[6] 'The rare use of accents is not sufficient to support the hypothesis of an earlier lengthening in (S?)Bav. or the resultant triggering of diphthongisation (via a phonological push-chain).'

detailed historical study of vowel lengthening in High German, as a basis from which to evaluate the early Bavarian data' (1984, 70–1).

The present research seeks to further this aim by providing conclusive evidence that OSL was fully independent from diphthongisation. Although polygenesis is a highly likely mechanism for the spread of these changes (both independently motivated by prosodic structure across WGmc.), OSL is absent from the dialect of the scribes of Cod. 857 (as will be demonstrated in Sect. 4), with any other lengthening processes which did occur being distinct from OSL. This is inconsistent with any putative early independent origin in SBav. Furthermore, as diphthongisation appears to have been at an advanced stage in the scribes' SBav. dialect (see Sect. 5), the two changes must have been independent and OSL could not have triggered diphthongisation via a chain shift of the kind proposed by Penzl.

Until now, Cod. 857 has not been considered to display significant evidence of diphthongisation, due to its lack of digraph representations of these sounds. However, utilising quantitative evidence from Hand III's orthography, it is argued in Sect. 5 that what is traditionally considered to be a length marker, the circumflex accent ⟨ˆ⟩, is in fact used (at least in this MS) to represent qualitative (diphthongal) differences between long vowels, not length *per se*. Rather than long vowels generally, the circumflex accent is instead focused on inherited diphthongs and the vowels which underwent diphthongisation. Length is almost never marked on non-high vowels, particularly notably in the case of umlauts. This evidence is significant, as it challenges the traditional characterisation of length-marking as haphazard[7] and would render Cod. 857 an early example of regular marking of diphthongisation in the textual record. Such a use of the circumflex accent contrasts with standardised Classical Middle High German (Cl-MHG), where vowel quantity is expressed in one of two ways, depending on its quality: either with a circumflex accent for the plain long monophthongs ⟨â,ê,î,ô,û⟩

[7] In the sense that its use is unpredictable and sporadic, depending on the whim of the scribe. Where it is present, however, it is ubiquitously assumed unambiguously and systematically to denote a long vowel (e.g., Russ 1982, 127; Szulc 1987, 125; Reiffenstein 2003b, 2914; Jones and Jones 2019, 28–9).

or with digraphs for diphthongs ⟨ei,ie,ou,uo,öu,üe⟩ and long umlauted monophthongs ⟨æ,œ,iu⟩. However, Cl-MHG is a creation of nineteenth century editors, an abstraction of scribal practices represented in a number of CG MSS. It thus filters out the dialectal variation and encourages potentially false assumptions about the nature of the sounds represented by certain characters encountered in the textual record.

Cod. 857 forms the basis of the analysis presented in this chapter. This codex is a composite MS of which 318 pages remain, written in early Gothic bookhand by six different scribes (Witte 1927). In addition to the full text of Wolfram's *Parzival*, the codex includes other material, such as the *Nibelungenlied*. The different hands interact with one another and can be considered to have worked in the same (South? Tirolean) scriptorium, speaking the same SWBav. dialect (see Schneider 1987, 140; Hoffmann 2000, 347–67). Evidence for this comes not only from evidence of diphthongisation, but can also be seen in spellings such as ⟨ch⟩ for /k,kk/, occasional spellings of word-initial /b/ < Gmc. /*ƀ,b/ as ⟨p⟩ (e.g. ⟨pî⟩ for Cl-MHG ⟨bî⟩ 'with, by') and word-final Gmc. /*g/ as ⟨ch⟩ (e.g. ⟨dinch⟩ for Cl-MHG ⟨dinc⟩ 'thing'), due to *Medienverschiebung* ('shift of the *mediae*'). So too do we find the 'un-Alemannic' spelling ⟨ev⟩ or ⟨e͛⟩ for /øy/, as well as the typically Bav. wordforms ⟨gen⟩ and ⟨sten⟩ (as opposed to Alem. ⟨gan⟩ 'go INF' and ⟨stan⟩ 'stand INF'), ⟨ieslich⟩ ('each', which only appears in Bav., EFr. and ECG) and ⟨ditz⟩ ('this NOM/ACC.N.SG').[8] Both EFr. and SBav. ultimately underwent OSL and diphthongisation, although only EFr. would be affected by monophthongisation and Bav. dialects underwent additional processes of diphthongisation.[9] Hand III produced the vast majority of the *Parzival* text, as well as part of the *Nibelungenlied*, which was finished by Hand V.

Throughout this chapter, references are made to standard NHG, but it is important to remember that the discussion focuses on the SBav. dialect area. Wherever relevant

[8] Witte (1927) has also suggested the highly dubious possibility of the southeast Alem. area, primarily due to ⟨tt⟩ spellings of single consonants following short vowels, a feature shared by SWBav. dialects (Hoffmann 2000, 360).

[9] 'Nicht nur mhd. /ī/,/ū/,/ǖ/, sondern auch die anderen langen Vokale /ā̆/,/ǟ̆/,/ē̆/,/ō̆/,/ǒ̆/ werden im Obd. gebietsweise zu Diphthongen [...]; sicher sind einige von ihnen schon spätmhd. vorhanden' ['Not only MHG /ī/,/ū/,/ǖ/, but also the other long vowels /ā̆/,/ǟ̆/,/ē̆/,/ō̆/,/ǒ̆/ become diphthongs in certain areas [...]; some of these were certainly already present in late MHG'] (Paul 2007, 38).

to the discussion, any material differences between NHG and modern SBav. dialects are noted and transcriptions provided. The well-documented dialect of Imst (Im.), as recorded by Schatz (1897), is used as a representative example of a modern SWBav. dialect from the larger Tirolean dialect area suggested by Hoffmann (2000) (it is not possible to locate the scribes' dialect more precisely). This dialect had undergone both OSL and diphthongisation, but still featured geminate consonants when it was documented (unlike NHG, where they have become ambisyllabic singleton consonants). As such, this dialect exhibits a weight system close to the conditions immediately following OSL, whereby all stressed syllables are heavy, either VV or VC (the rare geminates following long vowels are typically simplified). It therefore contrasts with NHG, where they have been degeminated and short vowels in open syllables are followed by ambisyllabic consonants.

3 OSL and Diphthongisation

A number of accounts during the 1980s, such as Minkova (1982) and Hayes (1989), argued that OSL was a process of compensatory lengthening resulting from the loss of word-final schwas. However, this theory has since been largely abandoned in favour of the traditional account of OSL as a process which increased the uniformity of the weight of stressed syllables, thereby improving metrical coherence (cf. Prokosch 1939; Lahiri and Dresher 1999). OSL affected the WGmc. dialects, English, Dutch and German, but due to the local environments in which it operated, the results were different in each language. In all three languages, OSL initially led to length alternations between monosyllabic CVC words and disyllabic inflected forms (e.g., singular and plural nouns). However, paradigmatic levelling has removed such contrasts in NHG, as in [taːk]~[ˈtaːgə] ('day'~'day PL') and [gaːp]~[ˈgaːbən] ('give 3SG.PRET'~'give 3PL.PRET') (compare also Im. [tɔːǧ] 'day' and [ˈǧøi.βə] 'give INF'). In German, paradigms have been levelled in favour of

the long vowels, unlike modern Dutch (NNL), which still exhibits length alternations in these paradigms: [dɑx]~[ˈdaːɣə] (‘day’~‘day PL’) and [ɣɑf]~[ˈɣaːvən] (‘give 3SG.PRET’~‘give 3PL.PRET’). For a thorough, comparative discussion of the effects of OSL on the WGmc. languages, see Lahiri and Dresher (1999). The same was true of Im., although it has since lost the indicative preterite, as the surviving preterite subjunctive forms demonstrate, e.g. [ɠaːb̥] (‘give 3SG.PRET.SBJV’).

OSL was far more frequently blocked in High German, due to the Second Consonant Shift eliminating many contexts left intact in other WGmc. languages. Due to this shift, intervocalic singleton voiceless stops /p,t,k/ became geminate fricatives /ff,ss,xx/ (since degeminated in the standard language, but not all SBav. dialects), closing many previously open syllables. This can be seen in the following OHG ~ Old English (OE) pairs, with the NHG and Im. reflexes unaffected by OSL: *offan~open* (NHG [ˈʔɔfən], Im. [ɔff] ~ modern English (NE) [ˈəʊpən], ‘open’), *waz-zar~wæter* (NHG [ˈvaʂɐ], Im. [ˈβɔs.sər] ~ NE [ˈwɔːtə], ‘water’) or *zeihhan~tācen* (NHG [ˈt͡saɪçən], Im. [ˈt͡sɔːa.xə] ~ NE [ˈtəʊkən], ‘token’). It is important to note that, whilst diphthongisation affected the quality of the relevant vowels, OSL increased vowels’ quantity, with their quality and featural representation unaffected, remaining monophthongal. In other words, the nucleus of the syllable must become branching if its rhyme does not already have a branching structure, resulting in an additional slot on the timing tier which associates to the root node of the original vowel. This is illustrated graphically in Figure 4.1, using originally short /a/ as an example.

The reverse is true of diphthongisation, which affected the quality of the long high vowels /iː,yː,uː/. Unlike OE, there is no evidence for short diphthongs in OHG or MHG, where diphthongs were always long, forming heavy syllables and patterning with long vowels, for instance never occurring before geminate consonants or affricates (cf. Russ 1982, 121–2). Diphthongs failed to undergo any lengthening processes, although they were occasionally shortened to monophthongs, as in

NHG [ˈt͡svant͡sɪç][10] < MHG /ˈt͡sweint͡sig/ (*zwanzig*, 'twenty'). Both the input (long monophthongs) and output (diphthongs) were branching and thus never affected by OSL. Diphthongisation therefore maintained the quantity of the vowels it affected, but altered the featural specification of the first nuclear element. Assuming the FUL feature system (Lahiri and Reetz 2010; Lahiri 2018),[11] the diphthongisation of /iː,yː,uː/ > /ei,øy,ou/ can be accounted for in more formal, feature-geometric terms, illustrated graphically in Figure 4.2, where [-] represents the absence of a feature (features are monovalent in FUL). Whilst the second slot on the timing tier retains its association to all of the features of the original long vowel, the first slot loses its association to the feature [HIGH]; as Table 4.2 shows, this is the only difference between the first and second vowel of each diphthong. In other words, the first slot would gain its own ROOT node with the feature [SONORANT] (forming part of the nucleus), unspecified for all PLACE features other than those dominated by the ARTICULATOR node, which it continues to share with the second vowel.[12]

As OSL increased the quantity of the vowels it affected and diphthongisation maintained the quantity of the already long vowels it affected, only altering their quality, the result was an increase in the number of syllables with a branching nucleus. Following the completion of both changes, all stressed syllables in the language would be heavy, either due to a branching nucleus or a branching rhyme (as in the case of closed syllables). This would mean that stressed syllables would have had one of only three possible structures: CVC_1, $CV_iV_iC_0$ or $CV_iV_jC_0$. Although degemination would ultimately reintroduce a number of light stressed syllables into the standard

[10]Compare this with Im. [t͡swɯ̃ət͡sk] ('twenty'), where the diphthong was not shortened. In Im., [ɯ̃ə] is the nasalised variant of [ɔa], the reflex of MHG /ei/.

[11]FUL assumes the feature [CORONAL] to be universally underspecified, accounting for its absence in the underlying representation of the non-dorsal vowels in Figure (4.2). It is, however, an existing feature which is filled in articulation and is present in the output, hence its inclusion in Table 4.2 (cf. Lahiri and Reetz 2010, 47).

[12]Towards the end of the thirteenth century, further dissimilatory lowering of the first vowel element began to affect the diphthongs, first /ei/, followed by /ou/, producing /ai/ and /au/. This can be understood as the addition of the feature [LOW] and the loss of the connection to the shared ARTICULATOR node, instead gaining the feature [DORSAL]. Around this time, rounded coronal vowels were unrounded (lost the feature [LABIAL]), resulting in /øy/ > /ei/. This change began in SWBav., but postdated the change of /ei/ > /ai/, as these two sounds remained distinct until the fifteenth century, when the new /ei/ would undergo the same process of dissimilatory lowering which affected the other products of MHG diphthongisation (/yː/ > /øy/ > /ei/ > /ai/), ultimately merging with /ai/ (< /ei/ < /iː/); cf. Kufner (1957).

Table 4.2 Feature specifications of the vowels present in the new diphthongs

	/ei/		/øy/		/ou/	
	e	i	ø	y	o	u
[LABIAL]			+	+	+	+
[CORONAL]	+	+	+	+		
[DORSAL]					+	+
[HIGH]		+		+		+
[LOW]						

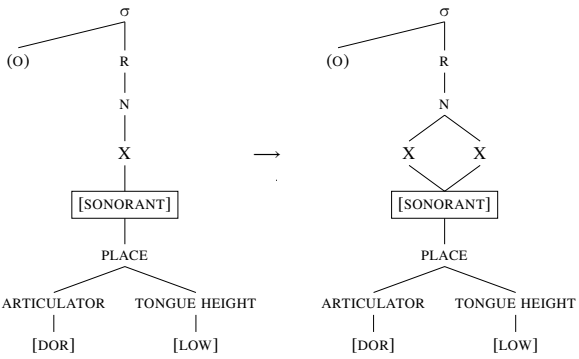
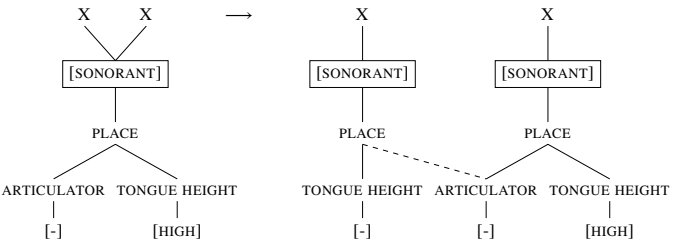


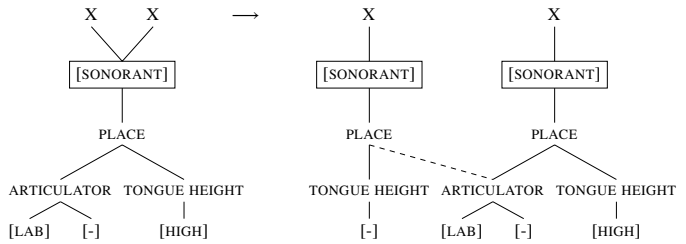
Figure 4.1 Feature-geometric representation of the effect of OSL on /a/.

language, OSL and diphthongisation fit into a broader diachronic trend towards increasing the quantity of stressed syllables in German. Indeed, a small number of High Alem. and SBav. dialects have resisted degemination and as such do not feature any stressed light syllables. Compare, for example, Im. [ˈpruk.ke], [ˈfɔl.lə], [ˈtɔn.nə] and NHG [ˈbʁʏkə], [ˈfaḷən], [ˈtaṇə] (‘bridge’, ‘fall INF’, ‘fir’).

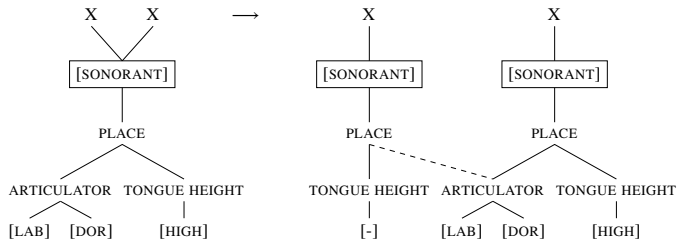
Prior to OSL, vowel quantity was consistent across inflectional paradigms and surface vowel length directly reflected the quantity of the underlying representation. In this way, all word forms within a paradigm provide evidence of the underlying quantity of the stem vowel. However, after OSL, vowels in open syllables were no longer informative, as both underlyingly short and long vowels would surface as long in this context. For instance, it is unclear from the forms [ˈstæː.bə] (‘stick PL’) and [ˈræː.tə] (‘advice PL’) alone that the underlying stems are /stab/ (‘stick’) and /raːt/



(a) /iː/>/ei/



(b) /yː/>/øy/



(c) /uː/>/ou/

Figure 4.2 Feature-geometric representation of the effects of diphthongisation on the high vowels.

('advice'). The ablaut verbs form a principled exception, as these featured *morphological* quantity alternations within the paradigm (in MHG, the verbs of most ablaut classes exhibited a short~long alternation in the stem vowel of the 3SG.PRET and 3PL.PRET forms, levelled in favour of the long vowel in NHG). At a later stage (following processes of degemination or lenition, depending on the dialect), alternations

between monosyllabic and disyllabic inflexional forms were reanalysed as lengthening before voiced (or lenis) consonants and levelled, always in favour of the disyllabic form's long vowel. This was also the case in Im., although in many cases (especially in the fourth ablaut series), it has at a later date gone further and levelled length across the verb's entire paradigm in favour of the short stem vowel, e.g. [ˈœs.sə, ass, ˈgœs.sə] ('eat': INF, 3SG.PRET.SBJV, PST.PTCP) vs. NHG [ʔɛs̩ən, ʔaːs, gəgɛs̩en] ('eat': INF, 3SG.PRET, PST.PTCP). The fact that the inherited long /aː/ of the preterite plural had previously been extended to the singular is demonstrated by the Im. nominal form [ˈaːs.siǧ] ('good to eat').[13] Schatz (1897, 171) suggests that this is simply the levelling of quantity across the paradigm, but it is important to note that this is due to the fact that the disyllabic forms of all such verbs feature medial geminate consonants which prevented OSL in the indicative forms. It is therefore possible that the relevant verb paradigms have undergone reanalysis such that all forms end in an underlying geminate (accounting for the shortening of the vowel, as long vowels precede lenis obstruents and short vowels precede fortis obstruents and geminates, cf. [namm] 'take' 3SG.PRET.SBJV). Importantly, such levelling is not a feature of paradigms such as [ˈʃnai.d̥ə, ʃnit, ˈkʃnit.tə] ('cut': INF, 3SG.PRET.SBJV, PST.PTCP), which feature a VV stem vowel in the present indicative. Examples of these changes are provided in Tables 4.3 and 4.4:

Table 4.3 Comparison of MHG, Im. and NHG singular and plural nouns with originally short and long stem vowels (*Stab* 'stick' and *Rat* 'advice')

Dialect	Singular	Plural
MHG (pre-OSL)	stap	ˈstæ.bə
	raːt	ˈræː.tə
MHG (post-OSL)	stap	ˈstæː.bə
	raːt	ˈræː.tə
NHG	ʃtaːp	ˈʃtɛː.bə
	ʁaːt	ˈʁɛː.tə
Im.	ʃtɔːb̥	ʃtaːb̥
	rɔːt	raːt

[13]Compare also the equivalent paradigms of 'meet': Im. [ˈtrœf.fə, traf, ˈtrof.fə] vs. NHG [ˈtʁɛf̥ə, tʁaːf, gəˈtʁɔf̥ən]. A number of strong verbs have also become weak and even lost the long-vowelled preterite subjunctive and past participle forms, e.g. [ˈpit.tə]~[ˈpit.tət] (NHG [ˈbɪt̬ən]~[gəˈbeː.tən] 'ask': INF~PST.PTCP).

Table 4.4 Comparison of MHG, Im. and NHG ablaut verbs with originally geminate and singleton medial consonants (*sprechen* 'speak' and *geben* 'give')

Dialect	INF	3SG.PRET	3PL.PRET	PST.PTCP
MHG (pre-OSL)	ˈsprɛx.xən	sprax	ˈspraː.xən	gəˈsprox.xən
	ˈgɛ.bən	gap	ˈgaː.bən	gəˈgɛ.bən
MHG (post-OSL)	ˈsprɛx.xən	sprax	ˈspraː.xən	gəˈsprox.xən
	ˈgɛː.bən	gap	ˈgaː.bən	gəˈgɛː.bən
NHG	ˈʃpʁɛçən	ʃpʁaːx	ˈʃpʁaː.xən	gəˈʃpʁoχ̯ən
	ˈgeː.bən	gaːp	ˈgaː.bən	gəˈgeː.bən
Im.	ˈʃprœx.xə	ʃprax (3SG.PRET.SBJV)	ˈʃprax.xə (3PL.PRET.SBJV)	ˈkʃprox.xə
	ˈg̊øi.βə	g̊aːb̥ (3SG.PRET.SBJV)	ˈg̊aː.βə (3PL.PRET.SBJV)	ˈg̊øi.βə

4 Evidence against an independent OSL in UG

4.1 Reassessing the evidence for polygenesis

The fact that EFr., the dialect spoken by Wolfram von Eschenbach, was still unaffected by OSL at the beginning of the thirteenth century is predicted by both accounts of OSL: the traditional account, which holds that it was not present in UG before the fourteenth century (whether there was a single point of origin or polygenesis) and the account of authors such as Kranzmayer (1956), Wiesinger (1970), Penzl (1974,1975, 1989) and Seidelmann (1999), who specifically argue that this 'lengthening of disyllables' was present in eleventh-century Bavaria (spreading throughout the Bav. dialect area as early as the twelfth century). However, the two accounts make different predictions about the SBav. dialect spoken by the scribe who copied Cod. 857's *Parzival* MS in the later thirteenth century: the traditional account would not expect it to show any signs of OSL, whereas the accounts of the abovementioned authors would certainly expect this dialect to show traces of it, especially given the fact that the MS shows clear signs of advanced diphthongisation, which Penzl suggests was *caused* by OSL (see Sect. 5). However, this does not appear to be the case. This section first challenges the evidence on which Penzl's arguments are based, before drawing on orthographic evidence to argue that OSL had not occurred in this dialect, although

various other lengthening processes were active. The relative chronology of OSL and diphthongisation will be addressed in Sect. 5.

Penzl's proposed timeline primarily serves to justify his argument that OSL created systemic pressure on the old long high vowels (which remained distinct from the new /iː,uː/),[14] leading to diphthongisation, which served to ease this pressure. In order to justify this chronology, Penzl relies on two pieces of evidence, the first being a comparable process in the Middle English (ME) Great Vowel Shift: 'Aus der englischen Parallele können wir einnehmen, daß der wahrscheinlichste innere Grund für die frühnhd. Diphthongierung die Entwicklung neuer hoher Langvokale wie *ī ǖ ū* wäre. Das wäre der Anstoß zum phonologischen Kettenschub, denn die Diphthongierung würde dann die Oppositionen im System aufrecht erhalten'[15] (1974, 354). The remaining evidence comes from four individual tokens of place names found in Lessiak's (1908) survey of the *Monumenta historica ducatus Carinthiae* (Jaksch 1896–1906), which comprise over 400 years' worth of documents drawn from a number of different Carinthian chanceries (and a number of other regions, such as Salzburg). These are the same documents which provide some of the earliest evidence of diphthongisation, but, as will be seen, the evidence for OSL in these documents is scant. Nevertheless, Penzl's argument has been taken up and repeated by subsequent proponents of this view (more or less critically), particularly notably by Seidelmann (1999) and the most recent editions of the key grammars, but also authors such as Keller (1978, 272), Wells (1985, 113), Wiesinger (2003), Young and Gloning (2004[2013], 134) and Cercignani (2022). (Lessiak himself incidentally argued for no such interpretation.)

[14] In Bav., there was never any chance of a merger, as diphthongisation preceded OSL (see below). There are a number of possibilities for the lack of a merger in other areas, including the development of a narrow openness contrast (cf. Seidelmann 1999; Wiesinger 2003), the possibility that the formerly short high vowels (but not the non-high vowels which underwent mergers) were laxer than their long counterparts to begin with, or that the inherited long high vowels were already diphthongised (e.g., /ɪi/, cf. Cercignani 2022, 49) or became so. Such an articulation may simply not have been orthographically recorded until much later.

[15] 'From the parallel case in English, we can infer that the most likely internal reason for eNHG diphthongisation would be the development of new long high vowels like *ī ǖ ū*. This would be the trigger of a phonological chain shift, as diphthongisation would then maintain the oppositions in the system.'

Lessiak (1908) focuses on the scribes' representation of quantity in place names (as they are less influenced by tradition than personal names and more likely to reflect innovation), particularly in relation to the circumflex 'length marker' (an accent which is the focus of Sect. 5). Crucial for our purposes is its use on etymologically short vowels (*V̆s), and Lessiak notes an apparent lengthening or diphthongisation ('breaking') of such vowels before ⟨r,l,h⟩, as in *Gûrch*, *Mûlzpuhil*, *Trûhs* (*Gurk*, *Molzbichel*, *Trixen*). However, all such examples occur in closed syllables which by definition cannot constitute evidence of OSL. If all such words are discounted (as well as those where the circumflex represents a diphthong, not a long monophthong, e.g. /uə/ in *Ôdal–* and *Tûto*), one is left only with the words in Table 4.5 (all place names).

Table 4.5 Remaining uses of the circumflex over 'short' vowels in the Carinthian documents.

_n	C_C > V	C_]$_\sigma$ > VV	Questionable
Jûn/*Iûn* (*Jaun*) *Hûninburg* (*Heunburg*) *Maltîne* (*Maltein*)	*Pûstirs* (*Pustritz*) *Tîven* (*Tiffen*)	*Pîber* /i/ (*Bieber*) *Gêgendorf* (also *Gegin–*, *Gein–*)	*Chrâft* *Prûst* *Engelrâmus de Hâge*

The first column represents long high vowels preceding a nasal (a typical environment for lengthening) and all three ultimately underwent diphthongisation, unlike the high vowel products of OSL, possibly even suggesting that the circumflex actually already represents a diphthong (as in *Ôdal-* and *Tûto*). *Pîber* is, admittedly, consistent with Penzl's proposal, but it is the only such word, occurring just once in the whole corpus (*Gêgendorf* is an example of /eː/ < /eɡi/, as its alternative spellings reflect: see Lessiak 1908, 266). It is furthermore significantly outweighed by counterexamples, e.g. *Pûstirs* and *Tîvina* (both apparently short vowels in closed syllables, as their modern forms reflect: *Pustritz*, *Tiffen*) and forms considered 'highly questionable' by Lessiak, e.g. *Chrâft*, *de Hâge*. This does not stop Penzl from citing *Gêgendorf* and *de Hâge*, as well as three others from a codex from Brixen which actually represent the diphthong /ou/ (cf. Lessiak 1908, 254): *Ôbrundôrf*, *Lissirahôvun*, *Glanahôuvn*.

One isolated spelling of *Pîber* in over 400 years' worth of chancery documents is not sufficiently convincing; as Reiffenstein (2003a, 2914) notes, supposed examples of OSL 'stehen zu selten und zu unsystematisch, als daß aus ihnen ohne fundierte Untersuchungen zuverlässige Schlüsse gezogen werden dürfen.'[16]

Despite this, Seidelmann (1999) takes up Penzl's argument that OSL motivated diphthongisation and draws on data from certain modern Alem. dialects which either underwent only OSL or neither change. In the former case, the old quantitative distinction between the two series of high vowels was replaced by a qualitative one (in degree of openness). This leads Seidelmann to suggest that, following OSL, the old contrast was maintained by diphthongisation, following an intermediate stage differentiating the two series through this very narrow difference in degree of openness. It is a compelling argument that the merger of the old and new long high vowels was avoided through this openness distinction, but the evidence does nothing to prove a causal link between OSL and diphthongisation. It demonstrates only that diphthongation need not *necessarily* precede OSL, but equally that OSL did not inevitably result in diphthongisation. (The two-series system has obviously remained stable in some dialects for hundreds of years, as he illustrates.)

4.2 Hand III's orthography

Hand III's orthographic treatment of vowel quantity provides further evidence that OSL was absent from SWBav. at the time and cannot have predated diphthongisation. It bears a number of striking similarities to that of certain chancery scribes described by Lessiak (1908), particularly the contemporaneous Gurk scribes, such as the use of the same graphemes to represent both /uː/ and /uə/, namely ⟨ů,v̊⟩ and ⟨v̂⟩, and the extensive use of the circumflex, which seems to have increased in the thirteenth century (Lessiak 1908, 248). Most importantly, however, there are very few examples of etymologically short vowels bearing a circumflex in Hand III's *Parzival* section

[16] 'Are too infrequent and unsystematic to be able to draw reliable conclusions about them without sound investigation.'

and where they do occur, they fall into the same four contexts as noted above (see Table 4.6).

Table 4.6 Remaining uses of the circumflex over 'short' vowels in Cod. 857.

Context	Count	Examples
_n]$_\sigma$	26	*ânderen* (*anderen*), *sînwel* (*sinewel*), *sv̂n* (*sun*:*tuon*), *fv̂nve* (*vünve*)
_r]$_\sigma$	39	*enbârt* (*enbart*), *v̂rvar* (*urvar*), *fv̂r* (*für*)
_l]$_\sigma$	3	*stâl* (*stal*), *zâl* (*zal*), *wastêl* (*wastel*)
_h]$_\sigma$	4	*gerîhte* (*gerihte*), *vngesîhte* (*ungesihte*), *nîeht*, *nîht* (*niht*:*lieht*)
Doublets[a]	18	*dv̂* (*du*, *dû*), *nv̂* (*nu*, *nû*)

[a]For discussion of such doublets, see Wright (1907, 4).

Over half of the _*n*]$_\sigma$ words are tokens of ⟨sv̂n,sv̊n⟩ (*sun* /sun/, 'son') rhyming with ⟨(ge)tv̊n⟩ (*tuon* /(gə)ˈtuən/, 'do'), which may reflect either the scribe's confusion in the face of dialectal differences (Jones 1984 suggests an incipient, possibly lexically specific case of 'Early Modern German (eNHG) monophthongisation' affecting *tuon* in Wolfram's EFr.) or the orthographic representation of a separate Bav. process of diphthongisation which turned short /u/ into /uə/ (if not both). This further explains the varied spelling, as the scribe had several options: representing the vowel as the diphthong ⟨v̊⟩, using the circumflex accent ⟨v̂⟩ to represent diphthongal quality (perhaps distinct from inherited *uo*) or marking its rhyme partner and leaving the plain ⟨v⟩; indeed, we find all three spellings in the text. Similarly, in the case of *stüende*:*künde* (/styəndə/ 'stand 3SG.PRET.SBJV', /kyndə/ 'can 3SG.PRET.SBJV'), umlauted /y/, usually represented as ⟨v⟩ in Cod. 857, can be marked with a circumflex ⟨v̂⟩ to represent diphthongal quality and rhyme with /yə/ ⟨v̊, v̊, v̂⟩: ⟨stv̊nde:chvnde⟩ (ll.398,21:22), ⟨chv̂nde:stv̂nde⟩ (ll.468,21:22), ⟨kv̂nde:stv̊nde⟩ (ll.516,6:7). In the same way, over 90% of _*r*]$_\sigma$ cases represent /yr/ in the words *vür*, *kür* and *tür* (/fyr/ 'before, for', /kyr/ 'choice, election' and /tyr/ 'door'). Given the consistent failure of Hand III otherwise to differentiate /u/ from /y/, this provides strong corroboration for Lessiak's argument that 'in einem Teil des bair.–österr. Sprachgebiets vor *r* frühzeitig eine Dehnung

bzw. Brechung kurzer Vokale in gewissen Fällen eingetreten ist'[17] (1908, 246) and that the circumflex marker is used to represent this diphthongisation of short vowels ('breaking' in his terminology).

What is left primarily comprises isolated tokens which can be dismissed, as they formed closed syllables and never lengthened: ⟨grv̂ft⟩ (/gruft/ 'cave'), ⟨entscv̊mpfiert⟩ (/entʃump͡fiərt/ 'defeat 3SG.PRET'), ⟨îne⟩ (a contraction of *ich=ne* 'I=NEG'), ⟨wâs⟩ (/was/ 'be 3SG.PRET', rhyming with the foreign name *karfodyâs* 'Karfodyas') and ⟨ês⟩ (/əs/ 'it', an elided, unstressed pronoun which can only be an error). Five words remain, given in Table 4.7. Both ⟨slîchen⟩ (NHG [ˈʃlɪçən] 'creep 3PL.PRET'; cf. Im. [ˈʃlix.xə]) and ⟨snîten⟩ (NHG [ˈʃnɪtən] 'cut 3PL.PRET'; cf. Im. [ˈʃnit.tə]) are surprising: they represent the preterite plural form of strong verbs (ablaut series I) and cannot demonstrate the effects of OSL, as neither verb was ever affected (inhibited by the intervocalic consonants /xx/ and /t/). They therefore presumably represent scribal errors, influenced by the existence of the infinitive, present indicative and subjunctive plural forms *snîden* /ˈsniːdən/ and *slîchen* /ˈsliːxən/. Similarly, ⟨chômen⟩ (/ˈkomən/ < OHG *queman* /ˈkwɛman/ 'come INF') never underwent OSL, with the circumflex more likely representing a qualitative difference from /o/ (cf. Im. [ˈkx̑em.mə]). The rhyming pair ⟨enbôtn:rôtn⟩ ('sent a message':'red', ll.148,09:10) is the only case which could conceivably represent evidence of OSL. However, the long vowel in NHG is the product of analogy, and this spelling ultimately seems to stem from dialectal differences between Wolfram and the scribe, and the latter's clear assumption that the rhymes represented in the poem should match in both quality and quantity; when they did not, he would insert a circumflex over the short vowel to ameliorate the rhyme (as with the abovementioned

[17] 'In part of the Bav.–Austrian language area, a lengthening or breaking of short vowels occurred before *r* in certain cases.'

⟨wâs:karfodyâs⟩). It seems likely that Wolfram felt free to employ a short-vowel variant form of the verb *rôten* ('be, become red INF')[18] and the scribe seems to have been untroubled by rhymes between *boten* (/ˈbotən/, 'messenger PL') or *en-*, *geboten* (/ən-, gəˈbotən/, 'send a message PST.PTCP', 'offer, present PST.PTCP') and the verb *rôten~roten* (/ˈroːtən/~/ˈrotən/ 'be, become red INF') or the certainly short *goten* (/ˈgotən/ 'god PL' l.45,01).

Table 4.7 Remaining tokens where Hand III places a circumflex over a 'short' vowel

Word	Cl-MHG	Count
enbôtn	enboten	1
rôtn	rôten/roten	1
chômen,chômn	chomen	3
slîchen	slichen	1
snîten	sniten	1

However, in ll.148,09:10, Wolfram rhymes the adjective *rôten* ('red') with the *preterite plural* form *enboten* ('send a message'), which seems to have confused the scribe, whose dialect retained the quality alternation between the preterite singular and plural forms of the verb *bôt~buten* (/boːt, ˈbutən/ 'offer, present'). In contrast, this seems to have been lost in Wolfram's dialect, which maintained only the length alternation: *bôt~boten* (/boːt, botən/). Faced with this discrepancy, the scribe, who in non-rhyming contexts uses the spelling ⟨bvten⟩ or ⟨bvtten⟩ for the preterite plural form, seems to have followed the spelling of his exemplar, but used the circumflex accent to 'fix' what seemed to him an impure rhyme. In this way, the issue at hand seems less a matter of quantity than quality. Elsewhere, the spelling of the plural noun *boten* as ⟨botten⟩ ('messenger PL', l.87,17) demonstrates that the vowel was short for the scribe. The indication of short vowels through doubled consonants was a feature of contemporary MSS, including the Carinthian documents. Hand V, who took over from Hand III in copying the *Nibelungenlied*, likewise includes the forms ⟨botten⟩ (ll.702,4;

[18]The OHG verb *rōtēn* appears to have already begun to shorten during the OHG period and is also attested as *roten* in a number of other MHG texts (cf. Benecke et al., 771; Schützeichel 2006, 282).

874,3), ⟨en botten⟩ (l.879,3) and ⟨bottenbrot⟩ (‘messenger’s reward’, l.705,2) in his section.

In particular, the doubling of ⟨t⟩ following a short vowel was a feature of SBav. and Alem. (Hoffmann 2000, 360), with such double spellings providing further positive evidence for the absence of OSL in Hand III’s dialect. Unfortunately, as /t/ often inhibited OSL, we have to rely on a smaller number of forms, such as ⟨tretten, betten, vermitten, botten, bvtten⟩ /ˈtretən, ˈbɛtən, fərˈmitən, ˈbotən, ˈbutən/ (NHG *treten*, *beten*, *vermieden*, *Boten*, *boten* [ˈtʁeːtən, ˈbeːtən, fɐˈmiːdən, ˈboːtən, ˈboːtən] ‘step INF’, ‘pray INF’, ‘avoid 3PL.PRET’, ‘messenger PL’, ‘offer 3PL.PRET’).[19] Such forms would all ultimately undergo OSL, but the use of ⟨tt⟩ for singleton /t/, despite the lack of a geminate consonant, indicates that these vowels were still short, a spelling shared by similar words which were never lengthened (and whose spelling therefore matches their NHG reflexes), e.g. ⟨sattel, wetter, geritten, gestritten⟩ /ˈsatəl, ˈwɛtər, gəˈritən, gəˈstritən/ (Cl-MHG *satel*, *weter*, *geriten*, *gestriten*, Im. [ˈsɔt.tl̥, ˈβøt.tər, ˈg̊rit.tə, ˈkʃtrit.tə] ‘saddle’, ‘weather’, ‘ride PST.PTCP’, ‘argue PST.PTCP’). Doubled ⟨t⟩ is most common, but a number of isolated examples of other orthographically doubled singleton consonants also exist, such as ⟨hammer, sciff, biscoff, disses, chvss⟩ /hamər, ʃif, biʃof, disəs, k͡xus/ (Cl-MHG *hamer*, *schif*, *Bischof*, *dises*, *kus*; ‘hammer’, ‘ship’, ‘bishop’, ‘this GEN.M/N.SG’, ‘kiss’), as well as the scribe’s preference for the alternative forms ⟨chnappe⟩ and ⟨Rvbbin⟩ over ⟨chnabe⟩ /k͡xnabə/ and ⟨rvbîn⟩ /rubiːn/ (Cl-MHG *knabe~knappe*, *rubîn*; ‘boy’, ‘ruby’). This orthographic convention is absent from Hands I, II and IV of Cod. 857, but common to Hands III and V, as well as a curiously mixed reversed tendency to use ⟨zz⟩ for /s/ after a long vowel (usually unmarked), as with ⟨azzen⟩ /aːsən/ (Cl-MHG *âzen* ‘eat 3PL.PRET’) or ⟨grozzen⟩ /groːsən/ (Cl-MHG *grôzen* ‘big’), besides forms such as ⟨vlvzz⟩ /flus/ (Cl-MHG *vluz*

[19]Compare Im. [ˈpøitə, fər.ˈmiː.d̥ (3SG.PRET.SBJV), pout, poutə (PST.PTCP)]. The verb [ˈtrœt.tə] (‘step INF’) has become weak in Im., inherited from the weak OHG form *trettôn* ‘step on’ rather than the strong *rëtan* ‘step’, explaining the lack of OSL and its geminate /t/.

'river') or ⟨gvzz⟩ /gus/ (Cl-MHG *gvz* 'gush') with short vowels, possibly suggesting that /s/ and /ss/ were already beginning to fall together.

4.3 Summary

Upon closer inspection of the evidence from the Carinthian chancery documents presented in Lessiak (1908) on which Penzl's (1974) analysis so heavily relies, one observes that the words (i) never underwent OSL, (ii) were not even in open syllables, or (iii) actually represent diphthongs (with one dubious exception). Furthermore, there are many counterexamples. In addition, certain modern Alem. dialects which exhibit the effects of OSL (but not diphthongisation) demonstrate that the two high vowel series were able to remain distinct and stable for hundreds of years. This strongly suggests that the two changes were independent, with no real evidence of a causal relationship, as neither change was required to precede the other. Hand III's writing similarly lacks any convincing orthographic evidence of OSL and in fact demonstrates positive evidence of its absence in the form of digraph spellings of singleton consonants after short vowels which would ultimately undergo OSL, such as ⟨botten⟩ ('offer 3PL.PRET'). When compared to Lessiak's (1908) Carinthian data, Hand III shows a remarkable degree of overlap with the chancery scribes, as summarised in Table 4.8.

Table 4.8 Comparison of the Carinthian chancery documents and the *Parzival* manuscript, Cod. 857.

		Carinthian data	Hand III
Circumflex on short V affected by OSL		⟨Pîber⟩??	—
Circumflex on short V not affected by OSL:	Closed σ before *r,l,n,h*	✓	✓
	Errors/never affected	✓	✓
Circumflex on diphthongised vowel		✓	✓ (see Sect. 5)
Double C following short V:	V not affected by OSL	✓	✓
	V affected by OSL	?	✓

5 Diphthongisation

5.1 The independence of OSL and dipthongisation

It is now possible to investigate Penzl's (1974, 1975) claim that OSL triggered diphthongisation via a push-chain. The concept of push-chains as envisaged by Penzl—where a given change has a knock-on effect within the phonological system, potentially threatening phonemic contrasts and resulting in a series of further, related changes (recall Sect. 2 and Sect. 4.1)—goes back to Martinet (1952; see also later work by Labov 1994). However, care must be taken in proposing a push of this kind (see, for example, Hock 1986, 156–7; Gordon 2015[2017] and references therein); Hock (1986, 157) complains of a lack of empirical evidence for push-chains (as opposed to pull-chains), although this issue is addressed by Labov (1994). The focus of this chapter is *not* the possibility of chain shifts more generally, but specifically that *OSL and diphthongisation cannot be accounted for in such terms*. Penzl's proposed chain shift implies that one is dealing with a single process, but these were distinct changes: OSL and diphthongisation occurred in different places at different times (and in different orders). Diphthongisation was independent from OSL (preceding it in many dialects) and did not affect the new long vowels it created.

This bears a number of similarities to English, which also underwent its own process of OSL during the thirteenth century, followed by a process known as the Great Vowel Shift (GVS), which involved the diphthongisation of the high vowels: /iː/ > /əi̯/ and /uː/ > /əu̯/ (NE [ʌɪ̯] and [aʊ̯]; /yː/ had by this point merged with unrounded /iː/). The GVS has been characterised as a pull-chain, with this diphthongisation leaving a gap which caused the other vowels to rise as a series (either by one or two steps): /aː/ > /ɛː/ > /eː/ > /iː/ and /ɔː/ > /oː/ > /uː/. However, as in German, the earlier short vowels were not diphthongised, due to the local facts of English.[20] The short high vowels

[20]There is no possibility of blaming this on the ordering of the changes in English, as the GVS, did not occur until the early modern period (roughly dated to the first half of the fifteenth century).

only sporadically underwent OSL in the first place and the handful of examples which have survived into NE with long vowels (e.g. *weevil*, *evil*) were also lowered to /eː/ and /oː/ (via /iː/ and /uː/ respectively, cf. Wright and Wright 1923, 42). When the GVS occurred, these vowels therefore did not diphthongise, but rather rose to /iː/ and /uː/ (along with inherited /eː/ and /oː/). However, those high vowels lengthened before /ld/ or /nd/ clusters in ME *were* diphthongised, e.g. OE *cild* > NE [tʃʌ͡ɪɬd]; OE *cynd* > NE [kʌ͡ɪnd]; OE *hund* > NE [ha͡ʊnd].

Section 4 demonstrated that diphthongisation was present in SBav. before OSL, so even if diphthongisation was the result of a crowded high vowel space, it is unlikely to have been caused by OSL in Bavaria. Other contexts for lengthening or diphthongisation, such as those suggested by Lessiak (i.e. preceding /r,l,h,n/), could equally easily have caused a similar systemic pressure which led to diphthongisation. However, it appears much more likely that diphthongisation was never part of a so-called push-chain. As has already been mentioned, such crowded vowel spaces have been tolerated in High Alem. dialects for centuries, and there are dialects where the non-high long vowels produced by OSL have fallen together with the inherited equivalents and subsequently diphthongised. Far more likely is that there is a tendency across High German (and other WGmc. dialects) to realise long vowels with a diphthongal quality, especially before liquids.

Throughout Bavaria, there are examples of all non-high long vowels (including umlauts) being diphthongised (Paul 2007, 38) and these, unlike the high vowels, have fallen together with the new long vowels produced by OSL. Strong evidence for the fact that the articulation of long vowels is the deciding factor comes from the fact that short vowels are often diphthongised in lengthening contexts, i.e. before /r,h,n/, word-finally and in hiatus (cf. Reiffenstein 2003b, 2914; Paul 2007, 37, 74). Even in areas unaffected by the diphthongisation of the MHG high vowels, an older, OHG process of diphthongisation word-finally or before another vowel (*Hiatus-Diphthongierung*,

'Hiatus Diphthongisation') was active (cf. Paul 2007, 74). This tendency towards a diphthongal articulation of long vowels can also be observed in modern Bav. dialects, such as Im., where short /e,o/ are lengthened and diphthongised to [ẽi,õu] before a nasal. Earlier authors attempted—with mixed success—to link diphthongisation to vowel quantity in phonetic terms, with a rising accent leading to dissimilation (see Wiesinger 2003, 2446 and references therein).

This section will draw on orthographic evidence to argue that diphthongisation was at an advanced stage in the scribe's SWBav. dialect and thus cannot have been caused by OSL. Of central concern is the scribe's use of the circumflex accent. The assumption that this accent solely represents differences in vocalic quantity (and not quality) naturally has substantial implications for the dating of the vowel changes discussed in this chapter. It is my contention that Hand III of Cod. 857 used this accent systematically to represent diphthongal quality rather than vowel length *per se*. Such a use of the circumflex has previously been observed in Carinthian documents, with Lessiak (1908, 271) noting that one finds place names with /uə/ represented as ⟨ů,ǒ⟩ beside ⟨ô⟩ and isolated cases of ⟨û,ûo⟩ (e.g. *Ôdal-*, *Tûto*, *Gûotenberg*) and Penzl (1974, 347) mentioning the oft-quoted example of Heinrich von dem Türlin's (1215) rhyme between *zît*:*geleit* ('time':'set PST.PTCP'). However, to the best of my knowledge, it has not yet been suggested to have been used consistently in this manner (or systematically investigated). Although it is not used in every possible environment, I argue that Hand III employs it regularly and, where it is employed, it is done entirely consistently.

In this section, the entirety of Hand III's contribution (c.128,500 words) will be examined, in order to provide a comprehensive account of the practices of a single

speaker, but the findings will be compared to the work of the four other scribes involved in the production of Cod. 857's *Parzival* and *Nibelungenlied* MSS.[21] Hands I and II completed only a small number of lines at the beginning of *Parzival* (452 and 87 respectively). However, Hand III was prolific and completed the remaining 24,271 lines and the first four lines of the *Nibelungenlied* MS. His (unprepossessing) student, Hand IV, was permitted to copy the following 68 ½ lines before Hand III took back the pen and continued for 1,487 ½ more lines. Hand V completed the remaining 7,948 lines of the *Nibelungenlied*. Our sample of Hand III's work is large and extends across two different MSS, so consistent characteristics of his orthography must be representative of his own writing habits and cannot be dismissed as being carried over from his exemplar MS (as Witte 1927 is often too quick to do). Section 5.2 considers the statistical imbalance between the concentration of accents across the vowel system, with the circumflex centred on those vowels which underwent diphthongisation (or were already diphthongs but lacked a diacritic), and Sect. 5.3 considers other representations of these phonemes, demonstrating that the scribe was otherwise uninterested in representing length. Finally, Hand III's orthography is compared to that of his fellow scribes, all of whom appear to have come from the same scriptorium (and therefore dialect area; see Hoffmann 2000).

5.2 High vs. non-high vowels

If one sets aside the assumption that the circumflex directly represents length and considers its distribution, certain tendencies soon become apparent. Let us first consider the plain monophthongs: as Figure 4.3a reveals (note the different *y*-axis scales), there is a significant difference in frequency between the high vowels ⟨î,v̂⟩ (together numbering 1,552) and the non-high dorsal vowels ⟨â,ô⟩ (each comprising fewer than 100

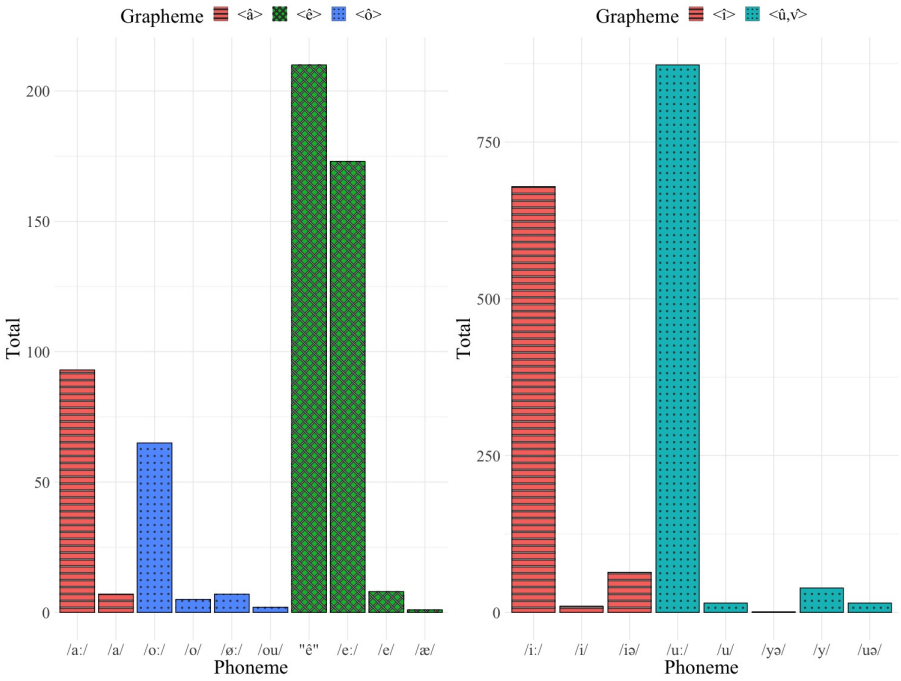
[21] Loans and nonnative proper nouns, e.g., the personal and geographical names *Jtonîe* ('Itonje') and *pôlus artânticus* ('Polus Artanticus'), which behave anomalously and frequently include representations of nonnative segments, were disregarded. The scribe accents such words only sporadically, possibly due to a lack of familiarity, so they are of limited use in examining the use of the circumflex accent. Also excluded are representations of other phonemes, such as consonantal /j/ (e.g., ⟨verîach⟩ /fərˈjax/, Cl-MHG *verjach* 'avow 3SG.PRET') or the non-native suffix ⟨-îe⟩ (<OF *-ie*; NHG *-ei* /-aɪ/), distinct from the MHG diphthong ⟨ie⟩ /iə/ (NHG *-ie* /iː/).

tokens in the whole text), with the non-high coronal vowel ⟨ê⟩ (383) somewhere in between.[22] However, this number drops to 173 when one sets aside instances of the exceptional word *ê* /eː/ (NHG *ehe*, *eher* [ʔeːə, ʔeːɐ] < Cl-MHG *êr*, *ê* < OHG *ēr*, 'earlier, before'), which is marked without exception by all five scribes.[23] As Figure 4.3b demonstrates, this pattern is consistent with Hand III's section of the *Nibelungenlied* MS, although the number of tokens of ⟨î⟩ and ⟨ê⟩ (once the word *ê* is excluded) are much closer (most likely due to the comparatively small sample, both represented by fewer than 20 tokens). What accounts for this disparity between ⟨â,ô⟩ and ⟨î,û⟩, and why is ⟨ê⟩ so much more frequent than the other non-high vowels?

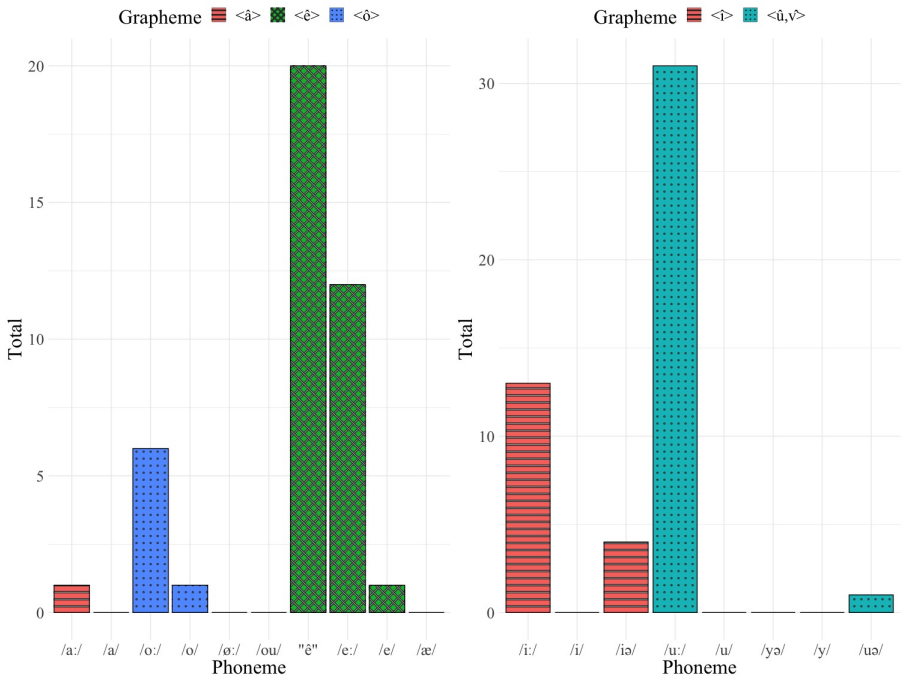
Before answering this question, it must first be noted that the quantity (and often quality) of the remaining MHG VV phonemes (the long umlauts and diphthongs) is otherwise overtly marked, as they are all consistently represented by digraphs, additional diacritics or ligatures, e.g. ⟨iv,o̊,æ,ei,v̊,ǒ⟩ (/yː,øː,æː,ei,uə,ou/). Their spelling thus renders an additional length marker redundant, yet Hand III nevertheless occasionally adds a circumflex to the digraphs ⟨îv,îu,îw,îv̊,îẘ⟩ (*iu* /yː/), ⟨îe,î⟩ (*ie* /iə/) and ⟨êi⟩ (*ei* /ei/). Why? Table 4.9, comparing the vowels marked by Hand III with their NHG and modern SBav. reflexes, suggests an answer to these questions. The dominance of long vowels which underwent diphthongisation is striking, with all of the vowels except for the extremely infrequent examples of ⟨â,ô⟩ representing diphthongs in modern SBav.: the diphthongs have remained diphthongs (as eNHG monophthongisation never affected this dialect) and the long vowels have become diphthongised through the diphthongisation of the high vowels and a separate process whereby MHG /eː/ became /e̯ɐ/ (Im. /ɛa/, e.g. [βɛa] < MHG *wê* 'woe'). The quality of the reflexes of /eː/ still define North, Central and Southern Bav. dialects, with its diphthongisation a characteristic feature of SBav., a divergence which began

[22] In addition, the number of unique words is proportionally much lower for the high vowels than non-high, reflecting the fact that the circumflex is used much more consistently in the former case.

[23] *ê* seems to be a special case, marked in all positions, due to the fact that it is a bare vowel and a contraction of *êr*, originally a comparative form.



(a) *Parzival*



(b) *Nibelungenlied*

Figure 4.3 Total number of tokens of ⟨â,ô,ê,î,û⟩ used by Hand III and the phonemes they represent in two MSS.

c. 1200 (Eichinger 2005, Map 42). This would mean that this diphthongisation would be expected to have affected the scribe's dialect, but be less progressed than the diphthongisation of the high vowels /iː,yː,uː/, reflected in the slightly lower frequency of the circumflex compared to /iː/ and /uː/. The fact that ⟨ê⟩ also appears in a highly definable set of contexts (similar to those of the older *Hiatus-Diphthongierung*) lends yet further credence to this suggestion. With almost complete exclusivity, the character appears in open monosyllables, syllables closed by /r/, in forms of the contracted verbs ⟨gên⟩ /geːn/ and ⟨stên⟩ /steːn/ (NHG *gehen* [ˈgeːən] 'go' and *stehen* [ˈʃteːən] 'stand') or the words *bêde* /beːdə/ and *zwêne* /t͡sweːnə/ (NHG *beide* [ˈbaɪdə] 'both' and *zwei* [t͡svaɪ] 'two'). It is therefore possible that this ultimately unconditioned diphthongisation had its origin in the phonetic diphthongisation of vowels in such environments, lending further credence to the present claims about the origins of diphthongisation.

Table 4.9 Comparison of surviving circumflex-marked vowels and their NHG reflexes (L = 'long', D = 'diphthong')

Phoneme	Grapheme	III P	III N	MHG	Standard NHG	Modern SBav
/uː/	ŵ	873	31	L	D	D
/iː/	î	679	13	L	D	D
/iə/	îe, î	539	29	D	L	D
/eː/	ê	373	32	L	L	D
/ei/	êi	239	1	D	D	D
/yː/	îv, îu, îw, îv̊, îẘ	140	2	L	D	D
/aː/	â	86	1	L	L	L
/oː/	ô	63	6	L	L	L

In other words, the majority of the circumflex accents appear on vowels which underwent a form of diphthongisation (written with a single vowel), with a sizeable minority made up of digraph diphthongs and *iv* /yː/, which also underwent diphthongisation. Could it in fact be the case that the circumflex accent actually represents diphthongal quality rather than length, as is occasionally the case in the Carinthian documents⁉ If so, this means that the long high vowels had become diphthongs for the scribe, but monophthongisation (as would be expected from the modern dialect)

had not occurred, hence the consistent appearance of /iə/ as ⟨îe⟩ and even ⟨î⟩ in the MS, difficult to account for if the circumflex merely denoted length.[24] It is perfectly conceivable that the scribe found the (by now) conservative spelling of Wolfram's long high vowels insufficient and employed the circumflex accent (rather than digraph spellings) to represent the qualitative difference of their diphthongised reflexes. This is particularly likely give the fact that the scribe would be familiar with the monophthongs represented by the letters in Romance languages with which he must have been familiar (especially given his possible geographic proximity to Romance-speaking areas in South Tirol). The new diphthong which arose from the diphthongisation of MHG /iː/ moreover never merged with MHG /ei/ in SBav. This accounts for the scribe's conscientious differentiation of the two sounds, with ⟨î,i⟩ on the one hand and ⟨êi,ei⟩ on the other, as an alternative to both ⟨ei⟩ and the conservative ⟨i⟩ had to be found; this phoneme now differed from short /i/ not only in quantity, but also in quality.

Table 4.10 Contexts in which the low vowels are marked with a circumflex accent.

â]$_\sigma$	ât]$_\sigma$	âN]$_\sigma$	âz]$_\sigma$	âr]$_\sigma$	âg]$_\sigma$	âch]$_\sigma$ [a]
47	19	8	1	1	3	1

ô]$_\sigma$	ôt]$_\sigma$	ôN]$_\sigma$	ôz/s]$_\sigma$	ôr]$_\sigma$
41	11	1	7	3

[a] This excludes nonnative proper nouns, loans and cases not representing the phonemes /aː/ or /oː/.

This interpretation of the circumflex accent is further strengthened by the very rare tokens of the characters ⟨â,ô⟩, which share a number of features suggesting that their marking can be regarded as exceptional. As the first column of Table 4.10 shows,

[24] Both *sî* /siː/ (NHG *sei* /zaɪ/ 'be') and *si(e)* /si, siə/ (NHG *sie* [zɪ, ziː] 'she') are at times spelt ⟨sî⟩, but their rhymes demonstrate their different qualities; the former only rhymes with words such as *bî* /biː/ (NHG *bei* /baɪ/ 'by, with'), whilst the latter only rhymes with words such as *hie* /hiə/ (NHG *hier* [hiːɐ] 'here').

most appear in rhyming open syllables. Only one token with an open ⟨ô⟩ syllable is not one of four open monosyllables: ⟨vrô/frô, sô, dô, drô⟩ /froː, soː, doː, droː/ (‘glad’, ‘so’, ‘then’, ‘threat’). There is a greater number of polysyllabic words with open /aː/ (36), due to the higher number of verbs, e.g. *bâten* /baːtən/, *nâmen* /naːmən/ (‘ask 3PL.PRET’, ‘take 3PL.PRET’), often in preterite plural form — as opposed to the short-vowelled preterite single forms (/bat/, /nam/) or present plural forms (/bi(t)tən/, /nɛmən/). Next most frequent are vowels immediately followed by /t/. Vowels were shortened in this context in many MHG words, as in NHG [ˈnatɐ] < MHG /ˈnaːtər/ (*Nâter* ‘adder’), so it is possible that the scribe felt the need to mark long vowels in this context overtly, possibly also explaining the seven words rhyming on ⟨-ôs/z⟩, e.g. ⟨chreftelôs⟩ /ˈk͡xreftəˌloːs/ (‘powerless’). Six of the âN]$_{\sigma}$ words are ⟨ân⟩, the monosyllabic variant of *ân*(*e*), /aːn/ (NHG *ohne* [ˈʔoːnə] ‘without’), or inflected forms of the related verb, e.g. ⟨ânde⟩ (‘be bereft 3SG.PRET’), and the remaining words represent isolated examples. It appears that there is pressure to mark rhyming syllables which are contractions (e.g., ⟨slâ⟩ < /slahə/, ‘hit 1SG.PRES’), potentially ambiguous (e.g., *ân(e)* ‘without’ vs. *an(e)* ‘grandfather’) or one of a small set of morphemes in derivationally linked nouns and verbs with a C-final stem (e.g., *rât*, *râten*, *râtes* /raːt, raːtən, raːtəs/ ‘advice’, ‘advise INF’, ‘advice GEN.M.SG’), clarifying their quantity in rhyming syllables. Since the scribe’s usual use of the circumflex accent did not interact with the low vowels, this accent could, if required, be used in such contexts without ambiguity. When these considerations are taken into account, such words can be treated as exceptional and disregarded for the purposes of the present analysis.[25] In the context of the inherited long plain monophthongs, one therefore finds the accent centring on one class of vowels, namely the high vowels /iː,uː/ (which underwent diphthongisation) and the coronal mid vowel /eː/, which underwent a separate

[25]The scribes active in Cod. 857 seemed happy to redeploy certain diacritics for other purposes when there is no risk of ambiguity. For instance, Hand I represents /uː/ as either ⟨u,v⟩ or ⟨ů,v̊⟩ (a diphthong in his dialect). With no long plain monophthong /uː/, he was therefore free to use ⟨û,v̂⟩ exclusively to represent umlaut on short /y/ and the diphthong /yə/: ⟨fv̂r⟩, ⟨trûbe⟩ (Cl-MHG *vür* /fyr/ ‘before, for’, *trüebe* /tryəbə/ ‘dim, dull’). This use cannot represent length, but this does not prevent him also using the circumflex over ⟨î⟩ to represent /iː/ (or the diphthong which it had presumably developed into): ⟨bîspel⟩, ⟨îs⟩ (Cl-MHG *bîspel* /biːspɛl/ ‘proverb’, *îs* /iːs/ ‘ice’; NHG *Beispiel* [ˈbaɪʃpiːl] ‘example’, *Eis* [ˈaɪs] ‘ice’).

process of diphthongisation, also redundantly appearing on digraph diphthongs and the digraph monophthong ⟨iv⟩ (/yː/, which also underwent diphthongisation). In contrast, it appears only exceptionally on the non-high dorsal vowels /aː,oː/ (which did not undergo diphthongisation).

5.3 Additional evidence for diphthongisation

If we assume, based on the evidence presented in the previous section, that Hand III uses the circumflex accent to represent diphthongal quality rather than simple length, two questions present themselves. Firstly, as circumflexes certainly aren't used in every case, how else are those phonemes which are marked represented in the manuscript? Secondly, why should the circumflex be concentrated on these phonemes, but not the remaining diphthongs /yə,uə,ou,øy/? Figure 4.4 illustrates the alternative spellings of the long high vowels and /iə/, which regularly attract the circumflex accent, excluding the unmarked spellings ⟨i,v,iv,ie⟩ which occur otherwise in the text. The behaviour of Hand III in the *Parzival* and *Nibelungenlied* MSS is consistent, although he demonstrates a greater preference for the ⟨v̊⟩ spelling of /uː/ and a slightly lower frequency of ⟨î⟩ in the latter. This quite likely simply reflects the much smaller sample size of this section (around 10% of the length of his *Parzival* contribution). The relative frequency of each of the phonemes must also be considered when analysing the use of the circumflex, as raw totals can give a distorted impression. The total count of each VV phoneme in the text is presented in Table 4.11, ranked highest to lowest, along with the percentage of each grapheme carrying a circumflex. This emphasises the extreme infrequency with which /aː/ and /oː/ are accented; although the former is the second most frequent VV phoneme (more than twice as common as the next most frequent), it is only marked in 1% of cases. Amongst the monophthongs, only /æː/ is lower, as it is almost universally represented with the special character ⟨æ⟩.

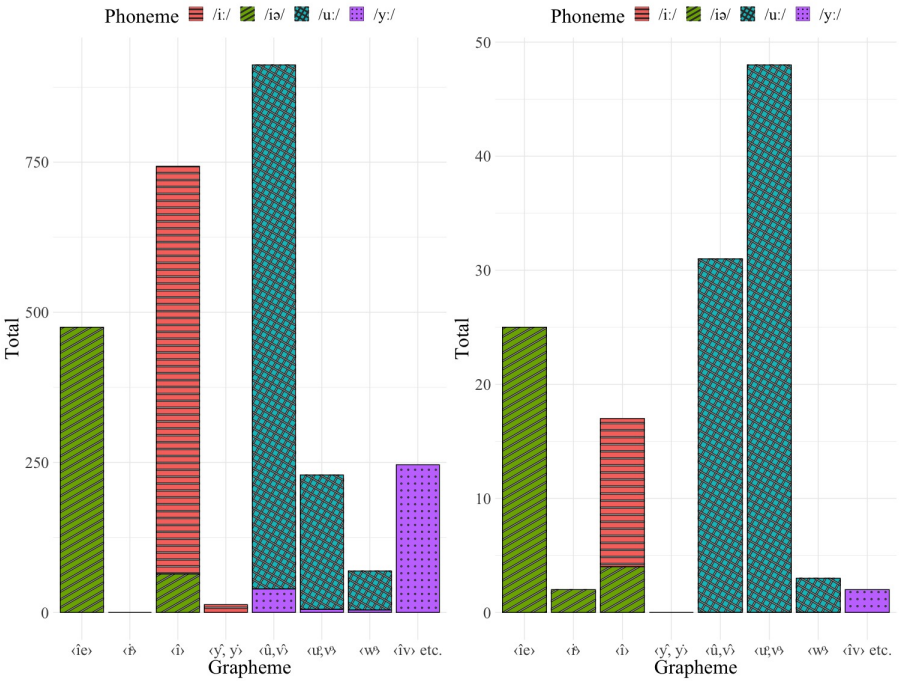


Figure 4.4 Alternative spellings of the long high vowels and the diphthong /iə/ used by Hand III in two MSS: *Parzival* (left) and *Nibelungenlied* (right).

At only 10%, /iː/ seems to be less frequently marked than might be expected, especially compared to /eː,uː/. However, this turns out to be a product of the prevalence of /iː/ in certain high-frequency words which are usually represented without a circumflex, most notably possessive pronouns. For instance, the various forms of the lexeme SÎN ('his') total 1,908[26] overall, with the word form *sîn* alone the 12th most frequent word in the MS (Hall 1990, 721). The fact that such pronouns are so rarely marked reflects the fact that they behave like function words and can be reduced, but are still capable of bearing stress as full syllables when focused. However, it is also possible that the dialect of the scribe did not diphthongise /iː/ in possessive pronouns (cf. the English dialect form [miː] 'my').[27] Nonnative lexical items, derivational suffixes which had short, unstressed alternants (and at most carried secondary stress), e.g. *-lîch*, *-lîn*, *-în* /liːx~lix, liːn~lin, iːn~in/ and the word *rîter* /riːtər/ (NHG *Ritter* [ˈʁɪtɐ]

[26] This total does not include the homophonous verb, *sîn* ('be' cf. NHG *sein*/*sein* 'be'/'his'), which is invariably accented.
[27] Thanks to an anonymous reviewer for this observation.

Table 4.11 The proportion of each VV phoneme marked with a circumflex in *Parzival*, separated into monophthongs (M) and diphthongs (D).

M VV Phoneme	Total number (to the nearest 50)	Percentage marked with a circumflex
iː	10,000	10.1
aː	9,000	1.0
oː	4,400	1.4
yː	3,400	4.3
eː	2,700	13.9
uː	2,050	42.5
æː	1,600	0
øː	400	1.7

D VV Phoneme	Total number (to the nearest 50)	Percentage marked with a circumflex
ei	5,950	4.4
iə	5,500	9.8
uə	2,950	0.5
ou	1,900	0.1
yə	800	0.1
øy	50	0

'knight'), which already appears to have shortened in the scribe's dialect (and occurs with extremely high frequency in this knightly epic) are also very rarely marked. If such words are discounted, then the percentage of /iː/ marked with a circumflex rises to around 25%. One therefore finds /iː/ and /uː/ marked in around 25% and just over 40% of cases respectively, with /aː/ and /oː/ both around 1% and /eː/ in between, at just under 15%.

The variation in the spelling of /uː/ also requires further comment. It is clear that this vowel was diphthongised for the scribe (his peers use ⟨v̊⟩ exclusively and such spellings align with Lessiak's (1908) twelfth-century Carinthian data, where both ⟨v̊⟩ and ⟨v̂⟩ representations are also found). The new diphthong quickly fell together with inherited /ou/. However, although old and new /ou/ were similar in quality to /uə/, they were not identical, as their reflexes remain distinct (modern Bav. /ua/ vs. /aʊ/). This explains the scribe's variation between the two spellings ⟨v̂,v̊⟩, e.g. ⟨v̂f~v̊f⟩ /uːf/, ⟨hv̂s~hv̊s⟩ /huːs/ ('on', 'house'). In contrast, the diphthong /uə/

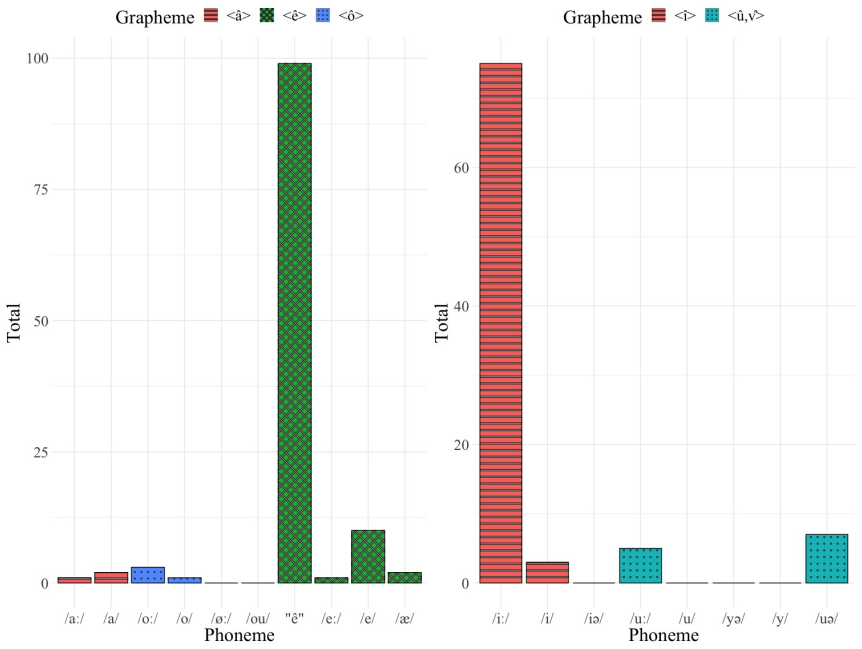
is only exceptionally represented as anything other than ⟨v̊⟩. The variation likely stems from a feeling that the new diphthong was distinct from /uə/ and a resultant dissatisfaction with this representation. Particularly interesting, however, is the not infrequent use of the characters ⟨ẘ,ŵ⟩, which provide further evidence of diphthongisation, as they often appear where no /w/ is expected, but almost exclusively precede a liquid (most commonly /r/) or a schwa, e.g. ⟨scẘr⟩ (*schûr* /ʃuːr/ 'storm'), ⟨fẘl⟩ (*vûl* /fuːl/ 'lazy') or ⟨zerblŵen⟩ (*zerblûwen* /t͡sərˈbluːwən/ 'blue INF'). Most interestingly, the scribe often inserts an additional ⟨e⟩ between ⟨ẘ⟩ and the following liquid: ⟨vermẘert⟩ (*vermûret* /fərˈmuːrət/ 'walled in'), ⟨mẘel⟩ (*mûl* /muːl/ 'mule') or ⟨gebẘers⟩ (*gebûres* /gəˈbuːrəs/ 'neighbour GEN.M.SG'). Words such as ⟨tẘerte⟩ (*tûrte* /tuːrtə/ 'last 3SG.PRET') demonstrate that this is not simply reliant on a following schwa, but apparent evidence of diphthongal vowel quality, suggesting a vowel–approximant–vowel sequence, with an epenthetic schwa inserted between the diphthong's offglide and the following consonant. Certainly, ⟨vermẘert⟩ suggests a pronunciation much closer to NHG *vermauert* [fɐˈmaʊɐt] ('walled up') than Cl-MHG ⟨vermûret⟩. This closely resembles the abovementioned examples of *vür*, *kür* and *tür*; as the umlaut /y/ is almost never represented, the systematic use of the circumflex before /r/ can be similarly interpreted.

Although Hand III marks umlaut for non-high vowels, he does not distinguish length, using ⟨æ,o̊⟩ for both /æ,ø/ and /æː,øː/. Only /y,yː/ are differentiated, but this is due to the fact that /y/ is never marked and /yː/ is uniformly represented as ⟨iv⟩, frequently with a circumflex accent (as it represents a diphthongised high vowel). The other (low-frequency) diphthongs featuring an umlauted vowel /yə,øy/ are similarly regularly marked, typically as ⟨v̊,ev/v̆e⟩. The behaviour of the umlauts thus mirrors that of the non-umlauted vowels exactly. There is little effort to distinguish /a,o/ and /æ,ø/ from /aː,oː/ and /æː,øː/ and it is only qualitative differences which are regularly represented: umlaut on the one hand (⟨æ,o̊⟩ vs. ⟨a,o⟩) and the diphthongisation of the

long high vowels on the other, most frequently through the circumflex accent (⟨i, v, v⟩ vs. ⟨î, v̂, îv/iv⟩).

If this evidence all indicates that diphthongisation was at an advanced stage in the scribe's SWBav., and that Hand III consistently differentiated diphthongs via the use of a circumflex accent, why does it never appear on old diphthongs other than /iə,ei/? Was the scribe only concerned with the products of diphthongisation? Surely not. The answer lies in their orthographic representation. Although Cl-MHG represents these sounds as ⟨ou,uo,öu,üe⟩, Hand III consistently uses ⟨o̬,u̬,o̬/e̬,v̬⟩. As is immediately apparent, such spellings already feature a superscript diacritic, representing their complex quality (as opposed to the digraph spellings ⟨ei,ie⟩, which leave space above the letters for the occasional insertion of a 'redundant' circumflex). It would therefore (in a very practical sense) be difficult to incorporate an additional accent. Why would one bother, anyway, when the superscript letters can be understood to fulfil the same function in the relevant cases? Indeed, the uniformity with which the scribe adheres to these principles is remarkable, given the 'erratic' characterisation of MHG scribal orthography, the work of 'ungebildete[r] Schreiber' (uneducated scribes), as Lachmann (most unfairly) dismissed it. Crucially, Hand III does in fact occasionally use the circumflex to represent these diphthongs: ⟨Scôt⟩ (/ʃout/, the name *Schaut* 'Schaut'), ⟨fv̂r, zv̂⟩ (*vuor* /fuər/ 'go, travel 3SG.PRET', *zuo* /t͡suə/ 'to'), ⟨stv̂nde⟩ (*stüende* /styəndə/ 'stand 3SG.PRET.SBJV'). Such spellings obscure the precise quality of the diphthong (presumably accounting for their scarcity) and result in what might otherwise appear to be baffling spellings, but are perfectly explicable if one takes the circumflex to represent a diphthongal quality.

We therefore appear to have a situation where Hand III is not concerned with marking vowel quantity, but rather uses the circumflex accent to mark diphthongal quality, adhering to the following preference scale, with single vowels most frequently



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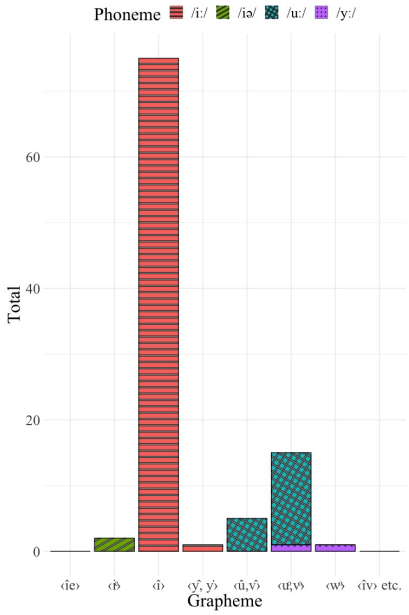
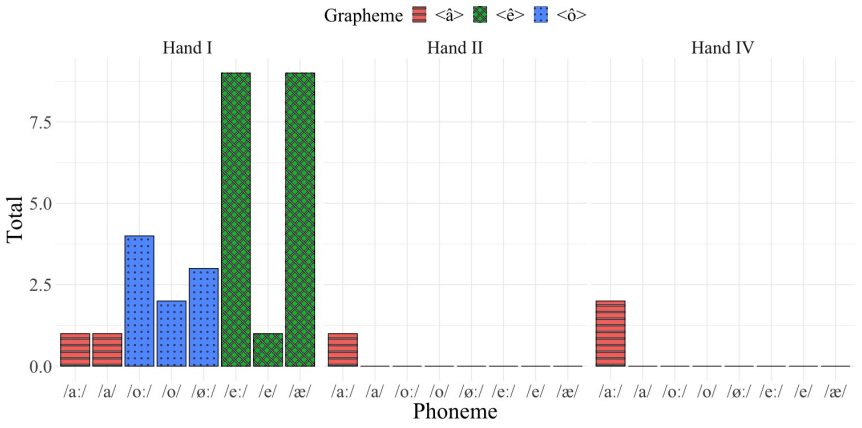


(b)

Figure 4.5 The behaviour of Hand V: (a) the total number of tokens of ⟨â,ô,ê,î,û⟩ and the phonemes they represent; (b) alternative spellings of the long high vowels and the diphthong /iə/.



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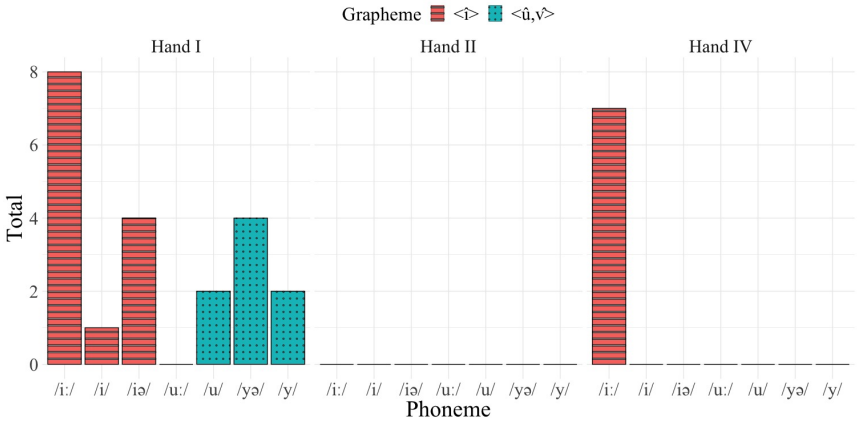

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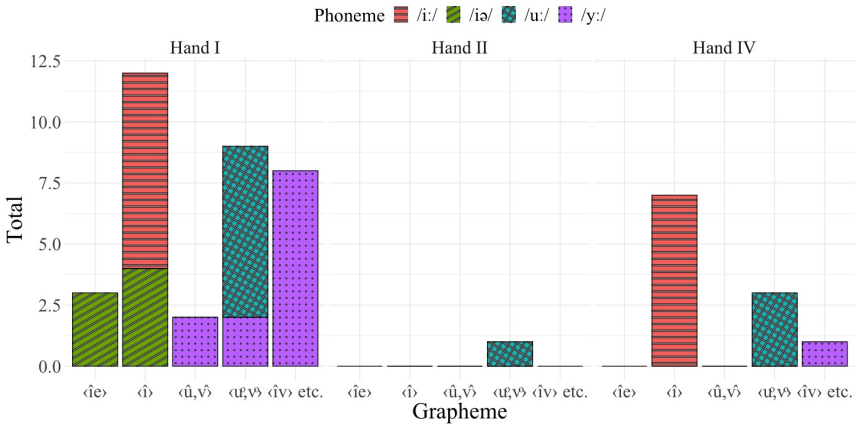


(c)

Figure 4.6 The behaviour of Hands I, II and IV: (a–b) the total number of circumflected vowels (⟨â,ô,ê⟩ and ⟨î,û⟩ respectively) and (c) alternative spellings of the long high vowels and the diphthong /iə/.

marked: V > VV > V̊. Low vowels are only exceptionally marked (apparently in specific contexts of lengthening or breaking, cf. Sect. 4.2) and the old diphthongs are marked by superscript vowels with remarkable consistency. How does this compare to the behaviour of the other scribes? Figures 4.5a and 4.5b represent the behaviour of Hand V, equivalent to Figures 4.3 and 4.4 for Hand III. Hands I, II and IV, representing extremely small samples, are included for comparison in Figures 4.6a, 4.6b and 4.6c. The additional data offer further evidence that /uː/ was by now very clearly diphthongised and orthographically differentiated. As Lessiak (1908, 257) notes: 'Der 1. Beleg für die Diphthongierung stammt aus der Mitte des 12. Jhs., sie wird mittels desselben Zeichens angedeutet, das auch für *uo* verwendet wird';[28] both III and V use ⟨v̂⟩ and ⟨v̊⟩ interchangeably to spell both /uː/ and /uə/, although V shows a marked preference for ⟨v̊⟩. Hand V is generally less likely than III to use the circumflex, but when he does employ it, his behaviour mirrors that of Hand III, centring on ⟨î,v̂,ê⟩. Hand V is more likely to mark /iː/ than /uː/ and does not seem to feel Hand III's need to mark /iə/, most likely due to its digraph spelling. The small samples from Hands I, II and IV are also consistent with Hand III's tendencies, avoiding the low vowels and, where they do use the circumflex, centring on /iː/ and /eː/ (and not infrequently /yː/). However, ⟨v̂⟩ is reserved for (primarily short) umlaut, *not representing quantity at all*, with /uː/ and /uə/ exclusively represented by ⟨v,v̊⟩. Hand II only writes two circumflexes and, tellingly, Hands I and II use ⟨á⟩ and ⟨ó⟩ more consistently than ⟨â⟩ and ⟨ô⟩ for the long low vowels, e.g. ⟨wán⟩ /waːn/ ('belief, doubt'), ⟨verlós⟩ /fərˈloːs/ ('lose 3SG.PRET'). In contrast, the acute accent does not appear over /uː/ and is only used as a tittle over ⟨i⟩ (to ease legibility). ⟨é⟩ and ⟨ê⟩ are equally likely for /e/, likely because, as with ⟨v̂⟩, Hand I seems to prefer to use the circumflex to represent umlaut of /a/ and /o/, e.g. ⟨trôste⟩ (*træste* /trøːstə/ 'comfort, console 3SG.PRES.SBJV'), ⟨mêre⟩ (*mære* /mæːrə/ 'tidings'). This underscores the fact that the scribes did not feel

[28] 'The first evidence for diphthongisation comes from the middle of the twelfth century, represented by means of the same symbol used for *uo*.'

that the circumflex need represent quantity directly or serve the same purpose over every vowel. As well as marking the (presumably diphthongised) phonemes /iː,eː,yː/ as ⟨î,ê,îv⟩, Hand I also used the circumflex to represent the umlauts /æː,øː,y,yː/ as ⟨â,ô,v̂,û⟩, possibly because diphthongised /uː/ was represented by ⟨v̊⟩ and /aː,oː/ did not diphthongise. Hand III only marks the umlauts /æː,øː/, using the characters ⟨æ,o̊⟩, and does not typically note the quantity of pure vowels, leaving him free to use the circumflex to mark diphthongal quality. Notably, both scribes use the circumflex over /yː/ (which was diphthongised), despite its digraph spelling ⟨îv,iv⟩.

5.4 Summary

The proposed analysis fits into accounts which propose an eleventh-century Bav. origin for diphthongisation, present throughout Bavaria by the end of the twelfth century and becoming more regularly marked in certain thirteenth century texts, attested in ECG before the end of the MHG period (cf. Wiesinger 1970). The present research suggests that *Parzival* is an early example of regular orthographic representation of diphthongisation, adding to the current taxonomy of notation and proposing that the circumflex accent actually represented qualitative differences in the scriptorium which produced Cod. 857. Prior to OSL, quantity was largely consistent across inflexional paradigms, meaning that Hand III did not typically differentiate length. However, diphthongisation was already part of his grammar, as the alternative ⟨v̊⟩ spelling of /uː/ demonstrates. The fact that he regularly marks the diphthongised reflexes of /iː,uː/ and /eː/ (which underwent an additional process of diphthongisation in SBav.) is strong indication that he was using the circumflex to represent this qualitative difference. Excluding very exceptional marking on non-high dorsal vowels, the only other long vowels featuring a circumflex are diphthongs, most frequently the other long high vowel /yː/, written as a digraph (accounting for the slightly lower frequency of ⟨îv⟩

than ⟨î,û⟩). Those diphthongs which do not appear with a circumflex already carry another diacritic. This pattern is consistent with the behaviour of the other hands of the codex, although it is more pronounced in Hand III's writing. Together, the evidence presented in Sect. 4 and Sect. 5 demonstrate that diphthongisation preceded OSL in Bav., which calls into serious question proposals that OSL caused diphthongisation.

6 Conclusions

This research has sought to investigate OSL and diphthongisation, two crucial changes to vowel quality and quantity which help to define eNHG and have had an enduring impact on the quantity system of modern German dialects and help to define eNHG. Whilst both changes are first attested in the early middle period (albeit significantly further removed in space than in time), their interactions and chronologies are much less clear. This chapter aims to provide insights into the origins and relative chronology of OSL and diphthongisation in UG, drawing on evidence from the orthography of the thirteenth-century *Parzival* MS in the SWBav. Cod. 857. This chapter challenges accounts by authors such as Kranzmayer (1956), Wiesinger (1970) and Penzl (1974, 1975, 1989) that there was an early, independent origin of OSL in eleventh-century Bavaria, as well as Penzl's repeated claims that diphthongisation was even triggered by OSL via a putative push-chain. Such attempts to link the two changes are problematic, as both OSL and diphthongisation were independently motivated and had minimal interaction beyond both being part of a broader trend across Gmc. languages to maintain and maximise the weight of stressed syllables (as is maintained throughout this chapter).

As was discussed in Sect. 5.1, caution must be exercised in proposing push-chains, and the origins of diphthongisation seem rather to lie simply in the quantity of the relevant vowels; throughout its history, Bav. has repeatedly displayed a tendency towards the diphthongal articulation of vowels in lengthening contexts. Nor was OSL

triggered by any sort of 'pull', but motivated by prosodic structure (cf. Lahiri and Dresher 1999). In this way, the most that can be said is that OSL generally provided additional inputs to *later* processes of diphthongisation within Bav., but did not interact with the diphthongisation of the high vowels (the change known as 'eNHG diphthongisation' in many textbooks). Diphthongisation predated OSL and the products of diphthongisation did not participate in OSL.

If it were correct that OSL began in Carinthia and spread throughout Bav. by the end of the twelfth century (in addition to an independent origin in Low Franconian), one would expect to find evidence of it in the grammar of a scribe writing in SWBav. in the later thirteenth century. In addition to this, Penzl's (1974) claim that OSL caused diphthongisation by crowding the high vowel space would predict that OSL would have to predate this second change, and such causality would be contradicted by a variety which exhibited advanced diphthongisation but no trace of OSL. The first of these predictions was examined in Sect. 4. Here, closer analysis in Sect. 4.1 showed Penzl's evidence to be less than convincing, resting almost entirely on parallels with the ME Great Vowel Shift and extremely thin evidence (precisely one example of a suspicious circumflex accent found within in 400 years' worth of Carinthian chancery documents). Crucially, this same collection of documents contains a number of vowels marked with the circumflex 'length marker' which (i) are not actually in open syllables, (ii) would never undergo OSL or (iii) actually represented diphthongs.

Furthermore, although attempting to support the case for a supposed causal link between the two changes, Seidelmann's (1999) analysis of modern Alem. dialects seems instead to challenge it. Seidelmann demonstrates that, although diphthongisation need not *necessarily* precede OSL, OSL equally does not inevitably lead to diphthongisation. If modern Alem. dialects exist which were affected by OSL but not diphthongisation and maintain an openness contrast between the old long high vowels and the products of OSL, the two high vowel series are clearly able to remain stable

for hundreds of years without diphthongisation occurring. Even more problematic for Penzl's (1974) model, the analysis of the behaviour of Cod. 857's Hand III provided in Sect. 4.2 demonstrates that there is no reason to believe that OSL was present in the scribe's dialect. This is particularly damning for any account which predicts that OSL would have reached all of SBav. by the end of the twelfth century at the latest, additionally advocated by Kranzmayer (1956) and Wiesinger (1970).

Hand III never marks vowel length through doubled letters and only exceptionally uses the circumflex 'length marker' over short vowels. Such instances have other explanations and are certainly not candidates for OSL, being either closed syllables or words which remained unaffected due to their medial consonants. In addition, there are a few clear errors (again all in closed syllables which never underwent OSL). Only one token from Hand III could possibly reflect OSL, but this in fact results from confusion due to a qualitative difference between the scribe and poet's dialects, specific to the preterite plural form *buten~boten* ('offer'). Positive evidence for the absence of OSL additionally comes from ⟨tt⟩ spellings for non-geminate /t/ following a short vowel. For instance, we find spellings such as ⟨tretten⟩ or ⟨botten⟩ for *treten* /ˈtrɛtən/ or *boten* /ˈbotən/ (NHG [ˈtʁeːtən] 'step INF', [ˈboːtən] 'offer 3PL.PRET') in both the writing of Hand III and his peer, Hand V. Ultimately, both Lessiak's (1908) Carinthian data (on which Penzl's evidence relies) and Hand III's work show very striking similarities which strongly suggest that neither had been affected by OSL (although diphthongisation was already active).

Penzl's claims are called into further question by the evidence of diphthongisation presented in Sect. 5. The idea that OSL caused diphthongisation via a push-chain is central to Penzl's argument, but this cannot be the case if diphthongisation was present in the dialect *before* OSL. In addition to the use of ⟨v̊⟩ to represent both /uː/ and /uə/ noted elsewhere, this thesis makes the original contribution of suggesting that Hand III used the circumflex accent consistently to indicate diphthongal quality,

as did the other scribes with whom he collaborated. In doing so, this work challenges the received wisdom that the circumflex accent—where it does appear—consistently and exclusively expresses vocalic quantity. Hand III appears to have considered the marking of vowel length redundant and was therefore able to use the circumflex accent to represent qualitative differences between the long vowels, specifically diphthongal quality. Past authors, such as Lessiak (1908), have noted that diphthongs were occasionally represented by a circumflex, mainly in relation to ⟨ô,û⟩, but such observations have been overlooked in recent literature and, to the best of my knowledge, this represents the first systematic investigation into this use of the circumflex, supported by a large corpus of data from a single speaker. If this is the case, it would mean that Cod. 857 provides orthographic evidence of the diphthongised reflex of /iː/ earlier than is usually acknowledged (due to the lack of digraph representations found in this period). It is the expectation of a digraph notation for diphthongs, such as ⟨i̊, ie, ei⟩ for Cl-MHG *î* /iː/ or ⟨o̊, ou, ov, later av, au⟩ for Cl-MHG *û* /uː/ (cf. Reiffenstein 2003a)—most likely due to the homogenising, filtering effect of Cl-MHG and Lachmann's edition of *Parzival*—which have encouraged authors to overlook this consistency. The existence of digraphs for other diphthongs, such as ⟨o̊, v̊, e͛v⟩ (employing a superscript letter as an accent) can further obscure this pattern.

What one finds in Hand III's work is a huge disparity between the number of tokens of ⟨î,v̂⟩ on the one hand and ⟨â,ô⟩ on the other, with ⟨ê⟩ falling somewhere in between. This is the focus of Sect. 5.2, which demonstrates that the circumflex centres on those vowels which underwent diphthongisation; the high vowels /iː,uː/ underwent high vowel diphthongisation and /eː/ a more recent, SBav.-specific process of diphthongisation. The fact that this change was slightly more recent accounts for the lower frequency of ⟨ê⟩ and its more predictable phonological context (similar to that of the older process of 'hiatus diphthongisation'). The non-high dorsal vowels—which at this point were likely still monophthongal—are only very exceptionally marked with

a circumflex, seemingly resulting from independent lengthening processes. Like the other high vowels, /yː/ is also regularly marked (sometimes even with additional diacritics over the second vowel), albeit less frequently. All digraph diphthongs without a diacritic also attract a 'redundant' circumflex in a significant number of cases and the remaining diphthongs are all already marked with a superscript *o*, *v* or *e*. The fact that the diphthong /iə/ is (mostly) represented by a digraph—and its diphthongal quality is therefore more overt—accounts for the lower rate of occurrence of ⟨îe⟩ in the sample than for the plain high vowels. Accenting ⟨êi⟩ is similarly redundant and occurs most frequently in rhyme position, where the precise quality of the vowel is most important. The higher occurrence of the circumflex (and additional *o*-diacritic) in ⟨îv,îw,îv̊,îẘ,îu⟩ reflects both the fact that /yː/ underwent diphthongisation and that its *iv*-spelling was by this point highly conservative and phonetically opaque. The circumflex therefore centres on those long vowels which underwent diphthongisation, as well as appearing on the old diphthongs ⟨ei,ie⟩ and the diphthongised reflex of /yː/, all otherwise redundant, given their digraph spellings ⟨ei,ie,iv⟩. Circumflexes only exceptionally appear on non-diphthongal vowels.

Additional evidence for this analysis is presented in Sect. 5.3, which considers the alternative spellings of the most commonly circumflected vowels and compares the number of tokens bearing a circumflex with the frequency of the phoneme itself. This emphasises the extreme infrequency with which /aː/ and /oː/ are accented; although the former is the second most frequent VV phoneme (more than twice as common as the next most frequent), it is only marked in 1% of cases. ⟨î⟩ might seem lower than expected, but this is due to the fact that it appears extremely frequently in possessive pronouns and certain derivational suffixes (which are almost never marked). If such words are ignored, the percentage marked with a circumflex rises to around 25%. The treatment of the plain vowels is consistent with that of umlauted vowels, which are not orthographically differentiated for length (the same character is used for both long

and short umlauts). An exception is found in /y,y:/, as the latter was diphthongised and retained its conservative digraph spelling ⟨iv⟩. One therefore has a situation where quality differences are marked, but length is unimportant, mirroring the behaviour of the plain vowels; neither is marked for length, but a special character or diacritic is used to denote qualitative differences (umlaut and diphthongal quality respectively).

The remaining diphthongs (which are not circumflected) already have superscript diacritics, so there is in a very practical sense no room for a circumflex. The scribe thus makes little effort to mark quantity *per se*, but uses diacritics to mark qualitative differences in vowels. Most importantly, the qualitative changes which differentiate the diphthongised reflexes of old VV high vowels from monophthongal VV phonemes (with a single set of features) are marked with a circumflex. The scribe is naturally most likely to mark monograph vowels, followed by digraph vowels and only rarely marks vowels which ordinarily already have a superscript diacritic. This behaviour is consistent with the other scribes, as Sect. 5.3 shows. This is particularly true of Hand V, the other dominant hand in the codex, who is generally less likely to use the circumflex, but where he does, his usage mirrors Hand III's.

The analysis proposed in this chapter therefore introduces a new accent marking to the taxonomy of notation of diphthongs, and the evidence presented in Sect. 4 and Sect. 5 demonstrates conclusively that OSL was independent of diphthongisation. It is difficult to reconcile this picture with any account advocating early polygenesis of OSL in eleventh-century Bavaria, present throughout Bavaria by the thirteenth century. This furthermore excludes the possibility that diphthongisation was caused by OSL via a push-chain. *Parzival* was copied by Cod. 857's scribes in the SWBav. dialect area at a key turning point in the development of the quantity system; diphthongisation had reached an advanced stage, yet it was untouched by eNHG monophthongisation or OSL. The scribe is therefore able to use the circumflex to represent qualitative differences between VV phonemes, only indirectly representing

quantity. Whilst OSL and diphthongisation had the ultimate effect of standardising the quantity of stressed syllables in German, the two were independent of each other. Only OSL increased the quantity of the relevant vowels; diphthongisation was a qualitative change which maintained the branching nucleus of the relevant syllables, instead altering the underlying featural representation of the vowel.

Chapter 5

The persistence of the Germanic Foot in Middle High German

1 Introduction

Throughout the history of Germanic and across all branches of the Germanic family, there has been an enduring and persistent preference for left-headed (trochaic) phonological structures. Over thousands of years of history, the quantity-sensitive, trochaic nature of the foot in Germanic has never changed. This is remarkable, as, beginning in the middle period, the prosodic systems of the North and West Gmc. languages experienced substantial disruption due to profound changes to the quantity of vowels and consonants and significant amounts of borrowing from Romance languages.

Although details vary across the Gmc. languages and stress assignment in modern German differs markedly from earlier stages of the language, foot structure has remained unwaveringly quantity sensitive and trochaic; it is changes in other metrical parameters, such as direction of parsing and edge assignment, which have changed, not the quantity-sensitive trochaic nature of the foot itself. This has had a substantial impact on stress assignment. It appears that the earlier foot was a resolved uneven moraic trochee (the Germanic foot; see Chap. 2, Sect. 2.2 and Chap. 5, Sect. 2), built from left to right, with left edge word prominence, whereas the modern foot is a simple moraic trochee, built from right to left, with right-edge word prominence. The foot in

Gmc. has thus remained constant; it is the other parameters which have changed: the direction of parsing has become right-to-left (rather than left-to-right) and the most prominent foot falls on the right edge rather than the left.

This contemporary picture differs from OHG in a number of respects, as OHG maintained a transparent quantity distinction in both vowels and consonants, whereas there is a lack of isomorphism between segmental quantity and weight in the modern language. Many of the changes to the modern system had their roots in the MHG period. It is therefore surprising that the MHG foot has been so neglected in the literature. Native MHG vocabulary was typically short and rarely comprised more than a single foot, so initial stress was ensured by the trochaic nature of the MHG foot. Therefore, in order to gain a greater insight into the precise status of the foot, one must investigate the treatment of Romance loans, which were longer and typically comprised more than one foot. Drawing on evidence from the prosodic accommodation of such loan words in the MHG system and the metre of Wolfram von Eschenbach's thirteenth-century work, *Parzival*, established in Chap. 3, this chapter argues that MHG maintained the Germanic foot, with main stress attracted to more complex, branching feet. I aim to demonstrate the persistence of the quantity-sensitive trochee in MHG, specifically the pertinacious structure of the uneven moraic trochee. I borrow the term 'pertinacious' in its technical sense from Lahiri (2002) and Dresher and Lahiri (2005), specifically the kind of pertinacity where a particular structure (in this case the Germanic foot) may persist over time, even though its outward realisation may change, i.e. *same pattern, different output realisation*. Fikkert et al. (2006) argue that the Gmc foot exhibited this quality in OE and ME. I aim to demonstrate that this was also true of MHG, although in different ways, due to the local facts of MHG.

The persistence of the uneven moraic trochee as a coherent prosodic unit can most clearly be seen in its effect on stress assignment in Romance loan words, which was not always identical to that of the donor language. In contrast to older accounts, I argue

that such words were in fact integrated into the native system, much like in ME (cf. Lahiri 2015). This likely triggered a shift in parsing direction (see Booth 2020; Booth and Lahiri 2023). Initial stress remains the default in MHG, with right-edge stress resulting from the prosodic structure of loans, as words such as *fế.nix* ('phoenix') demonstrate. However, stress was consistently shifted to word-final ($\bar{\sigma}$)s, as in *sur.kốt* ('surcoat'). In contrast to ME, long vowels in final closed syllables remained a feature of MHG and MNL, where they carried secondary stress and remained unreduced. In line with Fikkert's (2000) account of MNL, I argue that MHG continued to defoot final non-branching feet (cf. Dresher and Lahiri 1991), but that ($\bar{\sigma}$)s were metrically equivalent to branching feet with the structure ($|\bar{\sigma}|\breve{\sigma}$). This explains the variation between ($|\bar{\sigma}|$)($|\bar{\sigma}|$) words with native initial stress and ($|\sigma|$)($|\bar{\sigma}|$) words with final stress. The consistency with which stress mirrors native patterns in $\bar{\sigma}$-final words but is shifted to final branching feet constitutes clear evidence for the continued coherence of the Germanic Foot (e.g. *hár.nasc* 'armour' and *Sma.ráid* 'emerald'). Native vocabulary was not affected by this stress shift, as simplex words were short and rarely comprised more than one foot, with $\bar{\sigma}$s largely restricted to derivational affixes. If MHG did not continue to exploit the Germanic foot, both ($\bar{\sigma}$) and ($\bar{\sigma}\breve{\sigma}$) feet would behave in exactly the same way as a monosyllabic ($|\bar{\sigma}|$), with word-final heavy syllables defooted and unable to bear stress.

Resolution, whereby a sequence of ($|\breve{\sigma}\sigma|$) is metrically equivalent to ($|\bar{\sigma}|$), whether the second syllable is light or heavy (see Chap. 2, Sect. 2.2; Chap. 3, Sect. 4), was a highly important feature of the metrical system of early Germanic languages, accounting for metrical coherence across a range of phonological processes, but lost at some point prior to the modern period. Initial evidence for this structure comes from *Parzival*, as described in Chap. 3, Sect. 2: Wolfram rhymes on the head of the final moraic trochee, with any line-final ($\breve{\sigma}$)s being (poetically) extrametrical and forming feminine rhymes. However, ($|\breve{\sigma}\bar{\sigma}|$) words never occur in line-final position. The first

(|σ̄|) of a (|σ̄|)(|σ̄|) word can be defooted to achieve the weak strong alternation required for verse, but only because it forms a foot alone, unlike the σ̄ in a (|σ̆σ̄|) foot. As this σ̄ can neither be defooted nor extrametrical (being heavy), this structure is incompatible with the poem's metre. (|σ̆σ̄|) words can therefore only occur line-internally, as they necessarily form a single prosodic unit and so stress cannot be shifted as in (σ̄)(σ̄) words.

I argue that resolution was still possible in MHG, but that it was opaquer than in OHG, with the change in parsing direction preventing feet of more than two syllables (or three moras) and restricting such resolved heads to word-initial position, meaning MHG feet could be either resolved *or* branching. MHG constructs feet from right to left, forming branching feet if possible. Feet are maximally disyllabic and σ̆s are associated to the left (unless they form the head of a disyllabic foot). σ̆s can only form a resolved head if they are word initial and the following syllable is not already the head of a branching foot. Evidence for this comes from both Romance loan words and the prosodic structure of rhyming words in the poem. Branching feet blocked resolution, unlike in MNL (cf. Fikkert 2000), with variation in stress between (σ̆σ̄) on the one hand and (σ̆σ̄) and (σ̆σ̄σ̆) on the other suggesting the contrasting structures (|σ̆σ̄|) and σ̆(|σ̄|σ̆).

Following an initial discussion of the evidence for the resolved uneven moraic trochee in earlier Germanic and OHG in Sect. 2, the substantive content of this chapter will comprise a close analysis of the metrical treatment of Romance loan words within *Parzival* (Sect. 3.4). Using a moraic approach, a set of metrical parameters and preferences are proposed which account for the stress patterns and variation found within the data. It is proposed that Romance loans were accommodated into a unified system with native vocabulary through a change in parsing direction, reflected by the fact that stress in loans, whilst always at the right edge, was not always identical to the source language. Indeed, certain non-native suffixes became productive and

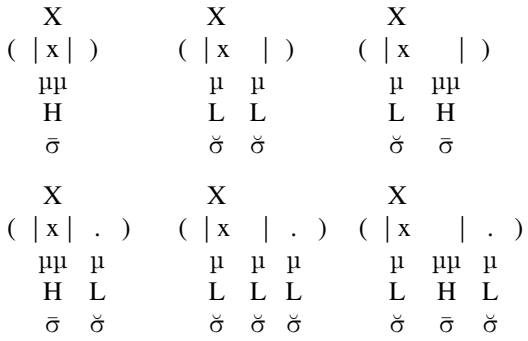
were fully integrated into MHG during the period. The present analysis contrasts with findings for ME: as late as the mid 1400s, despite the influx of loans following the Norman conquest, no Romance rule was in evidence in ME and there was no adjustment to the stress parameters until a century later (Lahiri 2015, 15). Nor does MHG have a separate 'Romance stress rule', as Halle and Keyser (1971) propose for English. Rather, French loan words, borrowed with right-edge stress (unlike in English) conditioned a much earlier adjustment to the native parameters, allowing the loans to be adopted into a unified metrical system with native vocabulary, having a significant and lasting effect on German prosody. Section 3.4.8 looks forward to the late mediaeval and early modern period, considering the role of metrical coherence within the phonological system.

2 Early Germanic systems

Our knowledge of OE, OHG and ON informs us that the foot in early Germanic was definitely a left headed, quantity-sensitive trochee, with main stress on the initial syllable. Mediaeval German, like the other Germanic languages, is considered to have inherited the Proto-Germanic metrical system intact, retaining its quantity sensitivity, foot structure and left-edge stress (cf. Lahiri et al. 1999; Booth and Lahiri 2023). The precise nature of the foot in the early period has been the subject of debate, however; many have proposed, for example, that the OE foot was a simple moraic trochee, maximally comprising two moras, (Keyser and O'Neil 1985; Halle et al. 1993; Isardi 1994; Hutton 1998; Bermúdez-Otero and Hogg 2003; Bermúdez-Otero 2005; Goering 2016a,b, 2023). However, even in such accounts, it is often acknowledged that ($\breve{\sigma}\bar{\sigma}$) feet must be permitted, at least in initial position (e.g. Isardi 1994; Sohn 1998; Goering 2016b, 2023). For a detailed discussion of this argument, with reference to the example of OE *hēafudu* 'heads', see Dresher and Lahiri (2022) (see also Booth and Lahiri 2023, Sect. 2.1). Others have argued in support of what was termed the

'Germanic Foot' (Dresher and Lahiri 1991), a resolved uneven trochee (as illustrated in Chap. 2, Sect. 2.2, repeated in (1) for convenience).

(1) Resolved (uneven) trochee. The foot is enclosed in parentheses, with the strong branch indicated by [x] and the weak branch by a dot [.]. In the case of the resolved moraic trochee, the head is enclosed by vertical bars [|x|]. Main stress is indicated by [X].



Uneven trochees have been proposed for older stages of all Germanic dialects, in the form of the Germanic foot (see Lahiri and Dresher 1999; Dresher and Lahiri 2022, 1991; Lahiri 2001, 2015; Fikkert et al. 2006), as well as other languages (e.g. Bethin 1998 for Slavic; Jacobs 2000, 2021 for Latin; Torres-Tamarit 2021 for Italo-Romance dialects). The Germanic foot is weight sensitive, but unlike a regular moraic trochee involves (σ̄σ̆) structures, comprising a head and an optional dependent (always a single light syllable). Resolution is a property referring to the head of the foot, which must be *minimally* bimoraic (even if this means containing two syllables) and can thus form a foot on its own, without a dependent, as summarised in (2). It is assumed here that the Germanic Foot was inherited from Proto-Germanic by OHG and relevant parsings are given in (3).

(2) The Germanic Foot (Dresher and Lahiri 1991, 2022; Lahiri et al. 1999; Fikkert et al. 2006)

a. Germanic Foot: From left to right, construct a resolved and expanded moraic trochee of the form (|HEAD|DEPENDENT), where the head must consist of at least two moras and the dependent may have at most one mora.
b. Main stress is on the leftmost foot.
c. Defoot a foot (|x̶|) that does not carry the main stress, is final in the word and has no dependent.

(3) Old High German stress: sample parsings.

a. 'day NOM.SG'
(X)
(|x|)
σ̄
tág

b. 'tongue NOM.SG'
(X)
(|x| .)
σ̄ σ̆
zún ga

c. 'flour DAT.SG'
(X)
(|x |.)
σ̆ σ̆ σ̆
mḗ le we

d. 'be afraid 3SG.PRET'
(X)
(|x | .)
σ̆ σ̄ σ̆
fó rah ta

e. 'flour NOM.SG'
(X)
(|x |)
σ̆ σ̆
mḗ lo

f. 'gift NOM.PL'
(X)
(|x |)
σ̆ σ̄
gḗ bā

g. 'doubt NOM.SG'
(X)
(|x|)(|x̶|)
σ̄ σ̄
zwī́ fal

h. 'deliverance NOM.SG'
(X)
(|x|)(|x| .)
σ̄ σ̄ σ̆
lṓ sùn ga

The situation in OHG differed markedly from that of OE. First and foremost, English did not permit long vowels in final closed syllables, unlike OHG, where they were prevalent in both inflexional and derivational morphology, across all word classes, including nouns, verbs and adjectives, as well as function words, such as demonstrative pronouns. Some examples of superheavy German inflexional endings are provided in in Table 5.1, with their OE equivalents. Examples of OHG derivational endings include -/liːx/ (e.g. *friuntlīh* 'friendly'), -/loːs/ (e.g. *kindelōs* 'childless') and the diminutive -/liːn/ (e.g. *fingirlīn* 'finger-DIM').

Inflexional endings lost their long vowels in late OHG. However, derivational affixes could attract secondary stress and therefore retain their full vowels (and length) in MHG. Crucially, this would have allowed the borrowing of Romance loans with final superheavy syllables in MHG, unlike ME, which had substantial consequences for the native metrical system (see Sect. 3.4). Thus, although OHG appeared also to

Table 5.1 Examples of inflected OHG nouns, adjectives, adverbs, verbs and pronouns which end with a closed syllable with a long vowel, in contrast to OE where such syllables were not possible word-finally.

	OHG	OE	Gloss
Nouns	hanōm	hanum	'cock DAT.PL'
	zungūn	tungan	'tongue NOM/ACC.PL'
	suntōm	synnum	'sin DAT.PL'
Adjectives	blintūn	blindan	'blind ACC/GEN/DAT.F.SG'
	fawēr	fēawe	'few NOM.M.SG'
	rōwēr, raowēr	hrēaw	'raw NOM.M.SG'
Adverbs	hartōr	heardor	'fiercely COMP'
	hartōst	hardost	'fiercely SUP'
Verbs	nāmīn	nōmen	'take 3PL.PRET.SUBJ'
	neritōs(t)	neredest	'save 2PL.PRET'
	salbōt	sealfaþ	'anoint 3SG.PRES'
	ladōn	laþian	'invite INF'
	sagēn	secgan	'say INF'
Possessive pronoun	dësēm	þis(s)um	'this DAT.PL'

defoot final non-branching feet, as in (3)g, it seems to have treated superheavy syllables as branching, allowing them to escape defooting and attract secondary stress (at this stage, end rule had not shifted and primary stress was still firmly initial). In contrast, OE did not allow long vowels in final closed syllables and final feet were thus either (σ̄) or (σ̆σ̆). If the rightmost foot wasn't complex, it wasn't stressed at all and secondary stress was only possible if the foot was branching (cf. Lahiri 2015); compare, for example OE *ōþer* ('other NOM.SG') with OE *ōþèrne* ('other ACC.SG').

Comparing the simple moraic trochee approach suggested by Bermúdez-Otero (2005) and Goering (2023) for OE[1] with the approach adopted here, one can see that the moraic trochee corresponds to the head of the Germanic foot, with any unfooted light syllable following a moraic trochee incorporated as the weak branch of the Germanic foot. Although the moraic trochee and the Germanic Foot yield similar results in many forms, evidence for the reality of this structure can be found in a range of phonological processes, such as Sievers's Law in Gothic or High Vowel Deletion (HVD), the syncope of medial unstressed high vowels which affected all of

[1] All arguments in support of a simple moraic trochee in OE are based on the Mercian *Vespasian Psalter* forms of OE *hēafudu* ('head NOM/ACC.PL') and these are convincingly argued by Dresher and Lahiri (2022) to be exceptional from the very beginning (and not in fact a complication to the metrical coherence of the system which only arose in OE).

the older Gmc. languages and served to optimise metrical structures. Furthermore, the Germanic foot can help to define secondary stress in OHG, in line with Sievers's (1893) observation that it should never fall on a light syllable immediately following a stressed heavy one. Assuming the Germanic foot, secondary stress can thus be said to fall on the heads of feet in post-tonic position, but never the final syllable, even if heavy. This lack of final stressed syllables leads Dresher and Lahiri (1991) to argue that final non-branching feet in WGmc. were defooted (see Fikkert 2000; Booth 2020 for similar arguments for MNL and MHG).

As summarised in Booth and Lahiri (2023), it is difficult to account for the precise conditions of HVD with reference only to a simple moraic trochee. Its effects in OHG are demonstrated in (4) and, whilst words such as (4)b,d,f might suggest that high vowels are deleted when they are stray and not incorporated into a simple moraic trochee, this is contradicted by words such as (4)g,h, where a moraic trochee analysis would expect the high vowel to form the strong branch of a foot. However, Dresher and Lahiri (1991) convincingly demonstrate that high vowels are simply deleted when they form the dependent of a Germanic foot.

(4) High Vowel Deletion in the weak branch of a foot.

a. ‘word DAT.SG’
(X)
(\|x\| .)
σ̄ σ̆
wór te
worte

b. ‘word NOM/ACC.PL’
(X)
(\|x\| .)
σ̄ σ̆
wór ~~tu~~
wort < **worðu*

c. ‘son NOM/ACC.SG’
(X)
(\|x \|)
σ̆ σ̆
sú nu
sunu

d. ‘hand NOM/ACC.SG’
(X)
(\|x\| .)
σ̄ σ̆
hán ~~tu~~
hant < **handu*

e. ‘hand DAT.PL’
(X)
(\|x\|) (\|~~x~~\|)
σ̄ σ̄
hán tum
hantum

f. ‘take 3SG.PRES’
(X)
(\|x \|.)
σ̆ σ̆ σ̆
ní mi ~~ti~~
nimit < **nemeti*

g. ‘fell 3SG.PRET’
(X)
(\|x\| .) .
σ̄ σ̆ σ̆
fál ~~li~~ ta
falta < **falliða*

h. ‘teach 3SG.PRET’
(X)
(\|x\| .) .
σ̄ σ̆ σ̆
lḗ ~~ri~~ ta
lērta < **lēriða*

i. ‘tell 3SG.PRET’
(X)
(\|x \|.)
σ̆ σ̆ σ̆
wé ri ta
werita < **wariða*

We observe in (4)b,d that HVD applies consistently to the stem vowel *u* when it is in an open syllable following a heavy syllable, regardless of the weight of the following syllable. In (4)e, *u* is in a closed syllable and does not delete. In (4)c (or a [σ̆σ̄] form, such as *lugun* ‘lie 3PL.PRET’ or *hanun* ‘cock ACC.SG’), the stem-internal *u* follows a light syllable and must be part of the head of the foot, where it does not delete; an inflectional final high vowel (*i* or *u*), however, is in the weak branch of the foot and deletes (4)f (compare also [σ̆σ̆σ̆] *honag~~u~~* ‘honey NOM/ACC.PL’). In (4)d the head of the foot is a heavy syllable and the inflectional -u deletes in the weak branch of the foot.

Of particular interest are the old *u*-declension nouns; this declension was preserved in Gothic, but was lost from OHG, where those words with an initial heavy syllable were integrated into the *a*- and *i*-declensions, leaving only traces of the old declension in contexts where the /u/ escaped high vowel deletion, such as masculine words with light stems, as in (4)c, *fridu* (‘peace’) or *situ* (‘custom’) in the

NOM/ACC.SG. Heavy-stemmed forms, such as *tōd* ('death', compare Gothic *dáuþus*) lost their /u/, as with heavy-stemmed feminine nouns such as (4)d, *flout* or *lust*. However, the old /u/ ending was retained in its DAT.PL form in (4)e, where HVD did not apply.

Weak verbs also demonstrate an interesting alternation in the preterite, depending on whether their stems were inherited from Proto-Gmc. as heavy, as with *stellen* (<*stalljan) or *hōren* (<*haurjan), or became heavy through WGmc. Gemination, as with *zellen* (<*taljan). In the latter case, the consonant was never geminated in the preterite, leading to forms such as *zelita* or (4)i. In such cases, the high vowel formed part of a resolved (|σ̆σ̆|σ̆) head and did not undergo HVD, whereas the high vowels in (4)g,h, *stalta* (<*stallita) and *hōrta* (<*hōrita) were the dependent in words of the structure (|σ̄|σ̆)σ̆ and were thus deleted. In such cases, deletion results in the structure (|μμ|μ) rather than the less optimal (|μμ|μ)μ, with the former class of verbs maintaining their existing (|μμ|μ) structure.

Little is said in the grammars regarding stress placement in OHG beyond observations that stress in all non-compounded words fell on the stem-initial syllable (usually the first syllable of the word) and was unaffected by the addition of suffixes. This was also true of compounds where the second component is a noun or adjective, but stress fell on the stem syllable of the second component if it is a verb (Wright 1906, 7). Secondary stress, according to the earliest view, depended on the weight of the syllable carrying primary stress; if it was heavy, stress fell on the following syllable (even if this was light), and if it was light, secondary stress fell on the third syllable. Paul (1939) disagrees, suggesting that the placement of secondary stress was not based on a rule or the quantity of the syllable carrying primary stress, but changed within the same word depending on its context. However, giving up on finding a general rule is unsatisfactory. Sievers (1893) also rejected the earlier view, based on evidence from

verse and vowel reduction, as stress would never have fallen on a light syllable immediately following a heavy stressed syllable (as can be explained through reference to the resolved moraic trochee). In line with this, assuming a resolved moraic trochee, secondary stress can be said to fall on the heads of feet in post-tonic position, but never the final syllable, even if heavy.

3 Romance loan words in *Parzival* and the MHG foot

3.1 General remarks

Given the difficulty of reconciling the trochaic nature of the MHG stress system and the poetic metre Wolfram is attempting to write in, it is perhaps unsurprising that Romance loan words—borrowed from iambic languages—should occur with such frequency within *Parzival*. The volume of foreign borrowings is further augmented by the poet's French source material, Chrétien de Troyes's grail romance, resulting in the inclusion of many French names and places, even featuring passages in French, such as the greeting 'bien seivenvz' (l.76,11). Exploiting this, the present study seeks to ascertain the extent to which the lexical stress of French loanwords in MHG was nativised (if at all) and the degree and manner of their effect on the stress parameters of the language. It has been argued that Romance loans 'played a prominent role in affecting the metrical patterns of most Germanic languages' (Lahiri et al. 1999, 374), with inter-Germanic borrowing having nowhere near as far-reaching consequences as those from Romance languages.

As will be seen, counter to some claims and in contrast to the situation in ME, Romance loans did affect the native stress system in the period. Stressed suffixes were already productive with native vocabulary, even outside of courtly literature, and MHG had already taken the first steps down the path towards the modern right-edge system. The broad parameters of German in the preceding and subsequent periods are summarised in Table 5.2. MHG at the point of *Parzival*'s composition seems to have

continued to maintain the Germanic foot, left edge stress and the defooting of final non-branching feet inherited from OHG. However, it is my contention that the parsing direction had already shifted to right-to-left, increasing the opacity of resolution. Furthermore, the behaviour of French loan words within the native system rely on a series of prosodic preferences, including the metrical equivalence of (|σ̄|) and (|σ̄|σ̆), both treated as branching feet; the blocking of resolution if a light syllable is followed by a branching foot; and two key preference scales. Firstly, in foot formation, branching feet are preferred: (|σ̄|σ̆) > (|σ̄|). Secondly, stress is shifted to the final foot if it is more complex than the first foot, based on the assumption that 'the main stressed foot is preferably as complex as, or more complex than, its dependent' (Lahiri and Fikkert 1999). However, if they are equally complex, a heavier head syllable will also attract stress: (|σ̄|) > (|σ̄|σ̆) > (|σ̄|) > (|σ̆σ|).

Table 5.2 Metrical parameters in OHG and NHG.

	OHG	NHG
Foot type	Resolved moraic trochee	Moraic trochee
Parsing direction	L→R	R→L
End Rule	Left	Right
Extrametricality	Final non-branching foot	Final -VC syllable?

This section is organised as follows: first, Sect. 3.2 provides a brief overview of previous scholarship on MHG word prosody, before the methodology of the present study is outlined in Sect. 3.3, followed by the results and general discussion (Sect. 3.4), which attempts to ascertain the precise metrical parameters which the data represent, including foot type, direction of parsing, main stress placement and any extrametricality (Sect. 3.4.1–5). The proposed parameters for simplex nouns are then compared to the behaviour of verbs, adjectives and adverbs (Sect. 3.4.6). The status of stressed Romance loan suffixes is the focus of Sect. 3.4.7 and Sect. 3.4.8 looks forward, considering past proposals for the origin of OSL in light of the data.

3.2 Previous literature

The Germanic foot and initial stress thus appear to have persisted into the early period of the Germanic languages, but at some point the system found in the modern languages developed. Although the details of the different languages' systems vary, all of them continue to rely on quantity-sensitive trochees (although the quantity systems of the different languages vary considerably, cf. Booth and Lahiri 2023), construct feet from right-to-left and place main stress within a three-syllable window at the right edge of the word. The question remains precisely when (and in what order) these changes in the metrical parameters occurred and what caused them. It has been suggested that the prosodic systems of the WGmc. languages diverged in the mediaeval or early modern period due to an influx of Romance loan words, as well as various sound changes affecting vocalic and consonantal quantity, such as OSL, degemination and the reduction of unstressed syllables. However, unlike the other WGmc. languages, the diachronic development of the German prosodic system has received comparatively little attention in the literature.

A crucial difference between OHG and the other early WGmc. dialects is the fact that the High German Consonant Shift resulted in a great many more closed initial syllables than the other WGmc. languages, changing all intervocalic and word-final voiceless stops into geminate fricatives (which were shortened to singleton fricatives word-finally). This would have had significant consequences for foot structure and syllable weight following the effects of OSL. Unlike OE, where defooted final heavy syllables could easily be reinterpreted as light syllables with consonant extrametricality (due to the lack of long vowels in final closed syllables), this was not possible in German or Dutch, as they maintained long vowels in word-final closed syllables, as in words such as *mahtīg* ('mighty'), *tiurlīh* ('dear'), *mahhōn* ('make-INF') and *sindōn* ('travel-INF'). Such syllables were common in inflexional suffixes, which contained full vowels in OHG. The vowels in these affixes could be long or short, resulting in

variation in the weight of the final syllable across inflexional paradigms, as in *herza* ('heart-NOM/ACC.SG'), *herzun* ('heart-NOM/ACC.PL') and *herzōm* ('heart-DAT.PL'). Despite the fact that the vowels of such unstressed syllables were subsequently shortened or lost, long vowels in final closed syllables remained a feature of MHG, particularly in noun stems and derivational affixes (e.g. *mânôt* 'month', *negelkîn* 'clove'), where they carried secondary stress and remained unreduced. Such syllables were particularly prominent in derivational morphology, for example *-lîn* (a common diminutive suffix) and *-lîch* (an adjectival suffix which alternated with *-lich*, cf. Paul 2007, 84). In contrast to ME, this allowed Romance loan words to be borrowed into MHG with stressed superheavy final syllables, leading to contrasts such as MHG *calcidôn* (NHG *Chalzedón*) and ME *calcedun*, *calcidoine* (NE *chalcédony*). This had sweeping consequences for the metrical and prosodic systems in the middle period, as superheavy final syllables seem to have escaped final defooting.

The middle period was critical in the development of the German foot. Early MHG still maintained a quantity distinction in both vowels and consonants (as described in Chap. 2) with a transparent relationship between quantity and weight; geminate consonants were still genuinely long and word-initial light syllables could still bear stress. MHG was unambiguously quantity-sensitive, as illustrated in Figure 5.3 (repeated from Chap. 2).

Table 5.3 Syllable weight in MHG.

Superheavy			Heavy			Light		
VVC)$_\sigma$	***bîh**.te* 'confession'	***kluoc*** 'clever'	VV)$_\sigma$	***zou**.ber* 'magic'	***sê*** 'lake'	V)$_\sigma$	***ne**.men* 'take INF'	***stu**.be* 'parlour'
VCC)$_\sigma$	***worh**.te* 'work 3SG.PRET'	***hant*** 'hand'	VC)$_\sigma$	***min**.ne* 'love'	***gras*** 'grass'			

Foot structure is neglected in the grammars (e.g. Paul 2007; Mettke 1983; de Boor and Wisniewski 1965), but it appears that it inherited the Germanic Foot and that

stress remained initial for most words, with the following exceptions: unstressed prefixes, such as *be-*, *en-*, *ge-* and *zer-* (including nominal forms derived from prefixed verbs, such as *durchlíuhtec* 'radiant'); verbal compounds;[2] and Romance loan words, which are generally considered to maintain the right-edge stress of the donor language. It is often assumed that Romance loans had little lasting effect before the fifteenth century, restricted to a courtly sociolect (Wells 2005, 1403). Certainly, early Romance loan words in OHG were nativised with Gmc. stress: *Kőln* (< Lat. *Colónia*). However, this assumption is surprising, given that the shift of stress in simplex words from the initial syllable to the end of the word began in the middle period, particularly in the stressed suffixes *-ieren* and *-îe*, which entered the language in the twelfth century (cf. Vennemann 1995). As Schönefeld notes in discussing Dutch, the final stress of many French words and suffixes 'weakened the feeling for accenting the first syllable and increased the chance for stress shifts in native words' (1947: 102, in: Fikkert 2000, 303). Given the fact that stress-attracting derivational suffixes of Romance origin were being used productively with native vocabulary, even outside of a learned context, a change in the system was inevitable.

3.3 Methodology

A complete list of all Romance loan words appearing in *Parzival* was compiled from Suolahti's (1929) study of the influence of French loan words on thirteenth-century German, which provides a comprehensive glossary of all Romance loan words attested in MHG texts. The resulting 384 separate items, including proper nouns and French phrases, vary widely in frequency within the text, with the most common words, ⟨prîs⟩ (/priːs/ 'praise, renown') and ⟨aventîvre⟩ (/aːventyːrə/ 'adventure, occurrence'), attested 240 and 109 times respectively. These contrast with words specific

[2] This resulted in contrasts between words such as *wíderrede* 'contradiction' (with initial stress) and *widerréden* 'contradict' (with non-initial stress).

to what Wells (2005, 1403) terms the 'courtly sociolect', including valuable, exotic gemstones, fabrics and medicines, such as ⟨Amber⟩ (/ambər/ 'ambergris') or ⟨Driakel⟩ (/driːakəl/ 'theriac'), a 'compound drug [...] called upon then as a principal remedy against poisons' (Groos 1995, 207). These items are both attested only once in *Parzival*, although *drîakel* also appears as a verb, in the form ⟨gedriakelt⟩ (l.484,16). The lexical items appearing in the list were separated by word class, excluding all monosyllabic words, which would be uninformative in determining the position of lexical stress. Morphologically complex words were not initially separated from simplex words, as the relationship between derived and underived forms is not necessarily perceived by native speakers at the time of borrowing. As Lahiri and Fikkert (1999, 249–51) demonstrate with reference to OE, derived and underived forms can be borrowed at very different times and in different orders; the relationship between the base and derived forms is not initially perceived and often only identified later, when the derivational affix becomes productive. However, the sixteen compound words were excluded from the analysis, as they will not have been treated as simplex words in stress assignment, as 'each constituent forms its own word-level domain for assigning metrical structure' (Lahiri and Dresher 1999, 258). Indeed, those appearing in *Parzival* often include native material, such as *schachzabelgesteine*: ⟨scachzabel gesteine⟩ 'chess pieces' (l.408,20).

For similar reasons, words derived from simplex loans via native affixes (e.g. *un-prîs* 'dishounour', *hurt-ec-lîch* 'rapid, tearing off') were also excluded, as well as proper nouns and demonyms (e.g. *Anschouwe* 'Anjou', *Punturteis* 'resident of Punturtoys'), interjections (e.g. *âvoy!* < *ah voi!*) and monosyllables (e.g. *grâl* 'grail'), as they are uninformative for stress assignment. The resulting list included 309 items, with the distribution provided in Table 5.4.

In line with what one would expect typologically, the majority of loan words in *Parzival* are nouns, followed by verbs. Accordingly, this analysis will focus first

Table 5.4 Distribution of loan words by word class, with examples from Cod. 857, grouped by syllable count.

Word class	Total
Noun	261
Verb	45
Adjective	2
Adverb	1
	309

Word class	2 σ	3 σ	4 σ	5 σ
Noun	kvmpan, fasan, lanze, tioste	barbegan, gvg[e]rel, karrascen, hærsenier	aventîure, Antrodrâgma, massenîe, cvmpanîe	astronomîe, Jeometrî[e], Philosopfîen, Sarapandratest
Verb	feiten, prîsen, tanzent	galv̊net, leiscîerte, pvnîeren	bvhvrdieren, kalopîeren, cond[e]wîerte	—
Adjective	kvrtoys, ivuen	—	—	—
Adverb	Trivîers	—	—	—

on nouns, before considering verbs. Borrowed adjectives and adverbs are highly infrequent, with only *kurtois* ('courtly') appearing more than once. These items are therefore unsuitable as a basis for analysis, but will ultimately be compared to the insights from the other word classes.

All 309 words were located in the text and the relevant lines were parsed in line with the principles of iambic tetrameter identified in the previous chapter (after Halle and Keyser 1966), identifying which syllable or syllables of the words bore stress in the poem. Assuming that the syllable bearing main word stress would be obligatorily stressed within the poem, it should then be possible directly to identify or to deduce the primary stress of each word (or at least whether stress fell on even- or odd-numbered syllables). In other words, it was assumed that the placement of main lexical stress (on the head syllable of the relevant foot) aligns with the head of the relevant (poetic) foot. However, given the degree of variation tolerated within the poem, a number of words are not uniformly stressed on the same syllables and in these cases,

the value was assigned according to the pattern found in the majority of cases. By necessity, however, the stress of words only attested once in the text have to be taken at face value. Additionally, a number of words are less conclusive, either because stress placement varies and neither pattern has a clear majority, or—more commonly—the context they appear in necessitates that multiple consecutive syllables be stressed, as with the examples of *fasân* and *mursël* in (5):

(5) a. 423,20 / | / | / | / x
fa. saːn . par. driːr. se,
pheasant, partridges

b. 551,05 x / | x / | x / | /
Gaːr. waːr. ne sw̆. ziv mur. sel
sweet morsels for Gawain

In (5)a, the line is only five syllables long, so the only weak position is necessarily occupied by the line's only schwa, meaning that both syllables of the borrowed word, *fasân*, are metrically stressed and the word is consequently uninformative in terms of main stress assignment. Likewise, many inconclusive cases are found in line-final position, as in (5)b. It seems unlikely in such cases that the final syllable was stressed in natural language; more likely, since the syllable still features a full vowel, is that an unstressed syllable is simply assigned poetic metrical stress in order to facilitate a rhyme (such examples are frequently found in line-final position). These words alone cannot provide clear evidence of stress placement either way.

Once the syllables occupying a strong position in the line were identified, the items were grouped by syllable count into disyllabic, trisyllabic, tetrasyllabic and pentasyllabic words (only one word, the compound *schachzabelgesteine*, contained more than five syllables). These groups were then sub-divided based on syllable quantity and patterns of $\bar{\sigma}$ and $\breve{\sigma}$ to enable the present analysis. In line with the analysis of the poem's metre presented in Chap. 3, syllables were classed as light if they contained a

single mora, else heavy. Light syllables are therefore open and contain a short vowel (still possible at the stage at which Wolfram was writing, before OSL removed such contexts), whereas heavy syllables contain a long vowel or are closed by a coda consonant. Geminate consonants were still a feature of the language and contribute weight to the syllable they close. As will become clear, $\bar{\bar{\sigma}}$s will also prove relevant, as MHG maintained a vowel contrast in final closed syllables. Superheavy syllables contain a long vowel and a coda consonant or a short vowel closed by more than one coda consonant. Diphthongs behave like long vowels, counting as heavy and also appearing in final closed syllables. As schwa syllables are incapable of hosting stress in MHG, they were considered to be light, even when closed.

By comparing the placement of words of varying syllable counts and structures, it was the aim of the present study to deduce the position of main stress in each case, using these data to identify the metrical parameters responsible. There is a limited freedom in the placement of stress in verse and Wolfram is comfortable with a small degree of inconsistency, particularly with regard to disyllabic words, as indeed was Chaucer (writing iambic metre in OE), as noted by Lahiri (2015, 22) 'Words with French stress in Chaucer could have been stressed according to the native English pattern [or the foreign Romance pattern], as required by the meter.' However, the hope was that patterns would nevertheless emerge across the data set, allowing conclusions to be drawn about the language's metrical treatment and integration of Romance loan words into the phonological system.

3.4 Results and discussion

In the following sections, the parameters and preferences of the MHG metrical system will be discussed in greater detail and motivated based on the data, summarised in the following tables. The results are separated into disyllabic (Table 5.5), trisyllabic (Table 5.6), tetrasyllabic (Table 5.7) and pentasyllabic (Table 5.8) words and the

numbers (1, 2, 1 & 3 etc.) refer to the syllables carrying a strong beat in the poem. For instance, '1' would be stressed on the first syllable (e.g. ***bla****te* 'breast plate', (6)a); '2' would be stressed on the second (e.g. *pa****start*** 'bastard', (6)b) and '1 & 3' indicates that the first and third syllables occupy a strong beat as the heads of feet, with the intervening second syllable occupying a weak beat (e.g. ***con****ter****feit*** 'deception', (6)c). The full context of these words is illustrated in (6). 'Both/Variable' indicates that stress placement cannot be determined. This may result from all of a word's syllables occupying successive strong beats line-finally (e.g. ***rvnzît*** 'mare', (6)d) or line-medially (particularly in very short lines, e.g. ***Tœmris*** 'tamarisk', (6)e). Additionally, certain disyllabic words vary in stress-placement (e.g. ***gar****zvn/****garzvn*** 'page', (6)f–g). Many such words, e.g. *ru(b)bîn* 'ruby', *palas* 'palace, hall', appear to have varied in stress placement even into the modern period (cf. 'rubin' and 'palast', Grimm and Grimm).

Table 5.5 Stressed syllables in disyllabic words, where the numbers refer to the syllables occupying strong beats (and therefore stress maxima).

		1	2	Both/Variable
a	HH	11	29	26
b	LH	6	13	13
c	HL	31	—	—
d	LL	6	—	—

Table 5.6 Stressed syllables in trisyllabic words, where the numbers refer to the syllables occupying strong beats.

		2	1 & 2	3	1 & 3	(1 &) 2 & 3
a	HHH	—	—	—	2	1
b	LHH	6	—	—	4	1
c	HLH	—	—	3	14	—
d	LLH	—	—	1	9	—
e	HHL	14	7	—	—	—
f	LHL	8	2	—	—	—
g	HLL	1	1	—	—	—
h	LLL	2	—	—	—	—

Table 5.7 Stressed syllables in tetrasyllabic words, , where the numbers refer to the syllables occupying strong beats.

		2 & 4	3	1 & 3	1 & 3 & 4
a	HLHH	—	—	1	2
b	LHHH	—	1	—	—
c	LLHH	—	2	1	5
d	HHLH	1	—	—	—
e	LHLH	6	—	—	—
f	LLLH	2	—	—	—
g	HHHL	—	—	4	—
h	HLHL	—	2	5	—
i	LLHL	—	1	8	—
j	LLLL	—	—	1	—

Table 5.8 Stressed syllables in pentasyllabic words, where the numbers refer to the syllables occupying strong beats.

		3	1 & 3 & 5	2 & 4	1 (& 2) & 3 & 4
a	HLHLH	—	1	—	—
b	LLHLH	—	1	—	—
c	HLLHL	—	—	1	—
d	LLHHL	—	—	—	1
e	LLLHL	—	—	2	1
f	LLHLL	1	—	—	—

(6) Examples of (a) '1', (b) '2', (c) '1 & 3', (d–e) 'Both' and (f–g) 'Variable'.

a. 261.26 x / | x / | x / | x / [x]
ce Ses. svn was ge. slagen sin **bla**. **te**.
In Soissons his breast-plate had been beaten

b. 552.12 / | x / | x / | x /
ez was ein sa. mi:t **pa**. **start**.
it was a bastard samite

c. 3.12 x / | x / | x / | x /
ist da daz her. ze **con**. **ter**. **feit**
*[if] there the heart is counterfeit**

d. 256.24 x / | x / | x / | /
ŏch was der frŏ. wen **rvn**. **zît**.
*also the lady's nag was**

e. 601.12 / | / | x / | /
Tæm. **ris** vnt Pri. sîn.
tamarisk and brazil

f. 284.04 x / x / x / x /
der **gar**. **zvn** hv̊p sich wi. dr her.
The page turned back.

g. 357.06 x / x / x / x /
gar. **zvn**. e chrî. e ma. nech valt.
heralds' cries of many kinds

3.4.1 Foot type

Given the alternating stress pattern of iambic metre, it is possible unambiguously to locate main stress in disyllabic words (provided the line does not necessitate the elision of a weak beat, requiring both syllables to host a strong beat). Certain parameters can therefore quickly be identified with reference to disyllabic words. For instance, words comprising two light syllables (ŏŏ) confirm that MHG, like OHG before it and NHG after it, continues to form trochaic feet, as can be seen in the below example (syllables with a strong beat are in bold):

(7) Disyllabic (ŏ̄ŏ̄) words confirm that MHG continued to form lef-headed (trochaic) feet.

a. 46,06

(x .)
(ŏ̄ ŏ̄)
der **was** von **si:**. ner **tio**. st[e] **wnt**
he was wounded by his joust

b. 350,29

(x .)
(ŏ̄ ŏ̄)
vn̄ **man**. ger **slah**. te **frem**. den **bo**. vel
and foreign mobs of many kinds

Since a light syllable cannot form a foot on its own, words of this type must form a disyllabic foot (ŏ̄ŏ̄). These words are universally stressed on the first syllable, so the foot structure must be trochaic. If it were iambic, it would be the second syllable, and not the first, which would be stressed. Even so, words of this type can only confirm that MHG constructs trochaic feet; they provide no insights into whether these feet represent syllabic or moraic trochees (i.e. whether the language is quantity sensitive). The possibility of syllabic trochees is, however, excluded by the fact that not all disyllabic words are uniformly stressed on the first syllable, but vary depending on the relative weight of their first and second syllables, e.g. *plấne~kapû́n* (‘plain, field’~‘capon’). In his account of NHG stress, Wiese (2000) suggests that the synchronic language is quantity insensitive, but this cannot be the case for MHG, as can be seen in Tables 5.5 and 5.6. (8) illustrates the potential results if [ŏ̄ō̄ŏ̄] and [ō̄ŏ̄ō̄] words (as in Table 5.6c and 5.6f) were parsed into syllabic trochees: (8)a illustrates a left-to-right parsing and (8)b right-to-left:

(8) Examples ruling out a syllabic trochee, which cannot account for *both* stress on the second syllable of ⟨Pvs**î**ne⟩ 'trumpet' *and* first or third syllable stress in ⟨**Câl**ci**don**⟩ 'chalcedony'.

a. i. *(X)
(x .)
σ σ σ
/ pu si: nə /

ii. (X)
(x .)
σ σ σ
/ kal t͡si do:n /

b. i. (X)
(x .)
σ σ σ
/ pu si: nə /

ii. *(X)
(x .)
σ σ σ
/ kal t͡si do:n /

As (8) shows, neither solution captures the stress pattern of both *pusîne* and *calcidôn*.[3] Although both are composed of three syllables, stress falls on a different syllable for each word. If the language were quantity insensitive, this would require a different direction of parsing for the two words, which is not possible. The answer lies in the difference in syllable quantity, as *pusîne* is of the structure [σ̆σ̄σ̆], whilst *calcidôn* is of the structure [σ̄σ̆σ̄]. The relevance of quantity confirms that MHG continues to construct moraic trochees, in line with the earlier forms of the language. Two questions remain, however: does MHG continue to rely on an uneven moraic trochee and is resolution still possible? These questions will be addressed in the following sections.

3.4.2 All feet are not equal

Whilst the MHG of *Parzival*, in continuity with older stages of the language, continues to construct moraic trochees, the introduction of Romance loan words into the language with stress at the right edge of the word demonstrates that the system cannot have been identical to that of OHG. As the data clearly demonstrate, stress no longer falls uniformly on the first syllable (cf. Table 5.5a,b and Table 5.6e,f in particular). This cannot be explained solely by appealing to unstressed prefixes, which

[3] Indeed, neither solution captures the stress of *calcidôn*, which (as will be seen) is actually stressed on the final syllable.

in OHG accounted for a number of non-initial stress patterns (many unstressed initial syllables are heavy). Nor can a change in parsing direction account for it (although it will prove important), as this would not affect the grouping of the above examples. For instance, fifteen of the 22 cases of words structured [σ̄σ̄σ̆] (5.6e) are exclusively stressed on the second syllable (with the remainder on both the first and second), providing evidence that Romance loan words were not adapted to be word-initial (as in ME) and are distinct from the parameters of OHG.

As will be demonstrated, in words such as those in (9), which comprise two full feet headed by a σ̄, both feet could be stressed (and we find variation in poetry). However, in MHG we find the beginnings of a shift towards right-edge stress if (and only if) the rightmost foot is more complex, that is, either a branching (σ̄σ̆) or a superheavy (σ̄̄) (which are treated as equivalent). It is the head which has to be more heavy (almost requiring an uneven trochee); [σ̄σ̆σ̆] will not cause a shift, as the second F is headed by a σ̆. The language thus appears to be moving towards a situation where the stressed foot has to be *more* than heavy. This is different from the situation in English, where the rightmost foot was not stressed at all unless it was branching, and in this case stress was only ever secondary.

(9) Non-initial stress in Romance loan words: Cl-MHG ⟨fon**ta**ne⟩ 'fountain' and ⟨kvr**sit**⟩ 'clothing worn over a coat of mail'.

a. i. *(X) ii. *(X)
(x) (x .) (x) (x .)
σ̄ σ̄ σ̆ σ̄ σ̄̄
/ fon ta: nə / / kur si:t /

b. i. (X) ii. (X)
(x) (x .) (x) (x .)
σ̄ σ̄ σ̆ σ̄ σ̄̄
/ fon ta: nə / / kur si:t /

(9)b represents the actual placement of stress for these words. Direction of parsing would make no difference for words of this structure and, even if the Germanic foot

were no longer possible, this would make no difference to the location of the head of each foot, as [σ̄σ̄σ̆] words would simply be parsed into two monosyllabic heavy feet with a final degenerate light syllable. The first syllable cannot be extrametrical, as it is stressed elsewhere, nor could it be easily interpreted as an unstressed prefix, being heavy and containing a long full vowel. Consequently, words of this type provide conclusive evidence that stress does not always fall on the initial syllable or even the initial foot of the word.

Excluding for the time being words of more than three syllables (as they represent a much smaller dataset) and patterns only represented by a single item, the contexts in which stress definitively falls on a syllable other than the first in the majority of cases are listed below in Table 5.9.

Table 5.9 Disyllabic and trisyllabic words where stress is non-initial in the majority of cases, either falling on the final or penultimate syllable.

		1	2	1 & 2 / Variable
a	HH	11	29	26
b	HHL	—	14	7
c	LH	6	13	13
d	LHL	—	8	2

Whilst words such as those in Table 5.6—and indeed all trisyllabic words other than [σ̆σ̄σ̄]/[σ̄σ̄σ̄]—are either exclusively stressed on even syllables or exclusively on odd syllables, this is crucially not the case for two types of disyllabic words (Table 5.9a and c). These types, structured [σ̄σ̄] and [σ̆σ̄] respectively, display a significant amount of variation. In line with native vocabulary, where initial stress remains the dominant pattern, left-edge stress still appears to be preferred (explaining why one finds [σ̄σ̄] and [σ̆σ̄] words stressed on the first syllable in addition to those stressed on the second). However, stress is under certain circumstances being attracted to the right edge of words. The reason for this variation becomes apparent if one considers the relative weight and structure of the syllables concerned. Words composed of two

heavy syllables will be considered first, before turning to those structured [σ̆σ̄]. Words of the first type unambiguously form two monosyllabic feet and reveal an important principle whereby stress is systematically shifted to the right edge.

The atypical amount of variation in the placement of stress in these words is crucial. As they are the only disyllabic words made up of two feet, variation could potentially be explained away as poetic licence in service of the poem's alternating rhythm. Indeed, such variation is also a common feature of the writing of Chaucer, where one finds a significant degree of variation (cf. Lahiri 2015). However, the systematic distribution of the variation belies such an arbitrary explanation. There certainly exists a clear preference for stress on the second syllable (with a ratio of roughly 3:1), but this appears to be determined more by the prevalence of certain syllabic structures found in the dataset. Indeed, if one groups the words of this type into those with stress on the first syllable and those on the second, comparing the weight of the first and second syllables, a pattern soon emerges, provided in the Table 5.10 (as percentages).

Table 5.10 Variation in the stress of (σ̄σ̄) words

	Syllable 1				Syllable 2			
	H	S_H	V	VV	H	S_H	V	VV
H́H	100	0	55	45	82	18	82	18
H**H́**	100	0	72	28	3	97	24	76

Table 5.10 separates [σ̄σ̄] words into two groups: those stressed on the first syllable and those stressed on the second. For each group, the weight of the first and second syllable is contrasted, differentiating heavy (H) and Superheavy (S_H). The table furthermore compares the length of the vowel of the first and second syllables. The two groups differ little when it comes to the first syllable: short vowels (V) are more common than long (VV) and none of the words has an initial σ̄̄. However, the difference between the second syllables is striking. Words stressed on the second syllable are

almost exclusively superheavy (and the only item ending with a simply heavy syllable still ends in a long vowel). In contrast, words with a stressed first syllable have in most cases a heavy syllable with a short vowel. Only in one word was the second syllable superheavy with a long vowel: *poulûn* 'pavillion'. The preference seems to be to stress the diphthong in the first syllable of this word (spelt ⟨pŏlvn⟩), but even here, there is some variation, with the word occasionally stressed on the final syllable (or both). In any case, the clear split in distribution suggests that, in line with the native system, the default position for main stress remains on the leftmost foot, but that it is attracted away to the head of the rightmost foot if it is superheavy, which is in every such case heavier than the first. Table 5.9 can thus be reformulated as Table 5.11.

Table 5.11 Examples of disyllabic and trisyllabic words demonstrating the equivalence of (σ̄σ̆) and (σ̄̄) feet, which attract stress finally. 'S_H' indicates a superheavy syllable.

		1	2	1 & 2 / Variable
a	HH	9	1	9
b	HS_H	2	28	17
c	HHL	—	13	4
d	HS_HL	—	1	3
e	LH	5	3	4
f	LS_H	1	10	9
g	LHL	—	8	2

This makes immediately apparent the equivalence of (σ̄σ̆) and (σ̄̄)[4] and their tendency to attract stress away from an initial σ̄ or σ̆, preventing resolution in the latter case. Neither (σ̄) nor (σ̆σ̆) feet attract stress away, as neither has a branching structure, both representing bimoraic heads (i.e. a moraic trochee). Now consider the pattern which can be observed for [σ̄σ̄σ̆] words in Table 5.12; these words behave similarly, but differ in important respects.

Firstly, although the structure of the first syllable repeats the pattern found in Table 5.10, the variation in stress is completely absent: there are no words stressed on the first syllable, meaning that in every case, stress has been attracted to the second. Yet

[4]The final mora of such trimoraic syllables appears to be behaving as the weak branch of the uneven trochee, such that the final consonant could be argued to form the onset of a catalectic schwa syllable.

Table 5.12 Variation in the stress of [σ̄σ̄σ̆] words.

	Syllable 1				Syllable 2			
	H	S_H	V	VV	H	S_H	V	VV
HH́L	100	0	71	29	93	7	29	71

the second syllable in this context is much less frequently superheavy (as, according to the MOP, any intervocalic consonant would be syllabified as the onset of the following syllable, only closing the second syllable if it is a geminate or followed by another consonant which would result in an impermissible onset cluster). Furthermore, in four cases, the second syllable is not only simply heavy, but also has a short vowel, which would predict initial stress in the (σ̄σ̄) set. In ⟨Karfvnkel⟩ (/kar.fun.kəl/ 'carbuncle'), ⟨scarlachen⟩ (/ʃar.lax.xən/ 'fine woolen cloth') and ⟨svrzengel⟩ (/sur.t͡sɛn.gəl/ 'surcingle, girdle for a horse'), the second vowel is of the same length as the first (CVC.CVC.CəC) and in ⟨fianze⟩ (/fiː.an.t͡sə/, 'oath of surrender, fidelity'), it is shorter (CVV.VC.Cə). Similarly, the first and second syllables are identical in weight in words such as ⟨florî⟩ (/floː.riː.ə/, 'bloom') and ⟨vinæger⟩ (/viː.næː.gər/, 'vinegar'): heavy with a long vowel. How can this be reconciled with the situation in Table 5.10? One must look to feet rather than syllables.

If MHG did not continue to exploit the Germanic foot, one would expect words of both structures to behave in exactly the same way, necessarily parsed into two monosyllabic heavy feet. The final syllable of words with the structure (σ̄σ̄) is therefore also an entire foot which, if heavier (and therefore more complex) than the first, attracts stress. In (σ̄σ̄σ̆) words, the second foot always attracts stress; this is difficult to account for if it were also monosyllabic, as it would rarely be heavier than the first (and occasionally would even be lighter). However, if the second foot includes the final light syllable, the resulting (σ̄σ̆) foot would always be expected to attract stress from the first, as it is inherently more complex than a bimoraic, monosyllabic foot, due its branching trimoraic structure. In this way, whilst words such as *karfunkel* and *fianze*

would pose a problem for an analysis forbidding the Germanic foot, they behave perfectly regularly if the second foot is structured (σ̄σ̆), comprising at least three moras. In light of this, it follows that one would expect to find variation in stress for (σ̄σ̄) words, depending on the relative weight of the two syllables, but never for (σ̄σ̄σ̆). In (10)a, only (i) lacks a heavier second foot and is therefore stressed on the first syllable. In contrast, it doesn't matter if the second syllable is heavier than the first in (10)b, as the second *foot* is always more complex.

(10) Variation in stress in (σ̄σ̄) words, contrasted with regular penultimate stress in (σ̄σ̄σ̆) words. In (a), variation is possible, depending on whether the second syllable is σ̄ or σ̄̄, but in (b) no variation is possible, as the final foot is branching in both cases.

a. i. (X) (x) (x) σ̄ σ̄ / har naʃ / **har** nasc 'armour'

ii. (X) (x) (x .) σ̄ σ̄̄ / run t͡si:t / rvn **zît** 'mare'

b. i. (X) (x) (x .) σ̄ σ̄ σ̆ / fi: an t͡sə / fi: **an** ze 'fidelity'

ii. (X) (x) (x .) σ̄ σ̄̄ σ̆ / sol di̯ə̯r sən / sol **dîer** sen 'soldiers' girls, prostitutes'

Such evidence is vital, as it is impossible to say, based on disyllabic cases alone, whether a heavy syllable followed by a light one is to be parsed (σ̄σ̆), integrating the light syllable into the foot as the dependent, or as (σ̄)σ̆, with a degenerate light syllable following a monosyllabic foot (what would be expected based on Hayes's typology of metrical patterns), as either way the heavy syllable would be stressed, as can be seen in (11).

(11) Ambiguity between (a) (σ̄σ̆) and (b) (σ̄)σ̆ parsings in disyllables.

a. 38.05 (X)
(x .)
(σ̄ σ̆)
div Gah. mv. ret[e]s **lan** ze.
Gahmuret's lance

b. 38.05 (X)
(x)
(σ̄) σ̆
div Gah. mv. ret[e]s **lan** ze.
Gahmuret's lance

This foot structure has the additional advantage of integrating all syllables in such words into the foot. Without it, 28 of the 39 structures attested in the poem would involve degenerate light syllables, often within a word, which is less preferred. Yet perhaps most importantly, the behaviour of (σ̄σ̄), (σ̄σ̄) and (σ̄σ̄σ̆) words seems to suggest an equivalence between trimoraic (superheavy) syllables and branching (σ̄σ̆) feet.

It is interesting to compare this situation to Fikkert's similar finding (in her discussion of *Lutgart*) that, in MNL, variation is effectively restricted to two types of prosodic word: 'those consisting of two monosyllabic feet (H)(H) [...] and those consisting of two feet of which the first is monosyllabic and the second branching (H)(HL)' (Fikkert 2000, 313). This is different from the situation found in the present study, where variation is limited to (σ̄σ̄) and (σ̆σ̄) words and (σ̄σ̄σ̆) words show no variation at all. The differences in variation are most likely due to the structure of the words concerned; for instance, in Fikkert's findings for MNL, variation only seems to occur in native (σ̄)(σ̄) words and never in Romance loans, which uniformly have final stress. The variation is typically due to a line-final position, where the final syllable is invariably stressed, with the *Lutgart* poet apparently favouring a shifted stress, as opposed to Wolfram, who usually stressed both syllables in such contexts. In (12)a (after Fikkert 2000, 316), the (σ̄σ̄) word *viant* 'enemy' (in bold), usually stressed on

the first syllable, as in (i), is shifted to final stress at the end of the line in (ii). In contrast, Wolfram chooses to stress both syllables of /feː.nis/ ‘phoenix’ in this context, rather than shifting stress, as shown in (12)b:

(12) Variation in stress in (σ̄σ̄) words.

a. i. 13548 x / | x / | x / | x / [x]
Hi vindt din **vi.** **ant** wel so koe. ne

ii. 13551 x / | x / | x / | x /
Dat gi die pla. che dint **vi.** **ant**

b. i. 469.11 x / | x / | x / | x /
svs rert der **Fe.** **nix** mv̊z. ze sin

ii. 469.08 x / | x / | x / | /
von des̲ stei. nes kraft der **Fe.** **nix**

This suggests that, for MNL at least, native (σ̄)(σ̄) words are stressed on the first syllable, Romance loans on the second. The apparent difference between MNL and MHG is most likely due to the fact that MHG seems to have featured more Romance loans with heavy (rather than superheavy) final syllables, whereas MNL Romance loans all seem to have ended with a superheavy syllable. Fikkert notes that ‘the situation in which the main stressed foot is less complex than the secondary stressed foot seems to be marked (cf. Dresher and van der Hulst 1993, 1995, 1998; Lahiri and Dresher 1999; Lahiri and Fikkert 1999)’ (2000, 315), accounting for the stress shift observable in the data. This means that a second, heavier foot attracts stress to resolve the highly marked situation in which main stress does not fall on the most complex foot.

The relationship between (σ̄)(σ̄) and (σ̄)(σ̄σ̆) words appears to be crucial for both languages. Fikkert suggests that this is related to the WGmc. destressing rule, whereby final, non-branching feet are defooted (cf. Dresher and Lahiri 1991). In this way, (σ̄σ̄) words would defoot the second foot to ensure that stress always fell on the first syllable, resulting in (σ̄)‹(σ̄)›. However, this does not account for words such as *grânât*

('garnet'), with stress on the final syllable. Fikkert suggests for MNL that such cases, along with the apparent equivalence between superheavy syllables and branching ($\bar{\sigma}\breve{\sigma}$) feet reflect the fact that superheavy syllables are treated as branching, 'analysed as having the structure (H)(HL), and stress is preferred on the branching foot' (Fikkert 2000, 319). Indeed, this treatment is reminiscent of Hayes's treatment of Estonian and Hindi, whereby trimoraic syllables are equivalent to a ($\bar{\sigma}\breve{\sigma}$) sequence: 'the third mora is syllabified as a kind of degenerate syllable [...] up to a point late in the derivation when it is adjoined to the preceding heavy, with inheritance of stress' (Hayes 1995, 163). The examples in (13) illustrate this equivalence.

(13) The equivalence of ($\bar{\sigma}$) and ($\bar{\sigma}\breve{\sigma}$): ⟨**kap**pe⟩ 'cap', ⟨gra**nat**⟩ 'garnet', ⟨mvn**tâ**ne⟩ 'mountain' and ⟨chri**gîr**re⟩ 'crier, herald'.

a. i.
```
( X    )
( |x|  . )
   σ̄   σ̆
/ kap  pə /
```
ii.
```
(      X  )
( |x| ) ( |x| . )
   σ̄      σ̄̄
/ gra:   na:t  /
```

b. i.
```
(       X    )
( |x| ) ( |x|  . )
   σ̄      σ̄   σ̆
/ mun    ta:  nə /
```
ii.
```
(       X      )
( |x| ) ( |x| . )
   σ̄      σ̄̄    σ̆
/ kri:   jiə̯r   rə /
```

I suggest that the situation in MHG paralleled that of MNL, which allowed Romance loan words to be integrated into the native system whilst maintaining final stress. Native simplex vocabulary was shorter, rarely exceeding two syllables or feet and $\bar{\bar{\sigma}}$s were restricted to monosyllables or native derivational affixes, which were assigned secondary stress (the crucial difference is that Romance loan words were initially borrowed as simplex words and only later morphologically decomposed). Therefore, the only native words of more than one foot would be ($\bar{\sigma}$)($\bar{\sigma}$) words, the final foot of which would be defooted, avoiding stress shift. The fact that MHG and MNL were able to borrow words with final superheavy CVVC syllables (which would

not be defooted) allowed the integration of Romance words with final stress. This contrasts with English, which did not allow long vowels in closed syllables, facilitating the interpretation of the final defooting rule as final consonant extrametricality (CEM). This analysis could not easily result from the MHG context, as, although CEM could potentially change (σ̄)(σ̄) words into (σ̄σ̆) if the final syllable is of the structure C_0VC, superheavy C_0VCC or C_0VVC syllables would remain heavy. CEM could therefore account for initial stress in (14)a.i *harnasc*, but is incompatible with shifted stress in words such as (14)a.ii *absist*, where the resulting structure would be VC.CVC‹C› and the second syllable wouldn't be analysable as a branching foot or even heavier than the first.

(14) Evidence against CEM: ⟨**har**nasc⟩ 'armour', ⟨ab**sist**⟩ 'absist' and ⟨Li**gv́**ri**vs**⟩ 'ligurite'.

a. i.
```
(  X      )
( |x|  .  )
   σ̄   σ̆
   μμ  μ
/ ˈhar na‹ʃ› /
```

ii.
```
*(  X      )
 ( |x|) (|x|  )
    σ̄     σ̄
   μμ    μμ
 /  ab  ˈsis‹t› /
```

b. i.
```
*(  X          )
 ( |x   |) (|x   | )
    σ̆  σ̄    σ̆  σ̆
   μ  μμ   μ  μ
 / li ˈguː ri  u‹s› /
```

ii.
```
(     X          )
     (|x| . ) ‹(|x| )›
      σ̆  σ̄  σ̆   σ̄
     μ  μμ  μ  μμ
   /  li ˈguː ri  us  /
```

Furthermore, words, such as ⟨Ligv́rivs⟩ /liguːrius/ challenge an analysis incorporating CEM ((14)b.i) and unambiguously support the present analysis ((14)b.ii). If the final syllable were subject to CEM, it would be treated as light and incorporated into a (σ́̆σ̆) foot with the preceding syllable as its head. As such, it would be unable to host a strong beat or form the rhyme (which is built on the line-final *foot*), as in l.791.15 (where it rhymes with ⟨Cególitvs⟩ 'cegolite'). Worse still, the heavy syllable which bears main stress would instead be incorporated into a resolved (σ́̆σ̄) head

with the initial syllable. This would incorrectly predict main stress to fall on the initial syllable and the final rhyming foot to be ⟨-ivs⟩ (not ⟨-vs⟩, as is in fact the case). The stress patterns observed are instead consistent with the present analysis. The final (heavy) syllable would be defooted, but still able to rhyme and host a strong beat for the purposes of scansion and poetic verse metre. Furthermore, the antepenultimate and penultimate syllables would form a branching (σ́σ̆) foot with the stressed ⟨-gý-⟩ as its head. (14)b.ii therefore correctly predicts the observed antepenultimate stress and final syllable rhyme, unlike (14)b.i.

3.4.3 Resolution

Initial evidence for the continued salience of the resolved head was provided in Chap. 3, Sect. 4, drawing on evidence from the structure of line-final feet in *Parzival*. This section will provide further evidence, based on patterns of lexical stress.[5] Resolution, whereby a sequence of (|σ̆σ̄|) is metrically equivalent to (|σ̄|), whether the second syllable is light or heavy, was a highly important feature of the metrical system of early Gmc. languages, accounting for metrical coherence across a range of phonological processes (see Sect. 1), but lost at some point prior to the modern period. If, as Hayes's (1995) typology suggests, trochaic feet can only be constructed from a single heavy syllable or a sequence of two light syllables, (σ̆σ̄) words could only ever form a monosyllabic heavy foot with a preceding degenerate light syllable (given the fact that CEM was not possible). However, this is contradicted by the data, where a significant number of (σ̆σ̄) words are stressed on the first, light syllable. However, although resolution appears still to be a feature of MHG, it does not appear to have been unaffected by Romance loans and the metrical equivalence of (σ̄σ̆) and (σ̄); their treatment as branching feet appears to have had substantial consequences in words of more than two syllables. Whilst Fikkert's (2000) anaylsis of MNL only found variation in (σ̄)(σ̄) and (σ̄)(σ̄σ̆) contexts, this was not the case in the present study. The data presented

[5] This has also been argued to be the case for ME (cf. Lahiri 2015).

in Table 5.9, repeated below as Table 5.13, show a striking parallel between the behaviour of words discussed in the previous section (a–d) on the one hand and (e–g) on the other.

Table 5.13 Non-initial stress in disyllabic and trisyllabic words.

		1	2	1 & 2 / Variable
a	HH	9	1	9
b	HS_H	2	28	17
c	HHL	—	13	4
d	HS_HL	—	1	3
e	LH	5	3	4
f	LS_H	1	10	9
g	LHL	—	8	2

Just as with σ̄-initial words, σ̆-initial words vary in stress placement, although [σ̆σ̄σ̆] words (Table 5.13g) are almost always stressed exclusively on the second syllable (and never exclusively on the first). At first glance, this might appear to suggest a lack of resolution; however, by comparing syllable structures, as in Table 5.10 and Table 5.12, the same systematic correlation between final stress and superheavy final syllables emerges, as Table 5.14 illustrates.

Table 5.14 Correlation between non-initial stress and final σ̄s or σ̄σ̆ sequences in words beginning with a light syllable (given as percentages).

	Syllable 2			
	H	S_H	V	VV
ĹH	83	17	83	17
L**Ĥ**	21	79	36	64
L**Ĥ**L	100	0	37.5	62.5

In this case, all initial syllables are, by virtue of being light, necessarily of the structure C_0V, meaning that only the second syllable is of relevance. Once again, the final syllables of initially-stressed disyllables are almost exclusively heavy with a

short vowel. Only one word, ⟨samit⟩ (/samiːt/ ‘samite’), ends with a σ̿.[6] In contrast, finally-stressed words very rarely end in a heavy (as opposed to superheavy) syllable. Of the three exceptions, those which survive into NHG have both retained final stress (i.e. MHG /paˈlas/ > NHG /paˈlast/ ‘palace’; MHG /kaˈstɛl/ > /kaˈstɛl/ ‘small fort, castle’). In contrast, the second syllable in trisyllabic (σ̆σ̄σ̆) words is always stressed, regardless of whether it is superheavy or not.

This systematic difference, in combination with the other evidence, confirms that a (σ̆σ̄) sequence is treated as a RMT, with both syllables forming the head of the foot: (|σ̆σ̄|). If a RMT were not the relevant foot type, the stress pattern observed in these words would be impossible and they would necessarily be stressed on the heavy syllable (this is only regularly found in [σ̆σ̿] words). The different predictions made by analyses (a) allowing and (b) disallowing resolution are exemplified in (15).

(15) Evidence in favour of (|σ̆σ̄|), as opposed to σ̆(|σ̄|): ⟨**ba**rel⟩ ‘barrel’.

a.	(X)		b.	* (	X)
	(|x |)				(|x|)
	σ̆	σ̄		σ̆	σ̄
	/ ˈba	rɛl /		/ ˈba	rɛl /

MHG therefore appears to have inherited much of the metrical system of OHG intact, constructing uneven moraic trochees with resolved heads. Evidence for resolution comes from stress falling on initial light syllables, provided the second syllable is heavy and not superheavy (cf. Table 5.13e–f). This is in addition to evidence from verse, with (|σ̆σ̄|) feet avoided in rhyming position, due to the poem’s iambic metre (see Chap. 3). However, as was illustrated in Sect. 3.4.2, all feet are not equal, and both (|σ̄|σ̆) and (|σ̿|) feet appear to attract stress, being metrically equivalent to each other and more complex than a simple moraic trochee. This also appears to have consequences for resolution.

[6]This word varied in form in the MHG period and a short-vowelled alternant appears to have existed. It survives into eNHG as *Sammet* and NHG as *Samt* (/zamt/).

Resolution is blocked when the light syllable precedes a superheavy syllable or (σ̄σ̆) sequence (i.e. a branching foot). Accordingly, it appears to be the case that, if one can form a maximal Germanic foot, (σ̄σ̆), then resolution is dispreferred, as this would lead to an overheavy quadri- or possibly even quintimoraic foot. Instead, the first syllable becomes degenerate, which provides a strong early indication of a shift in parsing direction from left-to-right to right-to-left. If parsing started at the left edge and the foot structure (|σ̆σ̄|σ̆) or (|σ̆σ̄̄|) were dispreferred, one would expect trisyllabic words first to form a resolved head and leave a degenerate final syllable, rather than first looking ahead for (σ̄σ̆) sequences. (16) compares the two parsing directions: (a) left-to-right and (b) right-to-left, for [σ̆σ̄σ̆] and [σ̆σ̄̄] words.

(16) Evidence of change in parsing direction from (a) left-to-right to (b) right-to-left: (σ̆σ̄σ̆) ⟨ka**rac**ter⟩ 'character, letter' and (σ̆σ̄̄) ⟨pri**svn**⟩ 'prison'.

a. i. * (X) ii. * (X)
(\|x \| .) (\|x \| .)
σ̆ σ̄ σ̆ σ̆ σ̄̄
μ μμ μ μ μμ μ
/ ka ˈrak tər / / pri ˈsuːn /

b. i. (X) ii. (X)
(\|x\| .) (\|x\|.)
σ̆ σ̄ σ̆ σ̆ σ̄̄
μ μμ μ μ μμ μ
/ ka ˈrak tər / / pri ˈsuːn /

Apart from [σ̆σ̄̄] words, disyllables would be unaffected by a change in parsing direction, and since native simplex vocabulary rarely comprised multiple feet, it should not have contradicted this change. However, the change would allow Romance loan words to fit into a unified prosodic system with native vocabulary and maintain right-edge stress. Indeed, the native language even allowed some unstressed initial syllables in the form of unstressed prefixes, e.g. *ge-*, *be-* or *ver-*, and the phonological similarity of these to the degenerate light Romance syllables, such as *je-* and *ga-*, would

have further facilitated this parsing. Additional support for right-to-left parsing comes from the tendency across the dataset for light syllables to associate leftwards if possible, only forming a resolved (|ŏσ̄|) foot if there is no syllable to the left with which it can form a foot. Given the continued existence of the Germanic foot, a light syllable could form a foot with either a light or a heavy syllable to its left, restricting the context in which (|ŏσ̄|) is possible to a disyllabic (ŏσ̄) word or word initial (ŏσ̄σ̄) sequence. Consider the structures presented in (17):

(17) Evidence for the restriction of resolution to a (ŏ$\bar{\text{o}}$) word or word-initial (ŏ$\bar{\text{o}}\bar{\text{o}}$) sequence.

a. (X) (\|x \|) ŏ $\bar{\text{o}}$ μ μμ / te pix / ⟨ **te** pich ⟩

b. (X) (\|x \|) (\|x\|.) ŏ $\bar{\text{o}}$ $\bar{\bar{\text{o}}}$ μ μμ μμ μ / tri mun taːn / ⟨ **Tri** mvn **tan** ⟩

c. (X) (\|x\| .) (\|x\|.) $\bar{\text{o}}$ ŏ $\bar{\bar{\text{o}}}$ μμ μ μμ μ / bar bə gaːn / ⟨ **bar** be **gan** ⟩

d. (X) (\|x \|) ‹(\|ɤ\|)› ŏ ŏ $\bar{\text{o}}$ μ μ μμ / gy gə rɛl / ⟨ **gv** g[e] **rel** ⟩

e. (X) (\|x\| .) ŏ $\bar{\text{o}}$ ŏ μ μμ μ / ga lan dər / ⟨ Ga **lan** der ⟩

f. (X) (\|x\| .) (\|x\| .) $\bar{\text{o}}$ ŏ $\bar{\text{o}}$ ŏ μμ μ μμ μ / kreː a tyː rə / ⟨ **cre** a **tv** re ⟩

g. (X) (\|x \|) (\|x\|) ‹(\|ɤ\|)› ŏ ŏ $\bar{\text{o}}$ $\bar{\text{o}}$ μ μ μμ μμ / kri so pras sis / ⟨ **Cri** so **pras** **sis** ⟩

h. (X) (\|x \|) ‹(\|ɤ\|)› ŏ $\bar{\text{o}}$ ŏ $\bar{\text{o}}$ μ μμ μ μμ / a roː ma taː / ⟨ A **ro** ma **ta** ⟩

i. (X) (\|x \|) (\|x\| .) ŏ ŏ $\bar{\text{o}}$ ŏ μ μ μμ μ / pa rə lyː rə / ⟨ **pa** re **lv̂** re ⟩

j. (X) (\|x \|) ‹(\|ɤ\|)› ŏ ŏ ŏ $\bar{\text{o}}$ μ μ μ μμ / ka to li koː / ⟨ Ka **to** li **co** ⟩

What is immediately striking about these data is that the syllables falling on a strong beat in the poem are in every case the head of a foot and the syllables falling on a weak beat are either the dependent of a branching foot or unfooted. This supports the idea that secondary stress in MHG fell on the heads of additional feet (unless they were defooted in word-final position). Crucially, this pattern would not hold if resolution were either always forbidden or always possible. For instance, (17)a, *tepich*,

would incorrectly be predicted to carry stress on the second syllable if resolution were impossible and (17)e, *Galander*, on the first if it were possible in any context. Although the final syllable seems to attract stress in (17)b, *Trimvntan*, if resolution were not possible in this context, the second syllable would be the head of the first foot, which would mean that a degenerate light foot would carry a strong beat in the poem. The data demonstrate that a light syllable preceding a heavy syllable is only resolved if this is at the left edge of the word and the heavy syllable does not have a light syllable to its right, as in (17)a–b. If there is any syllable to the left of the light syllable, it will associate to that syllable, as in (17)c–d and (17)f–j. Even if the light syllable is the first syllable, if the following heavy syllable has another light syllable to its right (or is superheavy and therefore considered to be branching), resolution does not occur, as in (17)e, h and j. This can be represented as in (18), which states that a $\breve{\sigma}\bar{\sigma}$ sequence will form a foot if it is word-initial and is directly followed either by a word boundary or another full foot.

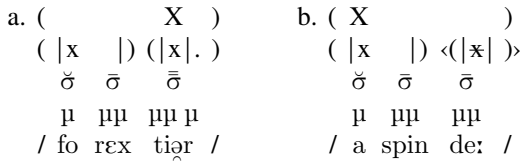
(18) Resolution Rule.
$\breve{\sigma}\bar{\sigma} \rightarrow (\breve{\sigma}\bar{\sigma})_{F}$ / #_F_0#

In other words, feet are constructed from right to left, forming branching feet if possible. Feet are maximally disyllabic and light syllables are associated to the syllables to their left as the dependent (unless they are themselves the head of a disyllabic foot). Light syllables can only form a resolved head with a heavy syllable to their right if they are the initial syllable of the word and the heavy syllable is not already the head of a branching foot. Interestingly, this preference for the light syllable to associate leftwards recalls Sweet's ([1885]/1904) concept of tone groups, suggesting that Germanic languages are left leaning, with weaker elements tending to associate to the left rather than the right. It also chimes with Lahiri and Plank's (2010) argument that, throughout their phonology, Germanic languages have historically displayed a

preference for trochaic or dactylic phonological phrasing (even when counter to an utterance's morphosyntactic phrasing), with encliticisation overwhelmingly prevailing over procliticisation. They argue that this preference has changed little over time and that historical developments in Germanic 'suggest that encliticisation is the default (though under particular circumstances sometimes blocked) and procliticisation is possible only if there is no host available to encliticise on to' (Lahiri and Plank 2010, 390). The present finding aligns with this claim, suggesting that the metrical system of MHG was also coherent with this broader prosodic tendency. The way in which resolution patterns in the present data exactly parallels their findings for phonological phrasing, favouring leftward attachment: 'unless overridden by other considerations (like being in utterance-initial position with nothing to lean on), leftward attachment of grammatical words and other weak material has been and continues to be the default in Germanic' (Lahiri and Plank 2010, 394).

The only apparent exceptions to the above resolution rule can be found the behaviour of [$\breve{\sigma}\bar{\sigma}\bar{\sigma}$] words (Table 5.6b), where one also finds variation in the data. However, this variation can be accounted for within the current analysis, as (once again) it appears to be systematic. In addition to six words stressed on the penultimate syllable, four words carry a strong beat on the first and third syllables and one on the second and third. The patterns found in the latter five words are in keeping with the predictions of the resolution rule (we will return to the six words stressed on the penultimate syllable in a moment) and, taking $\bar{\bar{\sigma}}$ syllables into account, these words represent three patters: [$\breve{\sigma}\bar{\bar{\sigma}}\bar{\sigma}$], [$\breve{\sigma}\bar{\sigma}\bar{\bar{\sigma}}$] and [$\breve{\sigma}\bar{\sigma}\bar{\sigma}$]. In the first two cases, the branching ($\bar{\bar{\sigma}}$) foot attracts main stress, with the head of the other ($\breve{\sigma}\bar{\sigma}$) or ($\bar{\sigma}$) foot carrying an additional strong beat in the poem. In contrast, initial stress is predicted for the [$\breve{\sigma}\bar{\sigma}\bar{\sigma}$] word ⟨Aspindê⟩ ('asbestos'), as the final ($\bar{\sigma}$) is non-branching and therefore defooted, as (19) demonstrates.

(19) Example of (a) a final (|σ̄|) attracting stress away from an initial (|ŏσ̆|), contrasted with (b) a final defooted ‹(σ̄)›, where stress remains initial: ⟨**fo**reh**tîer**⟩ ‘forester’ vs. ⟨**A**spin**dê**⟩ ‘asbestos’.



The remaining six [ŏσ́σ̄] cases seem initially counter to the resolution rule, as they are stressed on the second syllable, rather than the first. Nevertheless, although these words retain their Latinate stress, they may still be accounted for under the present analysis. Unlike *aspindê*, these words all end in a final -VC syllable (always a Latin case ending), but [ŏσ̄ŏ] variants all existed in MHG and stress placement in the poem agrees both with the original Latin and these nativised forms. The markedly foreign forms in the poem appear to have been used in service of the requirements of rhyme and alternating metre.[7]

These words (*achâtes, gagâtes, orîtes, berillus, echîtes* and *enîdrus*) come from a single 30-line section[8] comprising a list of 58 precious stones (ll. 791,1-30). The stones are all Romance loans,[9] including a number of Latinate words which appear simply to have been lifted from Marbode of Renne’s *De Lapidibus* (cf. Booth 2020). Loans directly from Latin are rare in *Parzival*, with most instead borrowed from OF, as the form of other stones reflect: *Câlcidon* (< OF *calcidoine*), *Corniol* (< OF *corneole*), *Tvrkoyse* (< OF *turquois*) and *Karfvnkel* (< OF *carbuncle*).

Although some words in this section do have nativised spelling and inflexion, e.g. ⟨Crisolte Rvbíne. // Paleise vnt Sardine.⟩ (l.791,25–26), the Latinate forms retain their case endings (e.g. ⟨Berillus⟩, ⟨achátes⟩), despite the existence of nativised variants

[7] The perceived foreignness of the words in this section is reflected in the fact that the scribe of Cod. 857 spelt every word with a capital letter, which usually indicates that the word was unfamiliar (cf. von Eschenbach [c.1210]/1900, iii; Witte 1927, 350f.). The scribe furthermore seems to have felt the need to clarify vowel quality and quantity in these words and added tittles or diacritics to stress-bearing vowels with much greater frequency than is found elsewhere in the MS.

[8] This passage describes the chamber in which the ailing ‘Grail King’, Anfortas, kept alive by the grail, is bed-ridden. Having mentioned various woods and spices used to sweeten the air, the poet describes Anfortas’s bed, covered in jewels and gems.

[9] The only native words included are 28 repetitions of the word *unt/unde* (‘and’) and the line ⟨Ovch st̊nt her vnt da⟩ (‘There were also, here and there,’ l.791,23).

in MHG (e.g. *berille*, *achât*). For instance, Konrad von Megenberg's slightly later ([c.1350]/1861) *Das Buch der Natur* features nativised forms of these words which have been phonologically adapted in order to adhere better to native metrical patterns without shifting stress. The relevant words thus all end with a schwa syllable rather than a (σ̄), mostly adapted as weak masculine nouns. These nativised [σ̆σ̄σ̆] forms are used within Konrad von Megenberg's MHG text, but the book is alphabetised according to the Latin (broadly aligning with the [σ̆σ̄σ̄] forms in *Parzival*): e.g. 'Elidros oder enidros' vs. 'dem elider' and 'Orites' vs. 'dem oriten' ([c.1350]/1861, 446; 455).

Where these words have survived into NHG, their present forms reflect these nativised etyma (i.e. without Latin inflexional endings) and, even where these loans bear Latin case endings in *Parzival*, stress placement matches that of the nativised forms. This can be seen in Table 5.15, which compares the forms found in Cod. 857 with their Latin etyma, the forms used by Marbode of Rennes, the MHG forms of Konrad von Megenberg and their NHG reflexes.

Table 5.15 Names for precious stones with Latin etyma, nativised MHG forms and their NHG reflexes.

Cod. 857	Latin	Marbode	Konrad von Megenberg	NHG	
Achátes	achátēs	achates	dem achaten	Achat	/aˈxaːt/
Gagátes	gagátēs	gagates	—	Gagat	/gaˈgaːt/
Orítes	orítis	orites	dem oriten	†	
Berillvs	bērýllus	berillus	der berill, dem berillen	Brille, Beryll	/ˈbʁɪlə/, /bəˈʁʏl/
Ethîtes	echítis	ethites	dem echiten	Aetit	/aeˈtiːt/
Enîdrvs	enhýdros	enhydros	dem elider	†	

The answer appears to be that Wolfram consciously chooses forms with Latin case endings in order to facilitate rhyme and meet the demands of his chosen metre (such suffixes contain full vowels, unlike the schwa syllables of the nativised forms). For instance, one can build a foot—and thus rhyme—on the final syllable of ⟨Crisoprassis⟩ and ⟨Diadochis⟩, unlike *crisoprasse* and *dyadoche*. In other words, the metrical (and rhyming) difficulties which these words present are easily solved when they all end in /-aː/, /-es/, /-is/ or /-us/; Latinate case endings—with their full vowels and coda

consonants—may thus satisfy the demands of verse structure, but do not form a foot for the purposes of main stress assignment. [10]

3.4.4 Metrical parameters and preferences

Taking into account the analysis detailed in the previous sections, an account of the metrical parameters of MHG can now be summarised. The language is clearly still trochaic, despite having adopted Romance loan words with right-edge stress; loan words were not simply adopted as iambic, nor with separate stress rules, such as Halle and Keyser's (1971) Romance stress rule, but rather conditioned subtle changes to the native parameters. Such changes facilitated their accommodation within the existing system. Words could not simply have been assigned identical stress to that found in the donor language, or else we would find words such as *jêometrîe* stressed on the third, rather than the penultimate syllable, as in the Latin *geōmétria*. The Germanic foot is still necessary to account for the stress system, as is resolution, whereby ($|\breve{\sigma}\sigma|$) is equivalent to ($|\bar{\sigma}|$), although in more restricted context, given the shift to right-to-left parsing and the resulting resolution rule. These facts can be represented by the parameters and rules given in (20) (repeated in Appendix 5).

[10] It is possible that Wolfram treats the first syllable of these words as extrametrical, i.e. like unstressed prefixes, as the first syllables all comprise either a single short vowel or a CV sequence (⟨be-⟩ or ⟨ga-⟩). Given the phonological similarity of such sequences to unstressed prefixes already extant in the native language, such as the verbal prefixes *be-* and *ge-*, it is perfectly possible that such words were treated as prefixed, explaining the divergent stress pattern.

(20) Metrical parameters. A summary of the key parameters is given in (a), with (b)–(f) providing additional rules and preferences.

a. Foot Type: RMT
Parsing Direction: R → L
End Rule: Left
Extrametricality: Defoot final non-branching feet

b. Branching syllables (after Hayes 1995, 326)
Superheavy syllables $(|\bar{\bar{\sigma}}|)_F$ have a branching structure and VVC or VCC syllables are thus metrically equivalent to a $(|\bar{\sigma}|\breve{\sigma})_F$, resulting in the addition of a catalectic syllable:

$([\mu\mu][\mu])_\sigma$

c. Foot construction
From right to left, construct moraic trochees. Adjoin stray light syllables to the left, forming a recursive F.

d. Resolution
Incorporate remaining word-initial light syllables into a resolved head if (and only if) the following syllable is heavy and does not already form a branching foot, $(|\bar{\sigma}|\breve{\sigma})$ or $(|\bar{\bar{\sigma}}|)$:

$\breve{\sigma}\bar{\sigma} \rightarrow (\breve{\sigma}\bar{\sigma})_F$ / #_F_0#

e. Defooting
Defoot final non-branching feet, provided they are not the only foot:

$(|\mu\mu|) \rightarrow \langle(|\cancel{\mu\mu}|)\rangle$ / F_1_#

f. Stress shift
End Rule Left, BUT:
Shift main stress from non-branching foot to final foot if branching, otherwise shift stress to final foot if its head is heavier, in line with following preference scales:

$(|\bar{\bar{\sigma}}|)$ » $(|\bar{\sigma}|\breve{\sigma})$ » $(|\bar{\sigma}|)$ » $(|\breve{\sigma}\sigma|)$

(C)VVC » (C)VV » (C)VC » (C)V

The stress shift rule is similar in its principles to the 'prosodic preference scales and principles of interpretation' presented in (Lahiri and Dresher 1999, 711) in that they prioritise a branching foot structure and maximised head of the foot, dispreferring main stress falling on a foot less complex than a secondary stressed foot:

(21) Prosodic preference scales and principles of interpretation (after Lahiri and Dresher 1999, 711).[11]

1. Maximization of foot (HEAD DEPENDENT) » (HEAD)
2. Incorporate unfooted syllables into feet
3. Maximization of head: (|σ̄|) » (|σ̆σ̄|) » (|σ̆|)
4. Main stressed foot not less complex than secondary stressed feet

Thus far, these parameters have been determined primarily in reference to disyllabic and certain trisyllabic words, notably [σ̆σ̄σ̄], [σ̄σ̄σ̆] and [σ̆σ̄σ̆] (Table 5.16c, j and l respectively), as tetrasyllabic and pentasyllabic structures are mostly attested by far fewer words and trisyllabic words stressed on odd syllables are ambiguous regarding main stress. However, the rules and parameters listed in (20) can be tested against the evidence provided by other words, which can provide additional insights thanks to their longer structure. The data for trisyllabic words are repeated in Table 5.16.

Due to the odd number of syllables and the alternating stress of *Parzival*'s iambic tetrameter, if a trisyllabic word is not stressed exclusively on one syllable, there is ambiguity as to which of the strong beats represents the location of main stress; for instance, words like Table 5.16b only tell us that the second syllable is not stressed. However, trisyllabic words broadly fall into two clear categories: (i) those stressed on the second syllable (or both the first *and* the second) and (ii) those stressed on the third syllable (or both the first *and* the third).

[11] Note that this does not apply to stressed prefixes, which are usually analysed as forming their own ω, allowing them to behave like phonological compounds and attract main stress, or unstressed prefixes, which are typically considered to be external to the ω of the stem (cf. Booij 1995; Wiese 2000; Raffelsiefen 2000).

Table 5.16 Stressed syllables in trisyllabic words.

		2	1 & 2	3	1 & 3	(1 &) 2 & 3
a	HHH	—	—	—	1	1
b	HHS_H	—	—	—	1	—
c	LHH	6	—	—	1	—
d	LS_HH	—	—	—	—	1
e	LHS_H	—	—	—	3	—
f	HLH	—	—	—	3	—
g	HLS_H	—	—	3	11	—
h	LLH	—	—	1	3	—
i	LLS_H	—	—	—	6	—
j	HHL	13	4	—	—	—
k	HS_HL	1	3	—	—	—
l	LHL	8	2	—	—	—
m	HLL	1	1	—	—	—
n	LLL	2	—	—	—	—

Given the proposed stress parameters, main stress would be expected to fall on the initial syllable of Table 5.16a, c,[12] f and h, rather than the defooted final ($\bar{\sigma}$).[13] In contrast, it would be expected to fall on the stress-attracting final superheavy syllable of Table 5.16b, e, g and i. Stress would likewise be expected to be attracted to the medial ($\bar{\sigma}$) in Table 5.16d and k. As Table 5.16j and l end in a branching ($\bar{\sigma}\breve{\sigma}$) foot, preceded by a simple $\bar{\sigma}$ or $\breve{\sigma}$, penultimate stress is expected in both cases (and indeed found unambiguously in the vast majority of words). The effect of $\bar{\bar{\sigma}}$s on stress is illustrated in (22), contrasting words of the structure [$\breve{\sigma}\breve{\sigma}\bar{\sigma}$], [$\breve{\sigma}\breve{\sigma}\bar{\bar{\sigma}}$], [$\bar{\sigma}\breve{\sigma}\bar{\sigma}$] and [$\bar{\sigma}\breve{\sigma}\bar{\bar{\sigma}}$].

[12] As discussed in Sect. 3.4.3, resolution is exceptionally blocked in the six Latinate words with penultimate stress.

[13] However, one word, ⟨Adamas⟩ ('diamond'), attested elsewhere with the [$\breve{\sigma}\breve{\sigma}\bar{\sigma}$] form *adamant* and appearing in the same list of gemstones as the six exceptional [$\breve{\sigma}\acute{\sigma}\bar{\sigma}$] words, appears to exhibit final stress.

(22) Examples of trisyllabic words with unstressed penultimate σ̆s followed by a σ̄ or σ̿: ⟨**gv**g[e]**rel**⟩ ‘horse’s head-covering’, ⟨**ka**ste**lan**⟩ ‘Castilian horse’, ⟨**Bv**cke**ram**⟩‘buckram’ and ⟨**con**ter**feit**⟩ ‘deception’.

```
a.  i.  ( X              )        ii.  (            X   )
        ( |x    |) ‹(|x̶| )›            ( |x    |) (|x|. )
          σ̆    σ̆     σ̄                    σ̆    σ̆     σ̿
          μ    μ     μμ                   μ    μ    μμ μ
        / gy   gə    rɛl  /            / ka   ste   laːn  /

b.  i.  (  X              )       ii.  (              X   )
        ( |x|    . ) ‹(|x̶| )›          ( |x|    . ) (|x|. )
           σ̄     σ̆     σ̄                  σ̄     σ̆     σ̿
           μμ    μ     μμ                 μμ    μ    μμ μ
        / buk   kə    ram  /           / kon   tər   fei̯t  /
```

Based on the present analysis, Table 5.16m would be expected to be stressed on the initial syllable: (σ̄́)(σ̆σ̆). One item is consistent with this analysis, but the penultimate stress in the other is unexpected. The penultimate syllable should indeed form the head of a foot, given right-to-left parsing, but a (σ̆σ̆) foot would not be expected to shift stress rightwards. The behaviour of a single item must be treated with caution, however, and this word, *turkopel* (/turkopəl/ ‘turkopole’, a type of bowman) appears to have carried marked penultimate stress (cf. ‘turkópel’, Benecke et al.). It is conceivable that this word was in fact treated as [σ̄σ̄σ̆], particularly given its consistent representation as ⟨Tvrkople⟩ in Cod. 857.

Whilst (20)d restricts resolution to the first syllable and blocks it if the light syllable is followed by a branching foot, preventing (|σ̆σ̿|) or (|σ̆σ̄|σ̆) structures, it remains unclear whether the resolved structure (|σ̆σ̆|σ̆) should be permitted in word-initial position. Unfortunately, this structure is relatively scarce in the text (which may itself be revealing), only occuring in three contexts in the data: [σ̆σ̆σ̆], [σ̆σ̆σ̆σ̄] and [σ̆σ̆σ̆σ̆]. All three are attested by at most two items appearing once or twice in the text: ⟨fisike⟩ (/fisikə/ ‘physic, natural science’), ⟨Sinopel⟩ (/sinopəl/ ‘sinopel’), ⟨Diadochis⟩ (/diadoxis/ ‘diadochite’, a precious stone), ⟨Katolico⟩ (/katolikoː/ ‘Catholicos’) and ⟨Ametiste⟩ (/ametistə/ ‘amethyst’). Any conclusions based solely on these items must

thus be somewhat tentative. Indeed, in the last case, given the foot construction rule (20)c, one would not expect resolution anyway, but rather two (|σ̆σ̆|) feet (confirmed by stress falling on the first and third syllable in *ametiste*). A resolved (|σ̆σ̄|) foot would likewise be prevented in [σ̆σ̆σ̆σ̄], thanks to the resolution rule. As *katolicô* and *diadochis* do not end in branching feet, the final syllables would additionally be defooted by (20)e. After defooting, *fisike*, *sinopel*, *diadochis* and *katolicô* would therefore have effectively the same structure, [σ̆σ̆σ̆]. Thanks to right-to-left parsing, the latter two light syllables would be first parsed into a (|σ̆σ̆|) foot, in line with (20)c. This would already be resolved, meaning that one would not expect the first light syllable to be incorporated into the head, as this would require restructuring the existing foot to (|σ̆σ̆|σ̆). This contrasts with a left-to-right parsing, where one would first form a (|σ̆σ̆|) foot from the first two syllables, to which the following light syllable could be added as a dependent without restructuring the head. This prediction is corroborated by the placement of strong beats in σ̆σ̆σ̆-initial words, as (23) demonstrates.

(23) Evidence against resolution in [σ̆σ̆σ̆] sequences: ⟨fi**si**ke⟩, ⟨Ka**to**li**co**⟩ and ⟨**A**me**ti**ste⟩.

a. (X)
(|x |)
σ̆ σ̆ σ̆
µ µ µ
/ fi si kə /

b. (X)
(|x |) ‹(|~~x~~|)›
σ̆ σ̆ σ̆ σ̄
µ µ µ µµ
/ ka to li koː /

c. (X)
(|x |) (|x |)
σ̆ σ̆ σ̆ σ̆
µ µ µ µ
/ a mə ti stə /

Resolved feet of the structure (|σ̆σ̆|σ̆) should thus not occur in any context, as the stressed syllables in the poem would otherwise not align with the heads of metrical feet, falling instead on a dependent syllable. This represents an unstable situation and one liable to lead to change. Indeed, this appears to have been the case (see Sect. 3.4.8).

3.4.5 Longer words

Unlike native Gmc. vocabulary, which is typically monopedal (at least for non-derived forms), Romance loan words have the potential to be much longer and contain a greater number of feet. Whereas many trisyllabic words are ambiguous as to the exact placement of main stress, tetrasyllabic words, with an even number of syllables and a greater number of feet potentially indicate much more clearly its precise position. The tetrasyllabic data, repeated in Table 5.17, whilst in many cases representing smaller numbers of words due to the greater number of potential combinations of light and heavy syllables, allow a number of additional insights to be gleaned, particularly in regard to certain patterns of variation.

Table 5.17 Stressed syllables in tetrasyllabic words.

		2 & 4	3	1 & 3	1 & 3 & 4
a	HLHH	—	—	1	1
b	$HLS_{H}H$	—	—	—	1
c	LHHH	—	1	—	—
d	LLHH	—	2	1	5
e	HHLH	1	—	—	—
f	LHLH	6	—	—	—
g	LLLH	2	—	—	—
h	HHHL	—	—	4	—
i	HLHL	—	2	5	—
j	LLHL	—	1	7	—
k	$LLS_{H}L$	—	—	1	—
l	LLLL	—	—	1	—

Three structures, Table 5.17e, f and g, carry strong beats on the second and final syllables, excluding the possibility of penultimate stress. However, penultimate stress is probable for many other structures. Aside from Table 5.17b, structures which appear with stress on the initial, penultimate and final syllables also appear with initial and penultimate only; additionally, Table 5.17c, d, i and j also occur with a strong beat on the penultimate syllable alone. In Table 5.17b, the present analysis would predict the head of a foot to fall on the final, penultimate ind initial syllables. This structure is represented by a single word, *antrodrâgmâ*, which correspondingly carries a strong

beat on each of these syllables. However, based on the evidence available, the third syllable is the most probable location of main stress. The final syllable would, as a non-branching final foot, be expected to be defooted, leaving the first and third syllables, with the penultimate attracting stress, confirming that a superheavy syllable attracts stress over a branching foot with a bimoraic head, in line with (20)g. This is further supported by the notable fact that 5.17d, which is also often stressed on syllables 1, 3 and 4, is otherwise stressed on the first and third, or exclusively on the third. Furthermore, of the tetrasyllabic words ending in the disyllabic sequence *-îtes*, two are stressed on the first, third and fourth syllables, two are stressed on the first and third, and two on the third only, strongly indicating penultimate stress. The pattern stressing the first, third and fourth syllables occurs exclusively in line-final position, where the final syllable forms the rhyme; line-medially, the vowel of the final syllable, *-tes*, may be elided (as demonstrated by (24)). This suggests that the final syllable is only stressed in the poem in order to satisfy the condition that the rhyming syllable always fall on a strong beat. One would not expect it to have been stressed in the natural language (cf. (12)); *-es* must thus represent a full vowel (and not a schwa, which cannot be stressed).

(24) Stress attraction to penultimate syllables with long vowels.

a. 791,07 [x] x / | x / | x / | x /
Je. ra. chiː. tes vnt El. io. trô. pi. a
malachite and diadochus

b. 791,28 x / | x / | x / | /
Kar. fvn. kel vnt Sy. le. niː. tes
carbuncle and moonstone

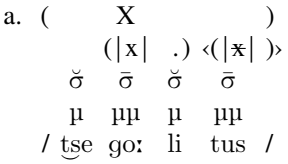
It thus appears that stress is being attracted to the penultimate syllable in such cases, further implying that a (C)VV syllable may attract stress away from a (C)VC syllable (as one also finds in (σ̄)(σ̄) words, such as *turnéi*). This may also be seen in

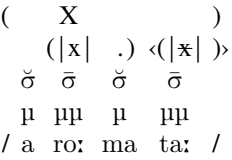
words such as *erzenî́e* and *massenî́e* (Table 5.17i), which are both stressed only on the penultimate syllable (the head of a (CVV.V) foot, rather than the head of the initial (CVC.CV) foot). Indeed, both *-îe* and the final sequence *-îtes* seem to attract stress regardless of the preceding structure (e.g. 5.17a or d) or length of the word (as in the trisyllabic words *echîtes* and *orîtes*, cf. Sect. 3.4.3), perhaps suggesting that certain word-final sequences were already being treated as stress-attracting suffixes. Indeed, in Table 5.17b, h, i, j and k, stress is apparently attracted to the penultimate syllable in every case due to the fact that it forms the head of a branching foot. These final branching feet are almost exclusively Romance suffixes, such as *-iur(e)*, *-î(e)*, *-ier(r)e* and *-âne*.

If word-final heavy syllables are defooted, this would predict that final stress should only occur (aside from monosyllabic words) if the final syllable is superheavy. As final $\bar{\breve{\sigma}}$s only occur in disyllables and trisyllables in the data, it follows that final stress would not be expected to occur in longer words. Otherwise, penultimate stress is most common, as in 5.17d, where *galactîdâ* would have the structure $(|\breve{\sigma}\bar{\sigma}|)(|\acute{\breve{\sigma}}|)\langle(|\bar{\sigma}|)\rangle$, with stress drawn from the first light syllable to the penultimate heavy one. Nevertheless, penultimate stress is not the only option, as in Latin, where the final syllable is extrametrical and the penult is stressed if heavy, else the antepenult. The same effect is achieved (without a separate Romance stress rule) through defooting of final non-branching feet if the preceding foot is of the branching structure $(|\bar{\sigma}|\breve{\sigma})$, as in 5.17e and f. Assuming that word-final *-us*, *-es* and *-â* are only ever stressed in the text due to constraints imposed by the poetic metre and rhyme, (25)a–b, carrying a strong beat on even syllables, must bear main stress on the second (antepenultimate) syllable, as the final non-branching foot would be defooted. These words therefore also confirm the resolution rule, as if a branching foot were permitted a resolved head, the whole

word would form a single (|ŏσ̄|ŏ) foot and stress would have fallen on the first syllable. The same is true of 5.17g, where the antepenultimate syllable is the head of the only stressable foot (for parsings of 5.17g and l, see (23)).

(25) Antepenultimate stress in the tetrasyllabic words ⟨Ce**gó**li**tvs**⟩ 'cegolite' and ⟨A**ro**ma**ta**⟩ 'aromatic plant'.

a.


b.


There are only eight pentasyllabic words in the text, each occurring only once, although three have the same syllabic structure, as illustrated in Table 5.18.

Table 5.18 Stressed syllables in pentasyllabic words.

		3	1, 3 & 4	1, 3 & 5	2 & 4	1 & 2 & 3 & 4
a	HLHLH	—	—	1	—	—
b	$LLHLS_H$	—	—	1	—	—
c	HLLHL	—	—	—	1	—
d	LLHHL	—	1	—	—	—
e	LLLHL	—	—	—	1	1
f	$LLLS_HL$	—	—	—	1	—
g	LLHLL	1	—	—	—	—

Half of these words (Table 5.18c, d and e) end with a (|σ̄|ŏ) foot, the head of which always hosts a strong beat, regardless of what goes before. In addition, Table 5.18f ends with a (|σ̄|)ŏ sequence and behaves similarly. The penultimate syllable forms the head of the only branching foot in each case, predicting penultimate stress. For instance, in the case of Table 5.18c, the word *jêometrîe* would be parsed (|σ̄|)(|ŏŏ|)(|σ̄|ŏ), so stress should not fall on the head of the second foot, but rather be attracted away from the initial non-branching foot to the final branching one. Whether a resolved (|ŏŏ|ŏ) structure is possible or not, Table 5.18e–f would both be expected to shift stress to the final, branching foot, (|σ̄|ŏ) in Table 5.18e and (|σ̄|)ŏ in 5.18f. The

same is true of Table 5.18a, ⟨eliotrôpia⟩ ‘heliotrope’, assuming that ⟨-ia⟩ represents /-iaː/, matching the length (and stress) of its Latin etymon, *hēliotrópium* (or rather its NOM/VOC/ACC.PL form, *hēliotrópia*), with lengthening of the final vowel in order to facilitate a rhyme with ⟨Antrodrâgma⟩ /antroˈdraːgmaː/ ‘androdragma’. Here, the second branching foot (with the long vowel) would attract stress. In Table 5.18b (the only pentasyllabic word with a stong beat on the final syllable), stress is also expected to be drawn to the final (|σ̄̄|), whereas stress placement must be antepenultimate in Table 5.18g (the only syllable to carry a strong beat), and this is the only foot which has a heavy head.

(26) Stress-placement in pentasyllabic words, which often end in the stress-attracting suffix -*îe*: ⟨**astronomî**e⟩ ‘astronomy’, ⟨**Sa**ra**pan**dra**test**⟩ ‘serpent’s head’, ⟨**Ni**gro**manzî**[e]⟩ ‘necromancy’, ⟨Je**o**me**trî**[e]⟩ ‘geometry’ and ⟨**Eli**o**trô**pi**a**⟩ ‘heliotrope’.[14]

a.	(				X		)
			(|x	|)	(|x|	.	)
		σ̆	σ̆	σ̆	σ̄	σ̆	
		μ	μ	μ	μμ	μ	
	/	a	stro	no	miː	ə	/

b.	(					X	)
	(	|x	|)	(|x|	.)	(|x|.	)
		σ̆	σ̆	σ̄	σ̆	σ̄̄	
		μ	μ	μμ	μ	μμ μ	
	/	sa	ra	pan	dra	tɛst	/

c.	(				X		)
	(	|x	|)	(|x|)	(|x|	.	)
		σ̆	σ̄	σ̄	σ̄	σ̆	
		μ	μμ	μμ	μμ	μ	
	/	ni	groː	man	t͡siː	ə	/

d.	(				X		)
	(	|x|)	(|x	|)	(|x|	.	)
		σ̄	σ̆	σ̆	σ̄	σ̆	
		μμ	μ	μ	μμ	μ	
	/	jeː	o	mə	triː	ə	/

e.	(			X			)
	(	|x|	.)	(|x|	.)	‹(|x̶|	)›
		σ̄	σ̆	σ̄	σ̆	σ̄	
		μμ	μ	μμ	μ	μμ	
	/	el	jo	troː	pi	aː	/

[14] In *Nigromanzî[e]* and *Jeometrî[e]*, the final [e] is bracketed, as these words both appear at the end of a line where the schwa has been elided to facilitate a rhyme.

3.4.6 Verbs, adjectives and adverbs

Most of the discussion so far has focused on nouns, yet there are also 45 verbs of Romance origin in *Parzival*. Of these, fourteen consist of a nominal base followed by the native infinitival suffix, *-en* and the rest end in the Romance verb-forming suffix, *-ieren*. The former group of words, such as *prîsen* (/priːsən/ 'esteem') or *tanzen* (/tant͡sən/ 'dance') were derived within the language from borrowed nouns. The majority of these words are effectively monosyllabic (and therefore of little interest for the present study), as verbal inflexion (e.g. the morphemes *ge-* and *-en*) is effectively stress-neutral in MHG. These syllables are never stressed and do not affect stress-assignment, as they comprise moraically deficient schwa syllables. These syllables are often elided, as with the forms ⟨galv̂net⟩ (l.337,20, from the verb *âlûnen* 'to treat with alum, to tan', Wiener 1895, 332) and ⟨geslagn⟩ (l.61,13, from the verb *slahen, slân* 'to beat, to slay'). This reduction applies equally to present tense inflexional morphemes, such as *-et* ('3SG.PRES'). When these shorter verbs are excluded, what remains from this category are four verbs: *tambûren*, *âlûnen*, *drîakeln* and *vermaldîen*, with *vermaldîen* even featuring the native prefix *ver-*. Verbs such as *geprîsen* and *geprüeven* are also essentially monosyllabic once the unstressable /gə-/ prefix is taken into account. These verbs must represent a form of zero-derivation from the noun (as *-en* is an inflexional and not derivational suffix), with verbal inflexion added after stress assignment, allowing the base to retain its phonological integrity. Therefore, even though the onsetless suffix causes resyllabification of a coda consonant due to onset maximisation, the final syllable of the base is still treated as closed during stress assignment, adding weight to the previous syllable.[15] Based on this assumption, these verbs all behave as expected based on the proposed metrical parameters:

[15]Note, however, that there is a degree of ambiguity as to whether inflexional suffixes are added before or after stress assignment, due to the equivalence of ($\bar{\sigma}$) and ($|\bar{\sigma}|\breve{\sigma}$). As the relevant suffixes are all schwa syllables, words with stem-final superheavy syllables still end with a branching foot, even after resyllabification. An analysis including such suffixes in the domain of stress assignment would therefore also be consistent with the data and the proposed metrical parameters, as illustrated in (i). However, such affixes never affect stress placement in native vocabulary and word-initial schwa syllables will always be unfooted.

(27) Failure of inflexional morphology to affect stress placement: ⟨Tam**bv̊**ren⟩ ‘play the tabor’, ⟨al**v̂**nen⟩ ‘treat with alum’, ⟨ge**dria**kelt⟩ ‘smeared with theriac’ and ⟨ver**maldî**te⟩[16] ‘accursed’.

a.
```
(      X   )
( |x|) (|x .| )
  σ̄     σ̄̄     ‹σ̆›
  μμ    μμμ    ‹μ›
/ tam   bu:r + ən /
```

b.
```
(      X   )
( |x|) (|x .| )
  σ̄     σ̄̄     ‹σ̆›
  μμ    μμμ    ‹μ›
/ a:    lu:n + ən /
```

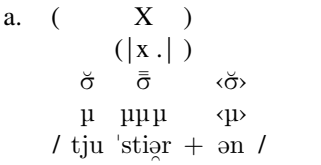
c.
```
        (  X      )
        ( |x|) (|x   | )
  ‹σ̆›    σ̄     σ̆  σ̆
  ‹μ›    μμ    μ  μ
/ gə + dri:   a  kəl + t /
```

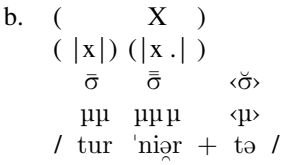
d.
```
        (      X   )
        ( |x|) (|x|  . )
  ‹σ̆›    σ̄     σ̄  σ̆   ‹σ̆›
  ‹μ›    μμ    μμ  μ   ‹μ›
/ fər + mal   di: ə + tə /
```

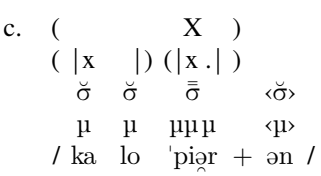
All other verbs end in *-ieren*, a productive suffix in MHG from the twelfth century, acquired ‘by borrowing verbs with endings *-er*, *-ier*, *-ir* and under the influence of the noun ending *-ier*’ (Young and Gloning 2004[2013], 127). Based on the same assumptions as above regarding the stress-neutrality of verbal inflexion (i.e. the infinitival suffix, *-en*), but not derivational affixes (i.e. *-ier-*), one would expect /-iə̯r-/ to attract stress in every case; as a superheavy syllable (a diphthong closed by /r/), it forms a branching foot. When one takes unstressed prefixes into account, this suffix only attaches to stems comprising non-branching feet and in most cases stems are monopedal: (|σ̄|) or (|σ̆σ̆|). The predictions made by the proposed parameters are borne out in the data, as the examples in (28) illustrate. Stress falls on the penultimate syllable in every case.

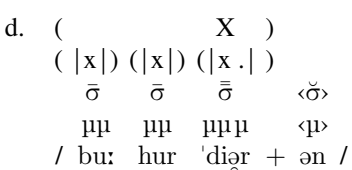
[16] The syllable ⟨dî⟩ in (27) appears to have carried main stress, as its nominal base most likely ended in a branching foot, either *-îe*, as reflected in its spelling in *München, Bayerische Staatsbibliothek, Cgm 19*, ⟨vermaldiete⟩ (41.rc), or *-ît*, as (Wiener 1895, 348) proposes, based on the OF *maldit*, with the addition of the *-te* suffix resulting in degemination. In any case, this word was most likely never fully integrated into the system, as it does not seem to have had much longevity in German; many later manuscripts replace this word with the native *verflüchte*: ⟨v(er)fl̊chte⟩ (*Donaueschingen 97*: 83.va) or ⟨verflüchte⟩ (*Bern, Burgerbibliothek, Cod. AA 91*: 107.vb).

(28) Examples of verbs with penultimate stress: ⟨tiv**sti**ren⟩ 'joust-INF', ⟨tvr**nîer**te⟩ 'tourney-1/3SG.PRET', ⟨kalo**pie**ren⟩ 'galop-INF' and ⟨**bv**hvr**die**ren⟩ 'buhurt-INF'.[17]

a.


b.


c.


d.


A difficulty presented by alternating iambic metre is how to resolve a situation where a stressed syllable in a polysyllabic word is preceded by two unstressed syllables. If an earlier syllable forms the head of a foot, it can optionally host a strong beat (as in *bû̀hurdíeren*), even if this results in successive strong beats. Such elision of weak beats is particularly common when a verb contains two heavy syllables between an unstressed prefix and suffix, resulting in two consecutive strong beats: x / | / | x / (as in (29)a). In fact, most of the verbs with inconclusive stress patterns are of this type, lending further weight to the present analysis. However, line-initially, syllables which form the head of a foot but do not bear main stress may also be treated as extrametrical if they are light (as in (29)b, provided the line would still host four strong beats). In shorter lines, an unstressed syllable with a full vowel may be obliged to carry a strong beat for the sake of poetic metre (if the alternative would be to stress a schwa, as in (29)c). Indeed, Paul (2007) notes that unstressed prefixes can extraordinarily host stress in the specific case of tetrasyllabic words ending in *-ieren*, which present this unique issue.

[17] A form of jousting where mounted teams charge one-another.

(29) Polysyllabic words where a stressed syllable is preceded by two unstressed syllables.

a. 565.14 / | / | x / | / | [x]
vnt wol ge. fei. tie. ret.

b. 286.26 [x] x / | x / | x / | x /
ka. lo. pie. ren. de̲ vl. tr îv. uen poẏs.

c. 350.22 / | / | x / | / | [x]
nv was ge. lo. scîe. ret.

The only remaining words in this category are compound verbs, *überparlieren* and *underparrieren*. Such verbs were excluded from the present analysis, as they incorporate native material combined with romance verbs which appear alone elsewhere in the text (*parlieren* and *parrieren*, respectively). Furthermore, both occur only once in the text and are not very informative, given that the words occur in short lines necessitating the elision of all but two weak beats (the schwa syllables): *vber párlîeret* and *wol vnder párríeret* (here the accents indicate strong positions in the verse, which coincide with the head of each foot). However, one would expect primary stress on the penultimate syllable, with secondary stresses on the first and third syllables, with *-par-* more prominent than *ü-* or *un-*, as it is the second unit of verbal compounds which carries the stronger accent (cf. Paul 2007).

The proposed parameters are thus entirely borne out in verbs, which behave in exactly the same way as nouns, with any inflexional morphology being stress-neutral. The same is true of adjectives and adverbs, although these are so rare that little more can be said of them. The (ŏ ō̄) word ⟨ivuen⟩ (/juven/ 'young') is stressed on the first syllable, and ⟨kvrtoys⟩ (/kurtoɪ̯s/, /kurteɪ̯s/ 'courtly'), ending with a s̄, is stressed on the second. Adjectives and adverbs derived within MHG from monosyllabic Romance bases, such as ⟨vnpris⟩ (/unpri:s/ 'dishonour'), are also uninformative. The word *triviers* is a truly borrowed adverb, although with incredibly restricted use in reference to jousting, with the phrase *ze triviers* a rendering of the OF phrase *à travers*. This phrase, spelt ⟨ce Trivîers⟩ in Cod. 857 (113.rb), would undoubtedly have been stressed

on the final, branching foot, which would be in line with the proposed parameters, but also with the foreign pronunciation this term most likely retained.

3.4.7 Stressed suffixes in nouns and verbs

'One lasting impression made by French is in the area of suffixes' (Young and Gloning 2004[2013], 127). Indeed, much is made in the literature of the borrowing of two productive suffixes, *-ieren* and *-î(e)*. As Young and Gloning (2004[2013]) note, *-î(e)* must have been integrated into the system at an early stage, having undergone diphtongisation, e.g. MHG *erzenîe* > NHG *Arznei*. Furthermore, this noun-forming suffix not only appears in loan words such as *leker+îe* (< OF *lecherie*), but also with native stems to form abstract nouns, such as *zouber+îe* (< *zouber* 'magic') (Jones and Jones 2019, 213). Similarly, *-ieren* was already being productively combined with native stems, such as *hof+ieren* ('to enjoy courtly entertainment', Jones and Jones 2019, 213). Indeed, (Wells 2005, 1404) notes that Wolfram frequently coined his own 'pseudo-loans' by analogy with French forms, such as the agent noun *templeis* (< OF *templier*, cf. OF *Franzeis*), also using the suffixes *-ierre* or *-úre* to produce words which lack French models, e.g. *chrigîrre*. Certainly, for suffixes such as *-ieren* and *-î(e)* to have become productive, they must have been morphologically decomposed. Indeed, most *-ieren* verbs actually come from OF *-er* verbs, not *-ier* ones, such as *tjostieren* (< OF *joster*, cf. Cod. 857 ⟨tivstieren⟩). Jones Jones (2019) suggest that it was formed from the combination of *-ier* in nouns such as MHG *schevalier* (< OF *chevalier*) and the infinitival suffix *-en*, providing the example of *brusten+ier* as evidence of the noun-forming suffix *-ier* being used with native vocabulary. (Wiener 1895, 330), recognising the improbability of a French infinitive ending being incorporated into MHG unless the infinitive has the value of a noun, suggests the following explanation:

> There are two very common sources of noun-derivations which German poets affect: the ending in *ier iur*, corresponding to OF. *ier eor ëur*, for *nomen agentis*, and *iure*, corresponding to OF. *ure*, for *nomen actionis*, and both are strangely confused in the minds of the scribes. [...] This confusion is the more natural, since the German itself offered the interchange in verbs with *iu* (*biute*, *bieten*). There is but a step from *ier iur* to the infinitive *ieren* and its generalization as an infinitive-forming suffix. [...] The habit once established, *ieren* is freely attached to any French word.

However, whilst *-ieren* and *-î(e)* certainly had the most significant and enduring impact on the language, it does not appear that these were the only suffixes which were identified as distinct morphemes; indeed, they cannot be if *-ieren* developed from other loan suffixes with salient meanings. Based on the data from *Parzival*, Table 5.19 lists the word-final sequences which can be identified as representing French suffixes (in addition to the Latinate *-îtes*, encountered in the names of various jewels).

Table 5.19 Stressed suffixes and their OF sources.

MHG	OF source
-ân(e)	-ai(g)ne
-âsche	-(i)age)
-eis/-eiz/-eys/-oys	-eis/-ois etc.[a]
-î(e)	-ie
-ier(e)/-ierr(e)	-ier[b]
-ieren	(see above)
-în(e)	-ine
-iur	-eur
-iure	-ure

[a] These spellings represent different French dialectal sources, but their usage in MSS appears to be 'purely arbitrary' (Wiener 1895, 329), often dictated by the rhyme.

[b] One example of the suffix, *-ære* exists (in *marnære*), but this choice of spelling seems dictated by its rhyme with *mære*, more likely a deviant spelling representing the suffix, *-ier*, given its probable OF etymon, *marnier*, rather than MLat *marnarius*.

There is no evidence that words ending in *-ân(e)*, *-âsche*, *-în(e)* or *-îtes* were ever perceived as morphologically complex, given their low frequency and the fact that they never became productive, largely being lost.[18] Other suffixes, such as *-eis* have

[18] NHG *-age*, as in *Passage*, only became a productive suffix due to a new wave of borrowing in the modern period.

since been lost or maintained as relics, idiosyncratically adapted,[19] but may have been salient for MHG speakers. Indeed, the native suffix *-inne* was often added to words such as *Franzóys* to produce the feminine *Franzoysínne* ('French woman'). These words are the only examples where stress does not fall on *-oys*, as *-inne* attracts stress itself. This suggests that *-oys* was indeed being treated as a derivational suffix, as it was an established pattern of the language that a second suffix attracted a stronger accent than the first. Paul (1939) specifies this as secondary stress, but in this case, it would presumably be the main stress from the preceding syllable. Either way, by virtue of their phonological form, these endings all attracted stress when word final. However, it is the remaining suffixes, *-î(e)*, *-ier(e)*/*-ierr(e)*, *-ieren*, *-iur* and *-iure*, which had the most enduring impact on the language and substantial repercussions for the MHG stress system. These were likewise uniformly stressed, as can be seen in the behaviour of *-ieren* (as previously discussed) and the stress patterns of the suffixed nouns, as illustrated in Table 5.20.

These suffixes appear to reliably attract stress. Words carry a strong beat (i) exclusively on the suffix, (ii) on the suffix and alternate preceding syllables (the first in disyllabic bases and the second in trisyllabic bases), or (iii) on the suffix and the immediately preceding syllable (in words with a monosyllabic base). The only other words were *nigromanzîe* (with a strong beat on the head of all feet) and *astronomîe* (with a strong beat on all non-schwa syllables). In other words, the suffix is always stressed (even when the position of other strong beats within the words may vary), as well as any other qualifying syllables, should the verse metre require it. As noted above, there was substantial confusion between *-ier*, *-iur* and *-iure* and this seems to have resulted in the loss of the latter two in favour of *-ier*. Indeed, the suffixes *-iur* and *-iure* do not seem to have gained a foothold in MHG and have mostly been lost, primarily retained as relics; the irregular development of MHG *âventiure* > NHG *Abenteuer* (now also

[19]For instance, the suffix *-oys* in *turkoys(e)* and *Franzoys* became NHG *Türkis* ('turquoise') and *Franzose* ('Frenchman'), the former via ENHG *turckiß*, *durckis* and Luther's preferred form, *Tür(c)kis* (DWDS), as opposed to the latter, which was inherited via the alternative MHG variant, *Franzôs(e)* (DWDS).

Table 5.20 Stress maxima in words ending with stressed suffixes.

	3	1 & 3	2	1 & 2	2 & 4	Other
H-îe			2			
H-ier(e)			3	2		
H-ierre			1	2		
H-iur(e)				2		
L-ier(e)				2		
L-iure			2			
HH-îe		2				
HH-iure		1				
HL-îe	2	2				
HL-ier	2	1				
HL-iur(e)		3				
LL-îe		2				
LL-ier		1				
LL-ierre		1				
LL-iure		2				
LH-ier		1				
HLL-îe					1	
LLL-îe					1	1[a]
LLL-ierre					1	
LLH-îe						1[b]

[a]This word, /astronomiːə/ carries a strong beat on every full vowel: *ástrónómíe*.
[b]This word, /nigromantsiːə/ carries a strong beat on the head of each foot: *nígrománzíe*.

neuter rather than feminine) speaks to the lack of salience of *-iure* as a meaningful element (the modern form of the word is most likely due to folk etymology). The suffix was often confused with the OF *-eur*, leading to the occasional incorrect adoption of words with *-iure* rather than *-iur* or *-ier*, as in *schantiure* (< OF *chanteur*), explaining its surprising feminine gender (Wiener 1895, 356, n.). Conversely, one also finds *amesiere* from the OF *amessure*.

In contrast, *-î(e)*, *-ier(e)*/*-ierr(e)* and *-ieren* achieved productivity in MHG, combining freely with native vocabulary (or with borrowed elements to produce forms not attested in OF, such as *zimieren*). Although this productivity first began in courtly literature in the twelfth century, the suffixes ultimately became fully nativised into

the language, achieving widespread use outside of the courtly domain as early as the thirteenth century, appearing in various contexts and registers, from charters and mystical writing to sermons. As (Frisch 1979, 195) notes, their use in the sermons of Berthold von Regensburg as early as 1260-70 (*Parzival* itself is only dated to the first quarter of this century) is particularly convincing evidence of their complete integration, as it presumes familiarity with them on the part of the lay (presumably illiterate) congregation. The suffix *-ier* occurred most frequently in terminology related to various types of armour, disappearing with courtly culture. However, in the form *-ierre* (or, elsewhere, *-ierære*), this suffix enjoyed great productivity across diverse contexts. (Rosenqvist 1954, 113) suggests that the native population who were not familiar with French did not have a sense of the agentivity encoded in OF *-ier* and so added redundant native material expressing this meaning (*-ære* and, presumably, *-êre*), leading to this extension of the suffix (Wolfram seems to have preferred the form *-ierre*).

Despite later specialisation, with *-ieren* combining most frequently with Latinate bases, in the thirteenth century, this does not appear to be the case and *-îe* comes to be combined predominately with native bases, often in a lengthened form *-erîe* or *-enîe* (without the pejorative connotations of NHG *-erei*). Indeed, *-îe* seems to have been so successful that it actually supplanted other phonetically similar endings in loan words, such as OF *-ee* or *-agne* or Lat. *-ia*, hence the large number of geographical names ending with *-îe*, such as *Olimpîe*; satirised in *Helmbreht* with the name *Narrîe* (Frisch 1979, 199). This had the effect of drawing stress onto this syllable, counter to the source language. The shift in stress which such adjustment makes can be seen in MS evidence. For instance, whilst both were written in the middle of the thirteenth century, *München, Bayerische Staatsbibliothek, Cgm 19*, favours the form ⟨Schampanie⟩ (5.rc), as opposed to Cod. 857, which uses ⟨Scampane⟩ (7.rb). Suolahti (1929) presents both spellings with the following length markers: ⟨Schampân(e)⟩ and ⟨Schampanîe⟩, suggesting that this represents a shift in stress due to the addition of

-îe to place names (1929, 226). In line with the present argument, Frisch suggests that this modification was conditioned by a drive to 'arrive at the end stress to which [MHG was] so accustomed after receiving a virtual bombardment of French loanwords with this kind of stress' (1979, 199), although she suggests that this shift is specific to suffixation, rather than the present contention that stress is attracted to any final branching foot, a category which includes all such suffixes.

The crucial issue is in fact the productivity of these suffixes and their affixation to native bases, which had the effect of producing morphologically related forms where stress would fall on the initial syllable in simplex native vocabulary (usually one-foot-long), but would fall on the final syllable when a stress-attracting final foot was added to the derived form, as these were always branching (and therefore not defooted). This aligns with the observation made by Lahiri et al. (1999) that, as a result of suffixes being borrowed with French stress, there existed 'alternating forms with the same stem where the stress does not fall on the same syllable, but the suffixes themselves are not truly stress-shifting as in English' (1999, 376). These suffixes therefore consistently shift stress away from first syllable and thereby provide evidence for language learners that stress does not always fall on the root syllable. This situation demonstrates clear parallels with NHG derivational morphology, which continues to employ both native and non-native suffixes, separated by Giegerich (1985, 28) into Class I (non-native) and Class II (native), noting in line with Benware (1980) that 'native suffixes don't attract primary stress, whereas many of the non-native ones do' (see also Kiparsky 1982; Wiese 2000). Whilst the stressed suffixes noted here do not by any means comprise the full list of Class II suffixes, with many not borrowed until the early modern period and beyond, those that survive are all of this type. The foundations for this class of stressed suffixes seem already to have been laid, augmented as the language developed and acquired more Romance loans.

3.4.8 Looking ahead

Parzival, written c.1200–10 by a poet born in the second half of the twelfth century (c.1170), predates OSL, a process affecting all WGmc. languages between the thirteenth and fourteenth centuries, whereby vowels in open stressed syllables underwent a process of lengthening (see Chap. 4). Whilst it has been suggested in relation to English that OSL was not an independent process, but simply the result of compensatory lengthening due to the loss of final schwa (e.g. Hayes 1989), this cannot be the case, as demonstrated by Lahiri and Dresher (1999); German and Dutch retained such schwas and still underwent OSL. It is my contention that the parametric shift in stress was the catalyst for this process, which contributed to increasing the metrical uniformity of the system (cf. Lahiri and Dresher 1999).

In the most recent literature on the subject, OSL is generally considered to be related to the language's continued use of the Germanic foot, although in different ways. As the MHG (and MNL) system could not easily be analysed as exploiting CEM due to the continued existence of long vowels in final syllables (unlike in English, which disallowed final CVVC syllables), the situation in the continental languages must have been different to that of ME, in which OSL additionally interacted with trisyllabic shortening. Dresher and Lahiri (1991) posit that OSL arose as a response to opacity of the Germanic foot and a resultant loss of resolution, which they explain through the transfer of the bimoraic condition away from the level of the stressed foot to the stressed syllable (Dresher and Lahiri 1991, 282):

> The Germanic foot, which had satisfied the two-mora requirement at a supersyllabic level, gradually became opaque in the various Germanic languages, as sound changes and analogical developments gradually took their toll. However, stressed words, including monosyllables, continued to have a minimum of two moras. As there was less and less evidence for the Germanic foot and its constituent the resolved sequence (presumably a marked structure), the two-mora requirement had to be satisfied at the level of the syllable.

This contrasts with the suggestion of Vennemann (1995) that loss of resolution was actually caused by the collapse of the quantity system, caused in turn by OSL and degemination. An alternative argument is also advanced in Lahiri and Fikkert (1999) and Lahiri and Dresher (1999), where it is suggested that rather than CEM, MHG and MNL were analysed as having SEM due to Romance loans and that this led to OSL. As Lahiri et al. put it, 'due to the loans, either the suffixes in Dutch and German were borrowed with stress, or the penult was stressed if heavy, leading to syllable extrametricality' (1999, 376).

Based on the analysis presented here, it is certainly true that the resolution of the head of the asymmetric moraic trochee would only be possible in word-initial position (due to right-to-left parsing) and in many cases would be blocked if an initial light syllable were followed by a ($\bar{\sigma}\breve{\sigma}$) sequence (a branching foot), preventing ($|\breve{\sigma}\bar{\sigma}|\breve{\sigma}$) structures. This meant that resolution would only occur when there was no dependent, i.e. either the head or the foot could be branching, but not both. Coupled with the existence of unstressed prefixes, there will have been a large number of contexts in which words beginning with a light syllable were not stressed on the initial syllable. However, this will not have greatly affected native vocabulary, which was shorter and would only end in a superheavy syllable in complex words (these were mostly restricted to derivational morphology), meaning that ($|\breve{\sigma}\bar{\sigma}|$) words would always have been resolved.

It is apparently not the case that all Romance loans carried penultimate stress, with many being stressed on a final superheavy syllable (and therefore a branching foot); this results from the metrical equivalence of ($\bar{\sigma}\breve{\sigma}$) and ($\bar{\bar{\sigma}}$) feet. Due to this, it cannot simply be the case that final defooting was easily interpretable as SEM, or else words such as *celidôn* or *grânât* would not be possible. Nonetheless, even if final superheavy syllables are exempted and only syllables of fewer than three moras are extrametrical, Dresher and Lahiri's prediction that OSL led to a 'reduction of the number of metrical

patterns, increasing the uniformity of the system' (1991, 710) would still hold, as Table 5.21 demonstrates.

Table 5.21 Effects of SEM and OSL in MHG (adapted from Dresher and Lahiri 1991, 710).

	c.1200	SEM	OSL
a	(|σ̆ σ̆|)	(σ̆) ‹σ›	(σ̄) ‹σ›
b	(|σ̆ σ̄|)	”	”
c	(σ̄) ‹σ̄›	(σ̄) ‹σ›	”
d	(σ̄σ̆)	”	”
e	(σ̆́) (|σ̆ σ̆|)	(|σ̆ σ̆|) ‹σ›	(σ̄σ̆) ‹σ›
f	(|σ̆ σ̆|) ‹σ̄›	”	”
g	(σ̆́) (σ̄σ̆)	(|σ̆ σ̄|) ‹σ›	(σ̄) (σ̄) ‹σ›
h	(|σ̆ σ̄|) ‹σ̄›	”	”
i	(σ̄) (σ̄σ̆)	(σ̄) (σ̄) ‹σ›	”
j	(σ̄) (σ̄) ‹σ̄›	”	”
k	(σ̄) (|σ̆ σ̆|)	(σ̄σ̆) ‹σ›	(σ̄σ̆) ‹σ›
l	(σ̄σ̆) ‹σ̄›	”	”

As shown in the first column, the parameters presented here for the Romance loan words would produce no difference in the foot structure of the majority of native words, demonstrating their integration into a unified system. However, in the case of Table 5.21e, g and k (assuming that (\|σ̆σ̆\|σ̆) structures were indeed no longer possible, as suggested by the small amount of evidence of such structures), the parsing would be different. This will have represented a small number of tokens, as few native words comprised more than one foot. However, the change in parsing in Table 5.21e and g results in undesirable structures, where a degenerate light syllable carries stress, due to the proposed restrictions placed on resolution of the head. In this way, SEM can be seen as improving this structure, reducing such words to a disyllabic foot where resolution is permitted, allowing stress to fall on the initial syllable. In addition to this, the uniformity of the system is improved, as can be seen in the second column, where the number of possible foot structures is halved (from twelve to six). As Dresher and Lahiri note, OSL makes no difference to Table 5.21c, d or i–l, but improves all other structures, assuming 'that (H) is preferable to the resolved (LH)', according to the set

of 'prosodic preference scales and principles of interpretation' (1991, 710) repeated in (30).

(30) Prosodic preference scales and principles of interpretation (after Dresher and Lahiri 1991, 710).

1. Maximization of foot (HEAD DEPENDENT) » (HEAD)
2. Incorporate unfooted syllables into feet
3. Maximization of head: (|σ̄|) » (|σ̆σ̄|) » (|σ̆|)
4. Main stressed foot not less complex than secondary stressed feet

However, as Table 5.22 will illustrate, with structures introduced by Romance loans, SEM cannot apply to superheavy syllables, or else it would result in incorrect stress assignment, as in Table 5.22a–b, d and g–h. In addition, whilst SEM is conditioned by Romance loan words' accommodation into the native system and improves the structure of native (σ̆σσ̆) words, this produces two sub-optimal cases in Romance loan words, Table 5.22c and e, stressed on the second syllable. Again, this situation is resolved by OSL (Table 5.22).

Table 5.22 Increased metrical coherence as a result of SEM and OSL.

	c.1200	SEM	OSL
a	(σ̄) (σ̄)	(σ̄) (σ̄)	(σ̄) ‹σ›
b	σ̆ (σ̄)	σ̆ (σ̄)	σ̆ (σ̄)
c	σ̆ (|σ̆ σ̆|)	(|σ̆ σ̆́|) ‹σ›	σ̆ (σ̄) ‹σ›
d	(|σ̆ σ̆|) (σ̄)	(|σ̆ σ̆|) (σ̄)	(σ̆ σ̆) (σ̄)
e	σ̆ (σ̄σ̆)	(|σ̆ σ́|) ‹σ›	σ̆ (σ̄) ‹σ›
f	(σ̄) (σ̄σ̆)	(σ̄) (σ́) ‹σ›	(σ̄) (σ́) ‹σ›
g	(σ̄) (σ̄) (σ̄)	(σ̄) (σ̄) (σ̄)	(σ̄) (σ̄) (σ̄)
h	(|σ̆ σ̄|) (σ̄)	(|σ̆ σ̄|) (σ̄)	σ̆ (σ̄) (σ̄)

This improvement assumes that the increasing opacity of the resolved head finally reached a point where it was unrecoverable due to OSL, finally abolishing resolution, meaning that the only possible structures for stressed feet were (σ̄)/(σ̄) or (σ̄σ̆); as once native (|σ̆́σ̄|) had become (|σ̄|)(|σ̄|), any remaining (σ̆σ̄) sequences could not have been stressed on the light syllable. Open syllable lengthening therefore ultimately had

the effect of improving metrical coherence by further decreasing the number of possible foot structures and increasing the quantity of stressed syllables (as all stressed syllables were now heavy, cf. Lahiri and Dresher 1999). Degemination, which postdated OSL, will then have reintroduced light stressed syllables, likely contributing to the breakdown of quantity, as Vennemann (1995) suggests. In other words, following OSL, distinctions in consonant quantity were rendered redundant and no longer unambiguous to the learner, meaning that there was no clear evidence to maintain the more marked double-quantity distinctions. Geminate consonants have thus been lost, although contrastive length in vowels has survived in Modern Standard German, as in the other WGmc. languages (cf. Lahiri et al. 1999).

In addition to the change of parsing direction weakening the feeling for stem-initial stress and reducing the number of resolved heads in the lexicon, another change (this time native) was also working to reduce the number of resolved heads. Although German maintained the quantity of stressed syllables (a persistent tendency as noted by Prokosch's Law), the transition from OHG to MHG was accompanied by a significant change to the structure of unstressed syllables, the so-called *Nebensilbenabschwächung* ('reduction of unstressed syllables'), whereby vowels in unstressed syllables—which could be long in OHG, e.g. OHG *habēn* /ha.beːn/ 'have INF'—were shortened and often reduced to schwa in MHG (cf. Paul 2007; Jones and Jones 2019). This process continued into NHG, but defined the transition from OHG to MHG (along with the emergence of umlaut). A systematic exception to this are affixes which formed their own foot and carried secondary stress, particularly derivational suffixes, such as *-ære* /-ɛːʀə/ (-VV.CV), *-unge* /-ungə/ (-VC.CV), *-lîch* /-liːx/ (-VVC), *-inc* /-ing/ (-VCC). It will be noted that these suffixes are all of the structure $\bar{\breve{\sigma}}$ or $\breve{\sigma}\breve{\sigma}$, i.e. a branching Germanic foot. As a result, long vowels were still tolerated in word-final syllables (e.g. *mânôt* /maː.noːt/ 'month'), unlike in ME, allowing Romance loans to be borrowed with final superheavy syllables. However, final heavy

syllables became much less common, particularly in simplex words, e.g. OHG *adal* /a.dal/ > MHG *adel* /a.dəl/ > NHG *Adel* /aː.dəl/ ‘nobility, lineage’.

In this way, the number of words comprising a single, stressed (ŏō) foot was dramatically reduced, as many became simply (|ŏŏ|) (which, following OSL lengthened the stressed syllable and became (|ō|ŏ), as in the case of *Adel*). This will have greatly reduced the salience of resolution within the metrical system, which will have been reduced to a comparatively small number of lexical items with the structure (C)V.CVCC, which already had a short vowel in the second syllable. This second syllable thus retained its full, unreduced quality, e.g. *herinc* /ˈhe.ring/ (‘herring’, NHG [ˈheː.ʁɪŋ]) and *ahorn* /ˈa.horn/ (‘maple’, NHG [ˈʔa.hɔɐ̯n]). In combination with the large number of native words with unstressed prefixes, such as *beklâgen* /bə.ˈklaː.gən/ (‘complain INF’, NHG *beklágen*) and Romance loan words with an initial unstressed syllable, such as *pusîne* /pu.ˈsiː.nə/ (‘trumpet’, NHG *Posáune*), this contributed to a weakening of the association between the initial syllable and primary stress, such that the system was vulnerable to reanalysis. Such unstressed verbal prefixes were common in earlier stages of the WGmc. languages and a number have survived, e.g. English *begin*, German *bekommen* ‘receive-INF’, Dutch *vergeten* ‘forget-INF’. However, Dutch and German have retained far more of these prefixes than English, where most have been lost (cf. Molineaux 2012).

We therefore have a situation where resolution was restricted to a small number of words with an initial (ŏō) foot, no longer being possible in [ŏōŏ] words, due to the change in parsing direction. Not only did this affect Romance loans, it also had an impact on certain native items with [ŏōŏ] structure. These words actually appear to have shifted stress, which was initial in OHG but is penultimate in NHG, unlike [ŏō] words, e.g. /fo.ˈrɛl.lə/, /le.ˈbɛn.dix/ (NHG *Forélle* ‘trout’, *lebéndig* ‘alive’). This must have happened during the MHG period, as the initial syllable was not lengthened as a result of OSL. Nor was the second vowel, as this was not an open syllable before

degemination occurred. This strongly suggests that the change in parsing direction had already begun in the MHG period, before either of these changes occurred, resulting in a split between formerly [$\acute{\sigma}\bar{\sigma}$] and [$\acute{\sigma}\bar{\sigma}\breve{\sigma}$] words and further reducing the number of resolved heads.

Prior to OSL, the small number of ($\acute{\sigma}\bar{\sigma}$) words which retained their full vowels and initial stress could be treated as exceptional, increasing the pressure on the system to increase the quantity of stressed light syllables, such that these sub-optimal ($\acute{\sigma}$)($\bar{\sigma}$) words would form a more coherent ($\acute{\sigma}$)($\bar{\sigma}$) structure, e.g. /ˈhe.ʀing/ > /ˈheː.ʀing/. In such cases, stress would then fall on the head of a foot and the inventory of possible foot structures would be reduced to ($\bar{\sigma}$) or ($|\bar{\sigma}|\breve{\sigma}$).

In this way, I conjecture that resolution did become more opaque as a result of the change in parsing direction, although it was still recoverable at the time of *Parzival*'s composition. As a result, the reanalysis of the defooting of final non-branching feet as SEM, in addition to increasing uniformity across the system, served to maintain the Germanic foot and improve the structure of native words such as Table 5.21e, g and k. OSL was then able to reduce the metrical structures of the language, in the process eliminating resolution. This also improved the metrical structure of certain Romance loan words. None of the words of type Table 5.22d) have survived into NHG, meaning that the system at this point could be considered to have maintained the Germanic foot as an uneven moraic trochee, although losing resolution of the head and being forced to tolerate stray light syllables in word-initial position (already a pattern in the language due to unstressed prefixes). In this way, Vennemann's (1995) intuition that OSL was the cause of a loss of resolution appears to be correct, in addition to Dresher and Lahiri's (1991) suggestion that a reanalysis of defooting as SEM (although qualified to apply only to mono- or bimoraic syllables and exclude overlong syllables) paved the way for OSL, which served to improve structures and increase uniformity of the system.

Chapter 6

Recursivity within the prosodic hierarchy: Plain and morphologised clitics

1 Introduction

Function words (FNCs), contrasting with lexical words (LEXs), represent a closed class comprising determiners, prepositions, pronouns, conjunctions, particles and auxiliaries.[1] Such words play an important role in terms of syntax and are even able to head syntactic phrases, such as the PP (preposition phrase) or DP (determiner phrase). Conversely, they are typically treated as weaker units in the phonology, where they are usually unstressed or segmentally reduced in spontaneous speech. Accordingly, definitions of function words often refer to their being reducible, lacking prominence or being in some sense otherwise phonologically weak. Function words rarely constitute independent prosodic words, unless focused (cf. Selkirk 1996), and are often assumed essentially to be 'skipped over' by the algorithm mapping syntactic to phonological structure at the interface (e.g. Nespor and Vogel 1986; Truckenbrodt 1999, amongst others). 'Weak' forms of FNCs (in contrast to their unreduced, stressed 'strong' counterparts) will 'lean' on (cliticise to) the nearest LEX which—by virtue of being an

[1] However, this distinction is not always clear-cut, as is exemplified by German *Funktionsverbgefüge*, verbal constructions where the verb (which is otherwise capable of occurring as a fully lexical verb) does not form the predicate alone, but rather in combination with a following substantive element, most commonly a prepositional object, e.g. *zum Stehen bringen* 'bring to a halt'. These forms (usually comprising common verbs, such as *geben*, *bringen*, *kommen* etc.) thus form a semantic unit with the object and serve only as functional verbs, going against the generalisation that lexical words belong to an open class of content words, such as verbs, or form the heads of major syntactic phrases, such as the VP.

independent ω—may serve as a host. This conception of FNC words is reminiscent of so-called 'Wackernagel clitics', a group of enclitics described by Wackernagel (1892) which in Ancient Greek (and a number of other Indo-European languages), appear in second position within a phrase, after the first full prosodic word. Importantly, these clitics were not defined so much by their syntactic category (comprising auxiliaries, finite verbs and indefinite adverbs, as well as pronominal clitics), but by their lack of accent, i.e. along phonological lines (cf. Anderson 1993). Function words can thus result in a marked lack of isomorphism between syntactic and phonological phrasing (cf. Lahiri and Plank 2022) and the precise prosodic representation of phonological clitics is yet to be settled.

The present chapter addresses this question, considering the asymmetries between two different types of clitic in German, which I term (i) 'plain' clitics (including clitic prepositions, articles and personal pronouns, e.g. [zə] < *zu* 'to'; [n] < *ein* 'INDEF.NOM.M/N'; [s] < *es* 'it') and (ii) 'morphologised' clitics (namely the enclitic definite articles in (FNC=FNC) 'fused forms', such as [ɪm] < *in=dem* 'in=DEF.DAT.M/N.SG'). The distinction proposed here is twofold: first and foremost, it depends upon the type of host to which the clitics attach.[2] Plain clitics involve the cliticisation of a reduced FNC to a LEX host and morphologised clitics involve the cliticisation of a FNC to another FNC (which may be mono– or disyllabic). Secondly, the two types of clitic differ in terms of their relative productivity: plain clitics are phonologically transparent and relatively unconstrained, freely alternating with their unreduced forms; morphologised clitics, in contrast, are phonologically opaque and exhibit complex behaviour, often obligatory and constrained in terms of their phonological shape (with certain forms being ungrammatical). As a result, combinations of prepositions and definite articles (e.g. *zum* < *zu+dem* 'to the' or *unter'm* < *unter+dem* 'under the') have been described as 'fused' or 'grammaticalised' Nübling (2005), or

[2]For instance, certain forms of the definite article, e.g. *das* 'DEF.NOM/ACC.N.SG', may act as either plain or morphologised clitics.

even as 'inflected prepositions', regarded by certain authors as fully morphological (e.g. Nübling 1992; Schiering 2005; Kabak and Schiering 2006). Examples of both kinds of clitic are given in (1).

(1) Examples of (a–b) plain clitics, (c) a morphologised clitic with a monosyllabic host and (d) a morphologised clitic with a disyllabic host.

a. [kan=zə dɔɪ̯tʃ] < *Kann=sie Deutsch?* 'Can she [speak] German?'
b. [ʔeːɐ̯ fɛːɐ̯t=s ʔaʊ̯to] < *Er fährt=[da]s Auto* 'He drives the car'
c. [t͡sʊ=ɐ̯ ʃuːlə] < *zu=[de]r Schule* 'to the school'
d. [ʔʊntɐ=m bɛt] < *unter=[de]m Bett* 'under the bed'

In principle, any FNC which has a monosyllabic weak form (which may also be the basic form of the FNC) may attach to a LEX host as a plain clitic. This includes pronouns, articles, prepositions, conjunctions, particles and auxiliaries but excludes, for example, polysyllabic prepositions, such as *gegen* 'against' or *anstatt* 'instead of' (which form an ω). Relevant examples are provided in Table 6.1. In contrast, morphologised clitics are much more restricted, essentially limited to certain forms of the definite article (which are reduced to a single consonant or vowel), illustrated in Table 6.2.

Although there have been a number of works which attempt to account for cliticisation in German in terms of phonology (e.g. Schaub 1979; Wiese 1988, 2000; Hall 1999; Lahiri and Plank 2010), these have not directly addressed the distinction between the two sorts of clitics discussed here, and the majority of scholars have focused on their semantics and morphosyntactic behaviour (e.g. Hinrichs 1986; Nübling 2005, 2010). Such morphosyntactic accounts rarely consider prosodic structure or look beyond the segmental (although see Kabak and Schiering 2006) and have instead focused on issues of grammaticalisation, categorising clitics as either 'simple' or 'special' (see Zwicky 1977; Zwicky and Pullum 1983). The present discussion of simple and special clitics is distinct from the dichotomy between simple and special

Table 6.1 Examples of possible plain clitics, with their full and reduced forms (see also Wiese 1988, 186,Hall 1999, 104, Krech et al. 2009, 114f..

	'Strong' form	'Weak' form	Clitic form	Gloss
Pronoun	duː viːɐ̯	dʊ viɐ̯, vɪɐ̯	də vɐ	*du* '2SG.NOM' *wir* '1PL.NOM'
Article	aɪ̯nən deːn	aɪ̯nː den	nən, n dən, n	*einen* 'INDEF.ACC.M.SG' *den* 'DEF.ACC.M.SG'
Preposition	ɪn fyːɐ̯	 fyɐ̯	(ə)n, n fʏɐ̯	*in* 'in' *für* 'for'
Conjunction	ʊnt viː	ʊn vi	(ə)n vɪ	*und* 'and' *wie* 'how'
Particle	maːl ʃoːn	mal ʃon	ma ʃɔn	*mal* 'once'[a] *schon* 'already'
Auxiliary	haːbən, haːbm̩ veːɐ̯dən, veːɐ̯dn̩ ɪst	haːm veːɐ̯n	ham veɐ̯n ɪs	*haben* 'have INF' *werden* 'become INF' *ist* 'be 3SG.PRES'

[a] These modal particles convey the attitude of the speaker, in these cases mitigating the tone of a command or making it more insistent.

Table 6.2 Examples of possible morphologised clitics, with their full and reduced forms.

'Strong' form	'Weak' form		'Clitic' form	Gloss
deːm	dem, dɛm	dəm	m	*dem* 'DAT.SG.M'
das		dəs	s	*das* 'ACC.SG.N'
deːn	den, dɛn	dən	n	*den* 'ACC.SG.M/ DAT.PL'
deːɐ̯	deɐ̯, dɛɐ̯	dɐ	ɐ̯	*der* 'DAT.SG.F'
diː	di, dɪ	də	ə	*die* 'ACC.SG.F/ ACC.PL'

clitics. Special clitics are reduced forms which display idiosyncratic behaviour and lack a non-clitic form, such as Latin =*que* 'and'. These clitics often display more affix-like behaviour (cf. Anderson 2011) and cannot easily be classified as either word or affix. Anderson (2011) and others have also used this term in arguing for word-clitics, word-affixes, phrasal-affixes and phrasal-clitics (for an argument against such analyses and any clitic-specific grammatical mechanisms, see Bermúdez-Otero and Payne 2011).

In contrast, it is suggested here that the differences observed between plain clitics on the one hand and morphologised clitics on the other follow instead from their contrasting prosodic phrasing (Figure 6.1). Plain clitics, attached at the postlexical

level, adjoin to a nested ω structure comprising a lexical host (itself an ω) and any number of unstressed function words: $((\text{LEX})_{\omega}{=}\text{FNC})_{\omega}$ (in line with analyses such as Wiese 2000; Wheeldon and Lahiri 1997; Lahiri and Plank 2010, 2022; Bögel 2021). Conversely, morphologised clitics are more lexicalised, attached earlier and incorporated into the F structure of the host, resulting in a (mono– or disyllabic) recursive F, enclosed within a single ω: $(((\text{FNC})_{\text{F}}{=}\text{FNC})_{\text{F}})_{\omega}$. Morphologised clitics thus adhere more closely to their host and are integrated into—and constrained by—its F structure. As early as 1970, (Wurzel 1970b, 252f.) described these 'inflected prepositions' as behaving like a single phonological word. The proposal here is that, unlike plain clitics, morphologised clitics are not preceded by an ω-internal ω boundary, as the clitic and its FNC host together form an F which—as a lower-ranking constituent in the prosodic hierarchy—may not span an ω boundary.[3] However, if the resulting structure is monosyllabic, it may itself be reduced and encliticise (as a plain enclitic) to a preceding word. For instance, [t͡sʊm] (*zum* < *zu=dem* 'to the') meets word-minimality requirements and may thus project an ω under focus. Otherwise, being monosyllabic, it may be reduced and encliticise. Interestingly, it is only when the clitic article receives focus in contrastive, deictic or anaphoric contexts (and therefore projects an F, ω and φ, preventing cliticisation) that the fused form *zum* is not obligatory. In this case, the preposition will encliticise as a simple enclitic (these structures are exemplified in Figure 6.2). Wiese (1988) provides the following examples: *(Er ging zu)*$_{\varphi}$ *(DEM)*$_{\varphi}$ *(Arzt)*$_{\varphi}$*, dem er vertaute* ('He went to the [i.e. a particular] doctor that he trusted') and—in response to a question such as *Ging er zum Friseur, dem er vertraute?* ('Did he go to the hairdresser that he trusted?')—*Nein. (Er ging zum)*$_{\varphi}$ *(ARZT)*$_{\varphi}$*, dem er vertaute* ('No. He went to the DOCTOR that he trusted'). In a similar way, if the (FNC=FNC) form is disyllabic (e.g. (1)d, *unter'm*) and cannot be reduced—and thereby lose its status as an F (e.g. $(\text{mɪm})_{\sigma} < (\text{mɪpm̩})_{\text{F}} < (\text{mɪtm̩})_{\text{F}}$

[3] It is worth noting, however, that the ω-internal ω boundary is not a barrier to resyllabification, despite the ω being the domain of syllabification in German. This is because plain clitics are still within the same larger ω as their host.

mit'm 'with=DEF.DAT.M.SG')—it must stand alone, projecting an F and therefore an ω (but not its own φ).

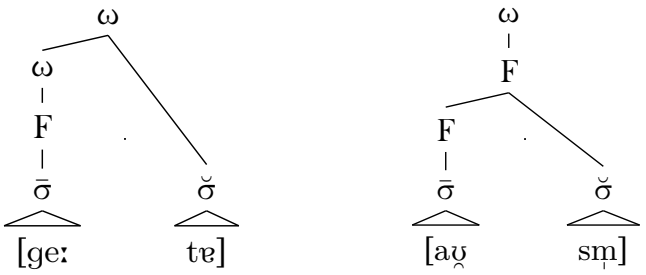


Figure 6.1 The prosodic structure of plain clitics (left) and morphologised clitics (right) in NHG: [geːt=ɐ] < *geht er* 'goes=he' and [aʊs=m̩] < *aus dem* 'out=DEF.DAT.M/N.SG' respectively.

The salience of the ω as a prosodic constituent in German is broadly accepted, with key studies including Wurzel (1970b), Hall (1999), Raffelsiefen (2000) and Wiese (2000). However, there is less agreement in the literature when it comes to the existence and structure of ω-internal ωs (see Chap. 2, Sect. 1) or the prosodification of clitics. The default direction of cliticisation—i.e. whether it is determined by the syntactic phrasing or rhythmic principles—has been a sticky issue since SPE (Chomsky and Halle 1968; cf. Lahiri and Plank 2022). It is argued here that German clitics are by default left-leaning (Lahiri and Plank 2010), despite persistent assumptions in the literature that procliticisation is the norm, taking for granted that phonological and syntactic phrasing are isomorphic (e.g. Wiese 2000; Itô and Mester 2009; Kabak and Schiering 2006). This chapter argues that the complex behaviour of clitics in German can be traced back to the MHG prosodic system, with the uneven moraic trochee having remained pertinacious, surviving into the NHG grammar in the form of a recursive foot.[4] A careful analysis of data from NHG and MHG demonstrates that the prosodic representation of plain and morphologised clitics has endured fundamentally

[4]Following an early adherence to the Strict Layer Hypothesis (Selkirk 1984; Nespor and Vogel 1986), more recent literature has acknowledged the need for recursion within the prosodic hierarchy, particularly within the ω (for a full discussion, see Chap. 2, Sect. 1). It has been argued that recursion is necessary in German, not only in terms of nested ωs (Wiese 2000; Raffelsiefen 2000; Bögel 2021), including compounds, but also recursive φs (Wiese 2000; Féry 2010; Kentner and Féry 2013).

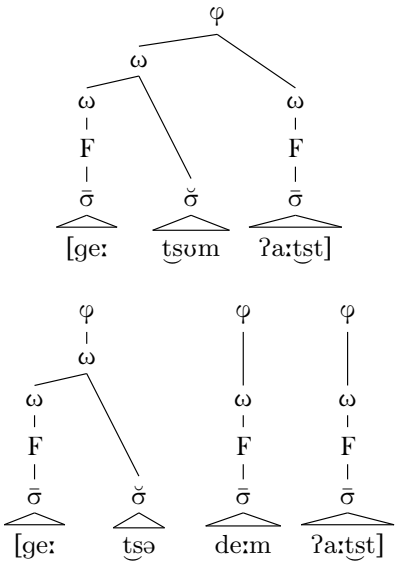


Figure 6.2 Different possible structures for (FNC=FNC) sequences, depending on focus: (a) *Geh zum Arzt* 'Go to the doctor' and (b) *Geh zu* DEM *Arzt* 'Go to THE/THAT doctor'.

unchanged into the modern language, despite centuries of change and quite radically different patterns of surface stress.

This chapter thus touches on open questions of phonological theory, namely the possibility of recursivity within the prosodic hierarchy and the non-isomorphism of phonological and syntactic structure. Following a discussion of the foot structure assumed for NHG (Sect. 2), this chapter will take both types of clitic in turn, beginning with plain clitics in Sect. 3, followed by morphologised clitics in Sect. 4. In both sections, the NHG facts are compared with the patterns observed in MHG, with evidence again drawn from verse. Metre represents a much more reliable indicator of prosodic structure than orthography, providing evidence of cliticisation, even when orthographic reduction or contraction are absent (cf. Lahiri and Sytsema 2018). The analyses proposed for plain and morphologised clitics by various authors—including their assumptions about the default direction of cliticisation and the constituent(s)

dominating hosts and clitics—will be discussed in detail in Sect. 3.1 and Sect. 4.1 respectively, but are summarised in Tables 6.3–6.4.

Table 6.3 Various treatments of plain clitics, e.g. [kanzədɔɪtʃ] < *Kann sie Deutsch?* 'Does she speak German?'.

	Default attachment	Dominated by	Predicted structure
Kabak and Schiering (2006)	FNC=$(\text{LEX})_{\omega}$	φ	$(\text{FNC}_{\sigma}=(\text{LEX})_{\omega})_{\varphi}$
Itô and Mester (2009)	FNC=$(\text{LEX})_{\omega}$	ω	$(\text{FNC}_{\sigma}=(\text{LEX})_{\omega})_{\omega}$
Wiese (2000)	FNC=$(\text{LEX})_{\omega}$	ω	$(\text{FNC}_{\sigma}=(\text{LEX})_{\omega})_{\omega}$
Wurzel (1970b)	$(\text{LEX})_{\omega}$=FNC	ω	$(\text{LEX}=\text{FNC})_{\omega}$
Lahiri and Plank (2010)	$(\text{LEX})_{\omega}$=FNC	ω	$((\text{LEX})_{\omega}=\text{FNC}_{\sigma})_{\omega}$
Bögel (2021)	$(\text{LEX})_{\omega}$=FNC	ω	$((\text{LEX})_{\omega}=\text{FNC}_{\sigma})_{\omega}$
Hall (1999)	$(\text{LEX}=\text{FNC})_{\omega}$?	φ	$(\text{LEX}=\text{FNC}_{\sigma})_{\omega}$, [a] $((\text{LEX})_{\omega}=\text{FNC}_{\sigma})_{\varphi}$ or $(\text{FNC}_{\sigma}=(\text{LEX})_{\omega})_{\varphi}$

[a] Hall (1999) silently assumes that clitics may either encliticise or procliticise, with no explanation for what governs this directionality. However, all of his examples of proclitics are in phrase-initial position and he seems tacitly to assume encliticisation to be the more dominant pattern, with $(\text{LEX}=\text{FNC})_{\omega}$ being more prevalent than $(\text{LEX})_{\omega}$=FNC.

Table 6.4 Various treatments of morphologised clitics, e.g. [aʊ̯fm̩baːnhoːf] *auf'm Bahnhof* < *auf=dem Bahnhof* 'at the train station'. This table provides the structure proposed by each author for (FNC=FNC) forms (i) in isolation, (ii) φ-initially, preceding a $(\text{LEX})_{\omega}$ and (iii) φ-medially, with a $(\text{LEX})_{\omega}$ to either side.

	FNC=FNC	FNC=FNC LEX	LEX FNC=FNC LEX
Kabak and Schiering (2006)	$(\text{FNC}=\text{FNC})_{\text{F}}$	$((\text{FNC}=\text{FNC})_{\text{F}}\ (\text{LEX})_{\omega})_{\varphi}$	?
Itô and Mester (2009)	$(\text{FNC}=\text{FNC})_{\text{F}}$	$((\text{FNC}=\text{FNC})_{\text{F}}\ (\text{LEX})_{\omega})_{\omega}$	?
Wiese (2000)	$(\text{FNC}=\text{FNC})_{\text{F}}?_{\omega}?$	—	?
Wurzel (1970b)	$(\text{FNC}=\text{FNC})_{\omega}$	—	?
Lahiri and Plank (2010)	$((\text{FNC})_{\omega}=\text{FNC})_{\omega}$	$(((\text{FNC})_{\omega}=\text{FNC})_{\omega}(\text{LEX})_{\omega})_{\varphi}$	?
Bögel (2021)	$((\text{FNC})_{\omega}=\text{FNC})_{\omega}$	$(((\text{FNC})_{\omega}=\text{FNC})_{\omega}(\text{LEX})_{\omega})_{\varphi}$	?
Hall (1999)	$(\text{LEX}=\text{FNC})_{\omega}$ [a]	—	?

[a] (Hall 1999, 101) considers German prepositions to be lexical words, not function words at all. He does not discuss other [FNC=FNC] combinations, but they would presumably form a single ω with flat structure in his analysis: $(\text{FNC}=\text{FNC})_{\omega}$.

2 The Foot

The issue of quantity sensitivity in NHG has been controversial in the literature, due to a lack of isomorphism between segmental quantity and weight (as discussed in Chap. 2, Sect. 3.2.2). Authors such as Wiese (2000) and Féry (2003) assume syllabic trochees, but, in line with most accounts, this thesis assumes German to be quantity-sensitive, as stress is not always penultimate and $\bar{\sigma}$s are able to perturb the stress patterns (cf. [ˈʔaː.li.bi] *Álibi*, [bi.ˈkiː.ni] *Bikíni*, [pla.ˈneːt] *Planét*). German is thus most commonly assumed to construct left-headed, weight-sensitive 'moraic' trochees which are precisely bimoraic: ($\acute{\breve{\sigma}}\breve{\sigma}$) or ($\acute{\bar{\sigma}}$). For a discussion of the relevant issues, see Jessen (1999) and Booth and Lahiri (2023). However, it is argued here that the modern reflex of the earlier Germanic foot is a minimally recursive moraic trochee (similar to Kager and Martínez-Paricio's 2018 'internally layered foot'). Recursive feet have been proposed for other Germanic—and Romance—languages (see Chap. 2, Sect. 2.2) and this chapter argues that a minimally recursive foot is essential in accounting for the facts of German cliticisation. Bimoraic trochees thus constitute the minimal foot in NHG. However, a minimal foot may be expanded through the adjunction of an additional, stray light syllable at the right edge, resulting in an uneven moraic trochee: $(\bar{\sigma})_F\breve{\sigma} > ((\bar{\sigma})_F\breve{\sigma})_F$. However, due to the direction of parsing (with feet constructed from right to left), $((\breve{\sigma}\breve{\sigma})_F\breve{\sigma})_F$ feet are not found, as a disyllabic trochee would first be constructed at the right edge: $\breve{\sigma}(\breve{\sigma}\breve{\sigma})_F$. This therefore results in a disyllabic upper limit on feet, unlike in earlier Germanic, where parsing was from left to right, meaning both $((\bar{\sigma})_F\breve{\sigma})_F$ and $((\breve{\sigma}\breve{\sigma})_F\breve{\sigma})_F$ were possible (as well as resolved $((\breve{\sigma}\bar{\sigma})_F\breve{\sigma})_F$ feet). Possible F structures are thus illustrated in Figure 6.3 and the parameters assumed for the NHG foot are provided in Table 6.5.[5]

[5] Although it is generally agreed that an extrametrical unit at the right edge is necessary, the nature of this unit is controversial in the literature and is not relevant for present purposes. A full account of NHG stress is beyond the scope of this thesis, but see Chap. 2, Sect. 3.2.2 for a discussion of this issue.

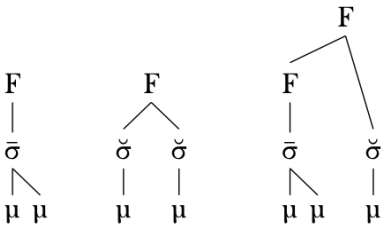


Figure 6.3 Possible foot structures in NHG.

Table 6.5 Parameters assumed for the NHG foot.

Foot type	Trochee
Weight sensitive	Yes
Minimal foot	μμ
Maximal foot	σσ
Recursive feet	Yes
Direction of parsing	R→L
End rule	Right

The recursive F thus differs from the earlier Gmc. F in that it is maximally disyllabic and its head (the F-internal F) is precisely bimoraic, as opposed to minimally. This finds support in the internally layered F of Martínez-Paricio and Kager (2015); Kager and Martínez-Paricio (2018) and Booij's recursive 'Chomsky-[adjunction] to the foot' (1995; 2002). However, it differs from the former in being exclusively left-headed. In other words, the left-headed nature of the foot in German must apply to the dominating foot as much as the internal foot, and neither may have an unstressed syllable at the left edge (i.e. the weak syllable can only be adjoined at the right). In their discussion of Dutch and English, Kager and Martínez-Paricio (2018) suggest that the ILF has a left, rather than a right, adjunct, based on evidence such as stop aspiration in English. It is possible that the rightward or leftward attachment of stray syllables between two feet may be a language-specific parameter. Booij (1995) also argues for a distinction between adjunction to a nested F and ω, but the asymmetry in his analysis is between prefixes (ω) and enclitics (F) rather than different types of clitic.

Much of the confusion over the quantity-sensitivity of NHG stems from the tension between the competing desires for both a heavy stressed syllable (Prokosch's

Law) and a branching, disyllabic F. For instance, although German is undoubtedly quantity-sensitive, a range of morphological processes make reference to a disyllabic (uneven) trochee (identified as a syllabic trochee by Féry 1998 and Wiese 2000, overlooking the fact that monosyllabic feet are also possible in the language). For instance, it is variously argued that a disyllabic trochee is the preferred shape for derived words ending in light suffixes, e.g. *-chen*, *-ig* (Féry 1998), German verbs in general (Wiese 2000) and German plural nouns (Smith 2020). The German plural is particularly revealing: Wiese (2000, 231n.) notes that the German plural in general ends in a schwa syllable (with the exception being words taking the *-s* plural or derived via suffixation of the exceptional *-lein* diminutive).[6] Smith (2020) similarly describes the plural as ending in a disyllabic trochee, obliging her to suggest that German relies on multiple foot types at different stages of the derivation. In fact, the choice of ending is governed by the prosodic shape of the word, such that it results in a final (σ̄ŏ) sequence, e.g. [-n]~[-ən/n̩] (which is syllabic when following a σ̄ and non-syllabic when following an unstressed ŏ), even if this means zero-marking, as illustrated in Table 6.6.

Table 6.6 Alternation between plural formation strategies for (σ̄) and (σ̄ŏ) stems, producing $(\bar{\sigma}\breve{\sigma})_{F}$ plurals (after Smith 2020, 62).

	σ̄ stem			σ̄ŏ stem		
(σ̄)+[-ən/n̩] vs. (σ̄ŏ)+[-n]	[uːʁ̞] [fʁaʊ̯]	[uːʁən] [fʁaʊ̯ən]	‘clocks’ ‘women’	[taːfl̩] [tantə]	[taːfl̩n] [tantn̩]	‘tables’ ‘aunts’
(σ̄)+[-ə] vs. (σ̄ŏ)+Ø	[fʁɔɪ̯nt] [jaːʁ̞]	[fʁɔɪ̯ndə] [jaːʁə]	‘friends’ ‘years’	[leːʁɐ] [ɔŋkl̩]	[leːʁɐ] [ɔŋkl̩]	‘teachers’ ‘uncles’
(σ̄)+(¨)+[-ɐ] vs. (σ̄ŏ)+¨+Ø	[buːx] [kɪnt]	[byːçɐ] [kɪndɐ]	‘books’ ‘children’	[faːtɐ] [bʁuːdɐ]	[fɛːtɐ] [bʁyːdɐ]	‘fathers’ ‘brothers’

[6] It will be noted that words ending in an open syllable with an unstressed, short tense vowel regularly take the *-s* plural and are precisely those words which may not take a schwa due to their phonological shape; only stressed long vowels or diphthongs may be followed by schwa, or else a non-syllabic high vowel, as in [ˈliːl̯ə] *Lilie* ‘lilly’. Nor would syllabic sonorants be possible, as they would instead occupy coda position. The remaining words taking the *-s* plural are C-final borrowings or otherwise peripheral items, such as personal names and abbreviations.

3 Plain clitics

3.1 Modern Standard German

As described in Sect. 1, plain clitics are defined as function words (such as a personal pronoun, preposition or article) which may occur freely in both a full and phonologically reduced form. A list of possible plain clitics, with examples, was provided in Table 6.1. Any word which is subminimal (i.e. cannot form an F alone) cannot form an ω or be assigned lexical stress (hence the observed generalisation that clitics are usually monosyllabic). In contrast to lexical words, which comprise one or more feet and do form an ω (attracting lexical stress), function words are typically unstressed and reduced (i.e. subminimal). As such, they will not form their own ω, in which case they must cliticise to a neighbouring host, incorporated into a nested ω in the postlexical component. However, function words *are* at times capable of attracting stress (for example under focus), in which case they surface unreduced, projecting a ω (cf. Selkirk 1996). However, this can simply be regarded as the construction of a φ over the relevant FNC, resulting in a φ boundary on both sides, blocking cliticisation, as in (2).

(2) Example prosodic structure of a LEX FNC FNC sequence with (a) both FNCs reduced and cliticised and (b) the second FNC focused.

a. (((ziːt)$_{ω}$=ɐ=zə)$_{ω}$)$_{φ}$ *Sieht er sie?* 'Did he see her?'
see.3SG.PRES=he.NOM=she.ACC

b. (((ziːt)$_{ω}$=ɐ)$_{ω}$)$_{φ}$ ((ziː)$_{ω}$)$_{φ}$ *Sieht er* SIE*?* 'Did he see HER?'
see.3SG.PRES=he.NOM she.ACC

Encliticised personal pronouns represent the classic example of plain clitics in German, where they are always capable of being swapped for their full form with no change in meaning. Furthermore, it is even possible to establish full clitic paradigms, especially in colloquial and dialect speech, as is illustrated in (3). As Nübling (2010)

notes, such paradigms can be built for all verbs and even certain complementisers, e.g. *weil=ich=s vergessen habe* ('because I have forgotten it').

(3) Partial clitic 'paradigm' of *haben* ('have') + singular personal pronoun + *es* ('it').

a. [habɪçs] (< *habe=ich=es* 'I have it')
b. [hastəs] (< *hast=du=es* 'you have it')
c. [hatɐs] (< *hat=er=es* 'he has it') &c.

However, the phonology of such forms is central to their behaviour and they cannot be explained in terms of syntax alone. Nor can they be accounted for as purely (phonetic) coarticulatory phenomena (as argued by Schaub 1979). What is important to note is that plain clitics are fully productive and synchronically derivable by phonological reduction rules (cf. Wiese 1988). For instance, nominative German personal pronouns have the reduced forms provided in Table 6.7. It is possible to encliticise any number of unstressed function words to the right edge of a lexical host and they are not constrained by foot structure. This productivity, optionality and lack of gaps or exceptions, along with the fact that cliticisation involves multiple lexical items and may only occur within a φ demonstrates that this is a postlexical process.

Table 6.7 Full and reduced forms of German personal pronouns, classified as 'strong', 'weak' and 'clitic' (after Cardinaletti and Starke 1999). See also Wiese (1988); Hall (1999); Krech et al. (2009).

	Strong	Weak	Clitic	
ich	[ɪç]		[ç]	1SG
du	[duː]	[dʊ]	[də]	2SG
er	[eːɐ̯]	[ɛɐ̯]	[ɐ]	3SG.M
sie	[ziː]	[zɪ]	[zə]	3SG.N
es	[ɛs]		[əs, s]	3SG.F
wir	[viːɐ̯]	[vɪɐ̯]	[vɐ]	1PL
ihr	[iːɐ̯]	[ɪɐ̯]	[ɐ]	2PL
sie	[ziː]	[zɪ]	[zə]	3PL

Persistent questions within the literature are (i) the default direction of clisis and (ii) the structure which results from this attachment. In relation to the former, a number of authors, assuming syntactic and phonological phrasing to be isomorphic, have taken (FNC=LEX) *pro*cliticisation to be the norm (e.g. Selkirk 1996; Wiese 2000; Kabak and Schiering 2006; Itô and Mester 2009). Also seeming tacitly to assume directionality to be syntactically determined, Hall (1999) observes that clitics may associate in either direction (without accounting for the mechanism or appearing to priviledge either enclisis or proclisis). Despite this, the non-isomorphism of prosodic and syntactic phrasing—and the trochaic nature of phonological phrasing in Germanic—are well attested (Lahiri and Plank 2010); function words are thus associated leftwards, favouring trochaic groupings and therefore *en*cliticisation (see also Bögel 2021; Lahiri and Plank 2022). Proclisis is therefore only possible in φ-initial position or when enclisis is otherwise prevented (Lahiri and Plank 2010; Lahiri and Sytsema 2018). In a similar way, although he assumes the direction of attachment to be determined by the strength of the syntactic boundary to either side of the clitic, Wurzel (1970b) observes that—these boundaries being equal—encliticisation is preferred.

In relation to the second question, it is assumed here that recursivity within the prosodic hierarchy is perfectly possible, as discussed in Chap. 2, Sect. 1 (cf. Gussenhoven 1986; Booij 1995; Lahiri and Plank 2022, amongst others). In line with Wheeldon and Lahiri (1997) and Lahiri and Sytsema (2018), it is assumed here that (host=clitic) combinations result in a nested ω: $((\text{host})_{\omega}=\text{clitic})_{\omega}$. Wiese (2000) also allows for recursivity, despite taking procliticisation for granted: $(\text{FNC}=(\text{LEX})_{\omega})_{\omega}$. The different analyses of plain clitics are summarised in Table 6.8 (repeated from Sect. 1), illustrating the assumed default direction of attachment, the constituent which groups the clitic and its host together (dominating both) and the predicted default structure phrase-medially, with a LEX to either side.

Table 6.8 Various treatments of plain clitics, e.g. [kanzədɔɪ̯tʃ] < *Kann sie Deutsch?* 'Can she [speak] German?'.

	Default attachment	Dominated by	Predicted structure
Kabak and Schiering (2006)	FNC=(LEX)$_{\omega}$	φ	(FNC$_{\sigma}$=(LEX)$_{\omega}$)$_{\varphi}$
Itô and Mester (2009)	FNC=(LEX)$_{\omega}$	ω	(FNC$_{\sigma}$=(LEX)$_{\omega}$)$_{\omega}$
Wiese (2000)	FNC=(LEX)$_{\omega}$	ω	(FNC$_{\sigma}$=(LEX)$_{\omega}$)$_{\omega}$
Wurzel (1970b)	(LEX)$_{\omega}$=FNC	ω	(LEX=FNC)$_{\omega}$
Lahiri and Plank (2010)	(LEX)$_{\omega}$=FNC	ω	((LEX)$_{\omega}$=FNC$_{\sigma}$)$_{\omega}$
Bögel (2021)	(LEX)$_{\omega}$=FNC	ω	((LEX)$_{\omega}$=FNC$_{\sigma}$)$_{\omega}$
Hall (1999)	(LEX=FNC)$_{\omega}$?	φ	(LEX=FNC$_{\sigma}$)$_{\omega}$, ((LEX)$_{\omega}$=FNC$_{\sigma}$)$_{\varphi}$ or (FNC$_{\sigma}$=(LEX)$_{\omega}$)$_{\varphi}$ [a]

[a] Hall (1999) silently assumes that clitics may either encliticise or procliticise, with no explanation for what governs this directionality. However, all of his examples of proclitics are in phrase-initial position and he seems tacitly to assume encliticisation to be the more dominant pattern, with (LEX=FNC)$_{\omega}$ being more prevalent than (LEX)$_{\omega}$=FNC.

Hall (1999), like others (e.g. Kabak and Schiering 2006), assumes that such clitics are in fact attached directly to the phonological phrase, largely due to theory-internal concerns and citing constraints such as the LAX VOWEL CONSTRAINT (against ω-final full [RTR] vowels: *[-tense,-low,-long])$_{\omega}$) as evidence. However, given the fact that this constraint applies equally to word-internal feet, there is no reason to suppose that such constraints do not instead make reference to the foot. Whilst the constraint certainly does apply to lexical items, its domain is uncertain because the right edge of feet and ωs invariably coincide in native vocabulary (as trochaic feet are constructed from the right word edge, the final syllable of an ω should also be the final syllable of an F). This constraint is therefore ambiguous, applying just as consistently to the F: lax vowels are only tolerated in closed syllables (e.g. [hɛktɪk] 'hustle and bustle') or the strong branch of a disyllabic F, where they never surface as open (being closed by an ambisyllabic consonant late in the derivation, e.g. [ˈzɪt̬ə] 'custom'). Otherwise, only short tense vowels—plus [a] and [ə]—are tolerated in open syllables, e.g. [ˈkiː.no] 'cinema', [ˈoː.t͡seː.aːn] 'ocean'. Indeed, defining this as an F-domain constraint obviates the need for the additional, redundant LAX VOWEL HIATUS CONSTRAINT *([ɪ ʏ ɛ œ ʊ ɔ] [-cons])$_{\omega}$ mentioned by Hall (2000).

Thus, rather than providing evidence against recursive ωs (as Hall (1999) maintains), reduced forms such as [zɪ] (< /ziː/ 'she') or [dʊ] (< /duː/ 'you') are predicted by this analysis, as they are not dominted by a foot, but instead adjoined to a nested ω (as in Figure 6.4). For a similar analysis of Swabian personal pronouns, see Bögel (2021). Certainly, the formation of nested words elsewhere in the phonology must be possible, given the existence of compound words with the structure $((\acute{X})_{\omega}(X)_{\omega})_{\omega}$, which are constructed in the lexical component (see Wynne et al. 2018).

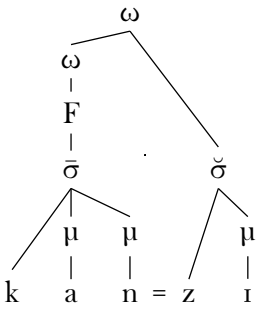


Figure 6.4 Prosodic representation of [kanzɪ] (< *kann=sie* 'can=she.NOM/ACC').

In summary, plain clitics are productive, optional and more frequent in rapid and colloquial speech. They are relatively unconstrained and may be concatenated, regardless of foot structure (e.g. [hastəs]). Unlike clitics in some other languages, plain clitics, added postlexically, do not form a foot, even when they result in polysyllabic strings. This is illustrated by the fact that vowel-initial plain clitics will never be preceded by a glottal stop, even when following another vowel (underlyingly onsetless syllables in F-initial position will always surface with a glottal stop in onset position). Nor do they ever shift or attract stress. Such cliticisation is a postlexical phenomenon, involving the reduction of function words, which then cliticise to a preceding lexical host. Lexical words, comprising one or more feet and attracting lexical stress, form their own ω, but function words usually do not and are instead incorporated into a nested ω: $((\text{LEX})_{\omega}=\text{FNC})_{\omega}$.

3.2 Plain clitics in MHG

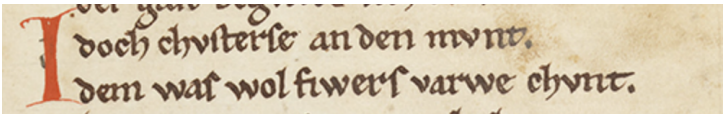
The structures described in Sect. 3.1 have been extremely stable throughout the documented history of German, already being present in OHG (cf. Somers Wicka 2009). This section explores the behaviour of plain clitics in MHG, providing evidence for the continuity of such structures into NHG: plain clitics may be reduced and *en*cliticised to a neighbouring host ω (incorporated into a nested ω structure), as in (4)a–b. If there is no possible host to the left, either because the FNC is φ-initial ((4)c) or because the syllable to its left is unstressed (and is not elided as in (4)b), then it will be obliged to procliticise to a following stressed syllable: (4)d (cf. Lahiri and Sytsema 2018). The exception to this is where the FNC word follows a $((\text{LEX})_{\omega}{=}\breve{\sigma})_{\omega}$ structure, as clitics may be concatenated to a single host. However, as will become relevant, in poetry with strict alternating verse, such as *Parzival*, multiple enclitics will only be predicted to appear where the vowel of at least one clitic may be elided (so that they do not comprise more than one successive weak syllable), as $\acute{\sigma}{=}\breve{\sigma}{=}\breve{\sigma}$ sequences would not scan. As a result, in order to satisfy the requirements of metre, the second clitic will either appear in its full form—and stand alone as an ω—or, if it may be reduced to a single onset consonant, it may procliticise (e.g. *zorse* < *ze orse* 'mounted', lit. 'to=steed'). This is represented in (4)e. 'Fused forms' of the structure $(\text{FNC}{=}\text{FNC})_{\omega}$ will be discussed in Sect. 4.2.

(4) Predictions for the prosodic grouping of FNCs in metre, resulting in (a–b) encliticisation and/or (c–e) procliticisation (adapted from Lahiri and Sytsema 2018).

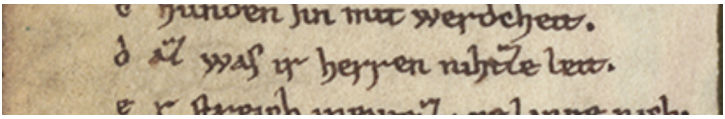
a. $\omega_{(\acute{\sigma})}\ \sigma_{\text{FNC}} > (\omega_{(\acute{\sigma})}{=}\sigma_{\text{FNC}})_{\omega}$
b. $\omega_{(\acute{\sigma}\breve{\sigma})}\ \sigma_{\text{FNC}} > (\omega_{(\acute{\sigma})}{=}\sigma_{\text{FNC}})_{\omega}$
c. $\#\#\sigma_{\text{FNC}}\ \omega_{(\acute{\sigma})} > (\sigma_{\text{FNC}}{=}\omega_{(\acute{\sigma})})_{\omega}$
d. $\omega_{(\acute{\sigma}\breve{\sigma})}\ \sigma_{\text{FNC}}\ \omega_{(\acute{\sigma})} > \omega_{(\acute{\sigma}\breve{\sigma})}\ (\sigma_{\text{FNC}}{=}\omega_{(\acute{\sigma})})_{\omega}$
e. $\omega_{(\acute{\sigma})}\ \sigma_{\text{FNC}}\ \sigma_{\text{FNC}}\ \omega_{(\acute{\sigma})} > (\omega_{(\acute{\sigma})}{=}\sigma_{\text{FNC}})_{\omega}\ (\sigma_{\text{FNC}}{=}\omega_{(\acute{\sigma})})_{\omega}$

Once again, manuscript evidence provides us with invaluable insights into prosodic structures through metre in verse. Whilst it is true that mediaeval scribes do often represent clisis orthographically, as in (5)a–b, this is crucially not always the case, and metre may provide evidence of cliticisation even where it is not orthographically represented. Conversely, MSS may also feature contractions where no phonological reduction has taken place (as a space-saving measure) and clitics may be written separately from their host—or may even be written together with a following word which is not the host—(i) as a matter of idiosynchratic style or (ii) due to very practical orthographic concerns of legibility or a desire to avoid ambiguity. Given such discrepancies in the orthographic representation of clisis, metre provides the clearest evidence for cliticisation and its directionality (Lahiri and Sytsema 2018), although additional evidence will be provided from the spelling of word-final stops in the orthography of Cod. 857's Hand III. *Parzival* will again form the basis of this analysis, with reference made to Cod. 857, as well as a second MS, *München, Bayerische Staatsbibliothek, Cgm 19* (Cgm. 19). This MS, copied in the mid-thirteenth century in the Bav. or EAlem. dialect area, represents an interesting comparison to Cod. 857, produced roughly contemporaneously and in a similar part of the UG region.

(5) Orthographic representation of the cliticisation of (a) two personal pronouns: l.176.09 (Cod. 857, 25r) and (b) the preposition *ze* 'to': l.59.20 (Cgm. 19, 6v).[7]

a. 

Idoch **chvsterse** an den mvnt.
'kiss-PRET=he.NOM=she.ACC' < *kuste er si*

b. 

daz was ir herren **nihtze** leit.
'not=too' < *niht ze*

The MHG grammars note that unstressed function words, particularly personal pronouns and definite articles, were readily reduced and attached to other words (e.g. Wright [1888]/1951, 38f., Paul 2007, 30ff.), with forms of the definite article in particular very frequently combining with a preceding preposition (see Sect. 4.2). Paul (2007) makes the claim that cliticisation can proceed in either direction, with prepositions and pronouns typically procliticising and pronouns encliticising after a verb. However, this is largely based on orthographic contractions and he acknowledges that the negation particle *ne* [nə] (< OHG *ni*) can encliticise to pronouns and particles, e.g. *ichne* (*ich=ne* 'I=not'), in addition to procliticising before a finite verb, where it usually surfaces as [ən], e.g. *enbern* (< *ne=bern* 'be/do without'). Furthermore, MSS show considerable variation in this respect (even within the same MS), writing it with the following verb, the preceding verb or independently, with space on either side. As such, care must be taken in assuming that the orthography is transparently representing cliticisation or that procliticisation is the norm.

[7] All images of Cod. 857 are reproduced from *St. Gallen, Stiftsbibliothek, Cod. Sang. 857: The St. Gall Nibelung manuscript B with the Nibelungenlied (The Song of the Nibelungs) and "Klage" (lament), "Parzival" and "Willehalm" by Wolfram von Eschenbach, and Stricker's "Karl der Grosse" (Charlemagne)* (http://www.e-codices.unifr.ch/en/list/one/csg/0857) and all images of Cgm. 19 are taken from *Münchener Wolfram-Handschrift (Bayerische Staatsbibliothek, Cgm 19)* (https://daten.digitale-sammlungen.de/bsb00071690/image_1).

It is striking that the forms which are argued to procliticise most readily are those which consist of a [COR] consonant followed by a vowel, e.g. *swer* (*sô=wer* 'whoever'), *enbern* (< *ne=bern* 'be/do without') or ⟨zeren⟩ (*ze=êren* 'to=honour-INF'). This vowel is reduced to schwa and invariably elided, leaving a bare [COR] consonant, which can easily syllabify into the onset of a following word, particularly if this word is [SON]-initial. It is probable that phrase-initial procliticisation may have been the source of such examples; indefinite relative pronouns, such as e.g. *swaz* 'whatever', *swelch* 'whichever' and *sweder* 'whichever of the two', for example, occur with particularly high frequency in φ-initial position (indeed, three of the sixteen books in *Parzival* begin with the word *swer*). However, such pronouns ultimately died out, unlike the plain enclitics, which found greater success and have endured into the modern language.[8]

Section 3.2.1 will first present evidence that the enclisis of personal pronouns in MHG proceeded in the manner described above, before turning to the sticky issue of cliticised prepositions in Sect. 3.2.2, which—due largely to an assumption that cliticisation respects syntactic phrasal boundaries, but also misleading orthographic evidence—have typically been assumed to procliticise, rather encliticise. This is in contrast to definite articles and personal pronouns, which are generally accepted to encliticise in the unmarked case (assisted by regular examples of orthographic contraction).

3.2.1 Enclitic personal pronouns in MHG

As described in the grammars, personal pronouns readily encliticised to a preceding word (e.g. Paul 2007, 210ff.), reflected in orthographic contractions such as those in (5). One finds plenty of examples of orthographically enclitic forms of the 2SG and all third person forms, as well as instances of other pronouns. The plural pronouns

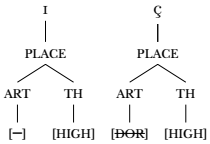
[8]For a discussion of the Gmc. negative particle in particular, see (Lahiri and Plank 2010, 381), who note that this never became a regular form of inflexion in any Germanic language and also died out.

ir (‘you PL’) and *si* (‘they’) are identical in form to the dative and nominative forms of the feminine 3SG pronoun. Cliticisation of reduced *ich* (‘I’) and *mich* (‘me’) with loss of ⟨ch⟩ are rare in Cod. 857, and only occur in (FNC=FNC) contexts, where the resulting fused form is unstressed, as in ⟨ine⟩ (l.59.20, see Table 6.9). This stands in contrast to the stressed ⟨Jchne⟩ (l.33.21), where the negation particle *ne* encliticises to a stressed *ich* (which must thus be an ω). However, it is present in other MSS, in forms such as *diech* (< *die=ich*) or *wiech* (*wie=ich*) and was apparently a feature of the exemplar (Witte 1927). Furthermore, even if it was not always attached orthographically, as (Paul 2007, 73) demonstrates, there was evidence of umlaut caused by enclitic *ich* in OHG, e.g. *drenk-ih* < *drank ih* ‘drink.1SG.PRET I’. Similarly, spellings of MHG *wir* as ⟨mir⟩ following verbs, e.g. ⟨sagemir⟩ for *sagen wir* (‘say-PRS.1PL we’) provide evidence for enclitic *wir*, with cliticisation leading to nasal assimilation and subsequent consonant reduction. Examples of cliticised personal pronouns are given in Table 6.9.[9]

Table 6.9 Examples of the orthographic representation of enclitic personal pronouns.

Person	Reduced form	Example	
ich	i	59.21	ĕr stréich **ĭn**e wéiz wĭe lángĕ nách.
mich	mi	33.21	J́chnĕ hán **mĭ**s níht gĕnı́tĕt.
er	er	528.23	Dŏ gnás**ĕr** dv́rh dĭ kv́nĕgín.
in	en	714.15	dĕr kíndĕ éinĕz gáb**ĕn** mír.
im	em	157.08	schv́ht ĕr**em** v́ber dĭv ríbbălín.
si	se	232.24	dă mán**sĕ** chv́mĕnde ínnĕ vánt.
ez	ez	240.29	ĭch mág**ez** wŏl spráchĕn áně gv́ft.
	z	290.21	ĭr sólt**z** ĭm wéren dĕs wǽrĕ zít.

[9]In these examples, onset consonants remain, as do [SON] coda consonants and ⟨z⟩ /s/. However, *i(ch), mi(ch)* stand out in two respects. Firstly, unlike other coda consonants, [ç] may be lost. The reason for this is likely functional, to avoid neutralisation: if these consonants were deleted, *er, in, im* and *ez* would all reduce to [ə]. However, *i* and *mi* remain distinct. Secondly, the vowels of the 1SG forms are not reduced to [ə] or ∅, as in the other pronouns. This is due to a constraint in German preventing schwa before [HIGH] consonants, such as [ç] (underlyingly /x/, with place assimilation following coronal vowels), where the [HIGH] vowel [ɪ] is instead found (matching in height and place):



However, this is not the full story. As the case of the first person pronouns discussed above suggest, not all pronouns are orthographically encliticised; however, just because a pronoun is not written as part of the preceding word or with a reduced ⟨e⟩ vowel, this does not mean that the grapheme does not represent an enclitic. Here, disambiguating evidence comes from the metre. Due to the fact that the orthography is typically conservative, opaque and exhibits substantial variation, even within a single MS, metre represents the only reliable means of determining the prosodic status of FNCs. Pronouns which are written as independent words with an unreduced vowel and a space to either side may be stressed, unstressed or reduced and cliticised. For instance, metre demonstrates that a preposition may be realised as a full, stressed ω when it is under focus, as in (6)a: in this case, the preposition occupies a stressed beat and may even have other clitics attached to its right edge (as a focused FNC may function as an ω host). This is exemplified in (6)b. As this example illustrates, clitics which form their own syllable must occupy the weak beat of the following verse foot, even though they are prosodically grouped with the preceding word. This is shown by the form ⟨erse⟩ (< *er=sie* 'he=her') and equally applies to weak syllables in polysyllabic words, such as ⟨wrce⟩ (*würze* 'herbs').

(6) Examples of stressed $(\text{FNC})_{\omega}$ forms which can (a) stand alone or (b) host a clitic.

a. 524.17 x / | x / | x / | x /
vier wo. chen **er** des niht ver gaz.
*four weeks he did not forget**

b. 518.18 x / | x / | x / | x /
vil wr. ce **er**. =se mi. den hiez.
*he told them to avoid many herbs**

In contrast, FNCs may also be unstressed, as in (7)a; here, the pronoun is also φ-final, preceding reported speech. In order to occupy a weak beat, the FNC must represent a light syllable. This reduced, unaccented form is thus likely to be cliticised

and lean against its neighbour, even though it is orthographically independent. The argument here is that it will attach leftwards. In the case of (7)a, this is the only option, given the following prosodic break. This is illustrated by examples such as (7)b, where elision must take place (due to the presence of two ŏs between the neighbouring ōs). In such cases, it is the syllable to the left which is invariably elided, strongly indicating that the pronoun is associating in this direction. This can be seen in (7)b–c, with (7)c even displaying orthographic elision, e.g. ⟨namn⟩ (*namen* 'name'). Such examples thus correspond to (4)a–b.

(7) Examples of enclitic *er* ('he'): (a) $\omega_{(\acute{\sigma})}\ \sigma_{FNC} > (\omega_{(\acute{\sigma})}{=}\sigma_{FNC})_{\omega}$ and (b) $\omega_{(\acute{\sigma}\breve{\sigma})}\ \sigma_{FNC} > (\omega_{(\acute{\sigma})}{=}\sigma_{FNC})_{\omega}$[10]

a. 258.15 x / | x / | x / | x /
Do sprach **=er** fro. we mer. chet daz.
*then he said 'Lady, consider**

b. 400.10 x / | x / | x / [x]
in dvh. te̲ **=er** sæ. he̲ den mei. en.
anyone would imagine he was looking at May

c. 170.05 x / | x / | x / | x /
si. ne̲n gast des namn **=er** niht er. liez.
he insisted upon giving his guest the same name

As the examples in (8) demonstrate, the concatenation of multiple clitics is perfectly possible, as vowel elision allows these lines still to scan in an alternating metre. In (8)a, the final /ə/ of *kuste* ('kiss-3SG.PRET') is elided, to allow *er* ('he') to encliticise, to which is added enclitic *se* ('she'). Interestingly, the metre of this line makes clear that the [ə] of ⟨se⟩ is elided: *Ídòch chýstèrse̲ án dèn mýnt*. Thus, although the scribe demonstrates in this instance that multiple FNCs may be encliticised in natural speech (even if the poem's metre precludes it), a parsing more akin to (4)e (in order to satisfy the demands of the poem's metre) cannot be excluded: $((\mathrm{kus.t{=}ər})_{\omega}(\mathrm{s{=}an})_{\omega})$.

[10]Such examples illustrate the difficulties inherent to composing iambic verse in a trochaic language. The artificial, abstract iambic metre is achieved, with weak beats followed by strong, but this is at odds with the natural grouping of the language, with its left-leaning prosoic structures, meaning that the prosodic feet of the natural language may span the boundaries of verse feet, as with the simplex (|ŏσ̆|) word ⟨frowe⟩ in (7)b or the (|σ̄|σ̆) word ⟨wochen⟩ in (6)a.

The fact that the orthography in (8)a does in fact reflect natural speech is illustrated by comparison with (8)a and (8)b, where the vowel of the first FNC (rather than the second) is elided, enabling both to *en*cliticise without perturbing the regular alternation of the line. This furthermore demonstrates that not all clitics are written together with their host (or with a reduced vowel), as with ⟨gewapent ich**se in** strite⟩ [gəˈwapənt ˈɪçsən ˈstriːtə] (< *gewapent ich=sie=in strîte* 'armed I=them=in battle'). Such forms demonstrate that the prosodic phrasing of FNCs are in the unmarked case associated leftwards, even though this crosses verse foot boundaries (as the examples in (8) show, these pronouns are grouped into a verse foot with the following strong beat).

(8) Examples of concatenated plain enclitics: ⟨er⟩ 'he.NOM', ⟨se⟩ 'they.ACC', ⟨in⟩ 'in', ⟨ez⟩ 'it .ACC' and ⟨iv⟩ 'you.PL.DAT'.

a. 176.09 / | x / | x / | x /
I doch chv. st[e] **=er**. **=se** an den mvnt.
*yet he kissed her on the mouth**

b. 214.22 x / | x / | x / | x /
ge. wa. pent ich. **=se =in** stri te vant.
*I found them armed in battle**

c. 344.20 / | x / | x / | x /
her .re =ich sag. **=ez =iv** wand =ich. =ez sach.
*Lord, I'll tell you, for I saw it**

Procliticisation is rare, and is predicted only to occur in absolute φ-initial position or following an unstressable and unelidable syllable. An example of each is provided in (9). In (9)a, the clitic ⟨en⟩ (< *in* 'him ACC') follows a prosodic boundary, the monosyllabic phrase ⟨niht⟩ ('no!'). As such, it cannot lean to the left and must instead procliticise to the stressed verb to its right, resulting in ⟨ensol⟩. (9)b–c contrast enclitic and proclitic *des* ('the.GEN.SG.M'), followed by the same noun, *abents* (*âbents* 'evening-GEN'). In (9)b, it encliticises to the preceding stressed *ich*, but in (9)c, the preceding syllable is a weakly stressed verb in a weak position, ending in a (possibly elided) schwa. As this is not a possible host, *des* instead procliticises, as expected.

(9) Example of (a) procliticised *en* [##σ_{FNC}=$\omega_{(\acute{\sigma})}$], (b) encliticised *des* and (c) procliticised *des* [$\omega_{(\acute{\sigma}\check{\sigma})}$ σ_{FNC}=$\omega_{(\acute{\sigma})}$].

a. 87.10 [x] x / | x / | x / | x /
er= sprach . niht **en**.= sol ze. reh. te han.
*he said 'No! [My lady] should by rights have him**

b. 492.15 x / | x / | x / | x /
sach ich **=des** a. bents ia. mers vol.
I saw [his great hall] that evening, full of woe]

c. 281.24 x / | x / | x / | x /
ri. ten **s**=a. bents zv̊ dem Pli. mi. zol.
*rode that evening to the Pliomizœl**

Final devoicing corroborates this analysis further. Like NHG, MHG devoiced obstruents in coda position, but unlike NHG, this was reflected in the orthography, such that we find alternations between, for example, ⟨tac⟩ and ⟨tage⟩ ('day' and 'day-PL', cf. NHG [taːk] *Tag* vs. [taːgə] *Tage*), where the obstruent is no longer in coda position following the addition of an affix. Cod. 857's Hand III observes these principles, but one will notice that rather than voiceless ⟨p,t,ch⟩ [p,t,k/k͡x], the scribe uses voiced ⟨b,d,g⟩ [b,d,g] when words with an underlyingly voiced final obstruent are followed by a vowel-initial enclitic, as in (10).

(10) Lack of final devoicing of *mac* /mag/ and *gienc* /giə̯ng/ before clitic *=ez* and *=er*.

a. 240.29 ich ma**g**ez wol sprachen ane gvft.
I may indeed say, without exaggeration

b. 814.19 ich ma**ch** nv wol dvzzen dich.
I may now address you familiarly [i.e. with the informal 'du']

c. 132.19 do gien**g**er zv̊ dem bette san.
Then he went up to the bed

d. 566.02 do gien**ch** min her Gawan.
*Then my lord Gawain went**

Importantly, this does not occur with underlyingly voiceless obstruents or before vowel-initial words which are not clitics, demonstrating that this is truly blocking of final devoicing, rather than an assimilatory voicing before a vowel-initial word. This

alternation is governed by prosodic structures and not simply the presence or absence of a vowel-initial FNC. It is the result of the prosodic structure of these clitics: the ω is the domain of syllabification in German (consonants never resyllabify across an initial ω boundary, cf. Wiese 2000; Raffelsiefen 2000), so resyllabification and the consequent blocking of final devoicing (a postlexical rule in German, cf. Hall 1992; Wiese 2000)[11] can only happen within an ω, where there is no intervening $(_{\omega}$. In the nested ω structure proposed for plain clitics, this is predicted, as they are only separated by an ω-internal $)_{\omega}$: $((\text{LEX})_{\omega}=\text{FNC})_{\omega}$.

The crucial point is that this is true even if the clitics are not written together with the host and are separated by a space, providing us with a second diagnostic for vowel-initial FNCs.[12] For instance, we find ⟨gap⟩ in isolation (/gab/ 'give 3SG.PRET'), but never ⟨gapez⟩, ⟨gaper⟩ or ⟨gapen⟩ when enclitic *=ez*, *=er* or *=en* are added; instead we find ⟨gabez, gaber, gaben⟩ (e.g. ll.541.01, 572.02, 714.15). The use of the ⟨b⟩ also far outweighs ⟨p⟩, even when clitics are not adjoined orthographically, e.g. (11)a–c. However, we still find ⟨gap⟩ before vowel-initial prepositions when cliticisation does not occur, as when *gap* is unstressed and the FNC is stressed or it cannot encliticise, e.g. (11)d–f. This furthermore provides clear evidence for encliticisation of pronouns such as *ich*, *ir* and *iuch*, which are never written as orthographic enclitics and always follow a space, as illustrated in (12).

[11] This is in contrast to Dutch, where it is a word-level rule, according to Booij (1995).
[12] However, it is uninformative for C-initial clitics, such as *se*: ⟨sanchse⟩ (l.378.25 < *sanc=se* /sang/ + /siə̯/ 'sang=it').

(11) Examples of (a–c) lack of final devoicing before clitics which are not orthographically reduced or attached to the host and (d–f) final devoicing when the FNC is not cliticised. The orthography is taken from Cod. 857, but acute accents have been added to indicate stress placement.

a. 72.15 div gewńnen órs div **gáb** er ín.
((gab)$_{\omega}$=er)$_{\omega}$
*He gave them the steeds that had been won**

b. 201.15 er **gáb** in réhter máze téil.
((gab)$_{\omega}$=in)$_{\omega}$
He gave them a due and proper share

c. 335.27 er **gáb** im rícher chóste sólt.
((gab)$_{\omega}$=im)$_{\omega}$
He gave him rich expense's reward

d. 108.19 **gap** ér mit stǽte frívnden sín.
(gap)$_{\omega}$ (er)$_{\omega}$
He gave with constancy to his friends

e. 67.27 **gap** ín der kvnech vón Gascón.
(gap)$_{\omega}$ (in)$_{\omega}$
To him gave the King of Gascony

f. 141.16 ein bráchen séil **gap** ím dem pín.
(gap)$_{\omega}$ (im)$_{\omega}$
A bercelet's [i.e. a small hound] leash brought this grief upon him

(12) Lack of final devoicing of /b,d,g/ before enclitic *ich*, *ir* and *iuch*.

a. 507.14 má**g** ich índer vór ergáhen.
((mag)$_{\omega}$=ich)$_{\omega}$
If I can catch up with him before he gets there

b. 273.30 enpfíench den gá**b** ir Órilvs.
((gab)$_{\omega}$=ir)$_{\omega}$
*received: those Orilus gave her**

c. 72.16 án im lá**g** ir gróz gewín.
((lag)$_{\omega}$=ir)$_{\omega}$
Great was their gain by him

d. 99.10 ich má**g** ivch wól ergézzen sín.
((mag)$_{\omega}$=iuch)$_{\omega}$
I can readily compensate you for his loss

In addition to pronouns, the lack of final devoicing provides evidence for the encliticisation of adverbs, such as *ie* ('always'), conjunctions, such as *unt* ('and') and

ouch ('also'), and even unstressed prefixes, such as *er-* or *en-*. Such unstressed prefixes have long been acknowledged to have been rhythmically grouped with preceding words in Gmc., rather than their stem (see, for instance, Sievers 1893; Lahiri and Plank 2010, 2022) and they were even orthographically combined with preceding words in in Old English (e.g. Bögel 2020). There is general acceptance in the literature that a clear prosodic boundary exists between such unstressed prefixes and the stem to which they attach, although approaches differ with respect to the constituent which encompasses the stem and affix. Booij (1995) and Wiese (2000) favour the ω (AFFIX+(STEM)$_{\omega}$)$_{\omega}$, Raffelsiefen (2000) the clitic group (AFFIX+(STEM)$_{\omega}$)$_{CG}$ and Hall (1999, 2000) remaining agnostic, but implicitly favouring a higher prosodic constituent, e.g. (AFFIX+(STEM)$_{\omega}$)$_{\varphi}$. These unstressed prefixes thus essentially behave like a procliticised plain clitic; this being the case, they are predicted to encliticise rather than procliticise when they are φ-medial and preceded by a potential LEX host. This appears to be exactly what we find. Examples are provided in (13).

(13) Lack of final devoicing of /b,g/ before enclitic adverbs, conjunctions, prepositions and unstressed prefixes.

a. 605.30 mír mit vríden gíen**g** ie vór.
has always treated me peacefully

b. 238.08 man ságte mír diz sá**g** v̊ch ích.
They told me—and this I tell

c. 384.16 swém er líe**b** vnt hérceléit.
*To whom he [had brought] pleasure or heartache**

d. 253.14 er má**g** ergézzen ívch genv̋ch.
He can compensate you amply

e. 642.28 do sí ce hóve vrló́**b** enpfíench.
Having received leave from the court's lord

If one assumes that FNCs are only cliticised when they are contracted orthographically, a whole range of enclitics are missed. This is why metre must be considered

over orthographic practice, which is often influenced by non-prosodic and extralinguistic factors. Encliticisation is thus the norm, and evidence from metre and final devoicing is key in identifying such structures.

3.2.2 The case of *ze*: Are MHG prepositions enclitic or proclitic?

Attention must now be turned to the question of the preposition *ze* (/t͡sə/ 'to', the reduced form of *zuo* /t͡suə̯/), which requires further discussion. Despite the strong evidence for the left-leaning rhythmic grouping of function words, this preposition, at first blush, appears to work in precisely the opposite manner, leading the grammars to suggest that such prepositions by default procliticise. In Cod. 857, for instance, it is written together with a following word more frequently than a preceding one, with Hand III particularly reluctant to combine *ze* with a preceding word, even where it is required by the metre, e.g. l.374.29: *ûzem lánde=ze Tríbalibôt* (⟨ůzem lande ze Tribalibot⟩ 'from the land of Tribalibot'). However, as will be demonstrated, this is a distorted picture, resulting from an assumption that the prosodic patterning is transparently reflected in the orthography via contraction. As will be demonstrated, leftwards attachment is the norm for prepositions as well as pronouns, as a careful consideration of the metre reveals. Scribes often wrote in line with the syntax or poetic metre due to orthographic pressure, rather than because this reflected the spoken prosody of the natural language. In any case, encliticisation of *ze* is more prevalent in other MSS, particularly in forms such as *nihtze* ('not too') and orthographic 'procliticisation' has more to do with legibility and the avoidance of ambiguity.

It is suggested here that the unusual behaviour of *ze* is due to the environment in which it typically occurs, due to syntactic constraints: preceding a verb or noun (usually with initial stress) and following a syllable which is unlikely to be stressed (or be phrase-initial), i.e. precisely those environments where procliticisation is expected: $(\text{FNC}{=}\omega_{\acute{\sigma}\sigma}...)_{\varphi}$ or $(... \ \omega_{\acute{\sigma}\sigma} \ \text{FNC}{=}\omega_{\acute{\sigma}\sigma}...)_{\varphi}$. For instance, in all 683 instances

of reduced *ze* in Cod. 857, it is never φ-final, but it is often φ-initial (being in absolute line-initial position in 125 cases). Furthermore, it almost never precedes words which are likely to be reduced, and even then, they are unlikely to exhibit contraction.[13] In the whole poem, only five weakly stressed particles follow *ze*, and only once are they written together: ⟨zenihte⟩ (where *nihte* is stressed and *ze* follows a pronoun). The only prepositions following *ze* form a compound and are thus also stressed, e.g. *gegenstrîte* ('counter-charge'). It never precedes forms of the auxiliary verbs SÎN 'be' or HÂN 'have', which are typically weakly stressed, and it only rarely precedes a pronoun.[14] Of these, *ze* is only written together with SÎN ('his'), KEIN ('no'), *disem* ('this DAT.SG.M/N') and *mir* ('1SG.DAT'). Setting aside those which are φ-initial, it combines with *mir* three times, KEIN twice and SÎN five times.

The preposition *ze* only combines with forms of KEIN when they are stressed and *ze* follows an unstressed syllable. The pronoun *mir* is more strongly stressed in all cases, such as l.22.07, where it is contrastively focused in opposition to *dir* (and thus a stressed ω). Indeed, the examples of ⟨zemir⟩ ('to me') may all result from emphatic stress, resulting in the insertion of a φ boundary before the preposition, e.g. l.110 ⟨wie hat der tot zemir getan⟩ ('how [badly] death has done *by me*!'). In the case of SÎN forms, *ze* follows an unstressed syllable and seems to elide its vowel, resulting in the bare consonant /t͡s/ procliticising to the following stressed syllable, as in (14). The fact that the first syllable of *sîmer* is stressed in this example is reflected in the use of the circumflex accent (otherwise omitted, see Chap. 4).

(14) 247.14 / | x / | x / | x /
/wi. dər t͡s= ˈsiː. mər ˈor. sə ˈsaːn/
⟨wider ze͡sîmer orse san⟩
back at once to his charger

[13] Definite articles following *ze* without contraction are all stressed demonstrative pronouns or else form a monosyllabic $(\text{FNC=FNC})_{\omega}$ fused form which has been written as separate words.

[14] *Ze* only precedes a pronoun 35 times, and these are all disyllabic forms of the possessive or demonstrative pronouns MÎN 'my', SÎN 'his', KEIN 'no' or *disem* 'this DAT.SG.M/N', as well as a few tokens of *mir* '1SG.DAT' and *dir* '2SG.DAT'.

In contrast, the reverse is true of words to the left of *ze*: it almost always follows words which in the natural language are likely to be reduced or weakly stressed, often cliticised themselves, as illustrated in Figure 6.5.

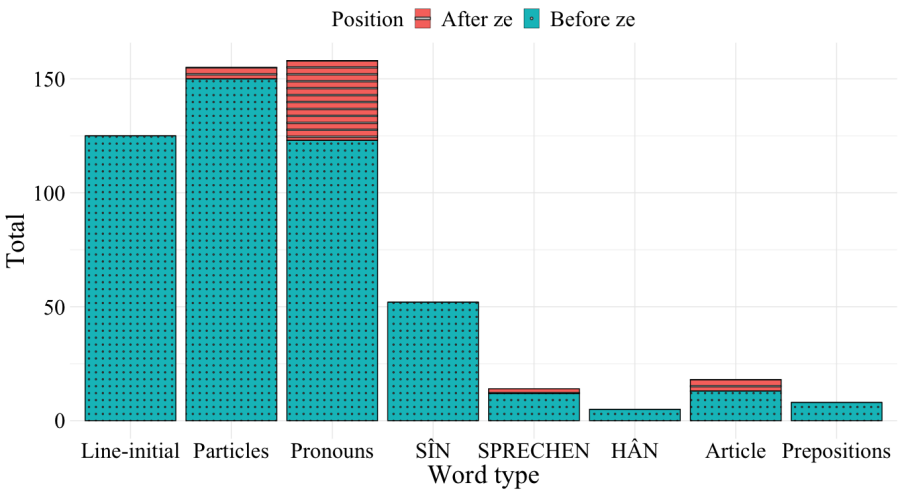


Figure 6.5 Number of the 683 instances of *ze* which are line-initial or preceded by one of several categories of words which are typically unstressed or very weakly stressed.

If one looks more closely at the data and considers only instances where *ze* has been written in contact with the following word, it can be seen that this pattern is maintained; in other words, one finds *ze* by the nature of the syntax more often after a FNC or weakly stressed LEX and it is precisely in this context where *ze* is more likely to be adjoined to the following word. Of the 131 words identified, 104 fall into one of these categories, as illustrated in Table 6.10.

Of the remaining words, 13 end in an unstressed syllable and 14 in a stressed syllable. In all cases, other than the stressed possessive pronouns described above, the words to which *ze* attaches are LEXs (i.e. full content words) with initial stress. Taken in combination with the fact that *ze* is invariably preceded by a high-frequency, weakly stressed word or FNC word (which may itself be cliticised to a host to its left),

Table 6.10 Number of 131 instances of 'procliticised' *ze* which are line-initial preceded by one of several categories of words which are typically unstressed or very weakly stressed.

	Before *ze*
Line-initial	11
Particles	40
Pronouns	36
Forms of SÎN 'be INF'	13
Forms of SPRECHEN 'speak, say INF'	0
Forms of HÂN 'have INF'	0
Definite article	0
Prepositions	4

or a φ boundary (e.g. line-initially), the predictions outlined above explains the apparently exceptional behaviour of *ze* in appearing to cliticise more often to the right than other clitics (which almost exclusively lean to the left). We therefore do not need to assume—as the MHG grammars suggest—that clitics will either encliticise or procliticise based on the word class of neighbouring words (e.g. finite verb/noun) or the clitic itself (e.g. pronoun/preposition). Nor does *ze* provide counterevidence to the claim that cliticisation in Germanic is by default left-leaning. Procliticisation is not the norm (as suggested by Paul 2007) and prosodic grouping is not isomorphic with syntactic phrasing. The preposition *ze* is not fundamentally different in its behaviour to the other clitics, but the prosodic environment in which it typically appears often forces it to lean rightwards, as the preceding word is not typically a possible host; when it is written together with the following word, it is not that it is being grouped in line with the syntax *per se*, but this instead results from the same general tendencies as all clitics when they are not preceded by a possible host.

In addition to this, there appears to be evidence that *ze* did in fact frequently encliticise in MHG, but that this is only very rarely reflected in the orthography. This is likely due to a combination of factors, including (i) the desire to ease legibility and avoid ambiguity, (ii) the idiosynchratic behaviour of individual scribes and (iii) due to frequent collocations in certain common phrases, such as *ze vuoz* (⟨ cefv̊z, ce fv̊z⟩,

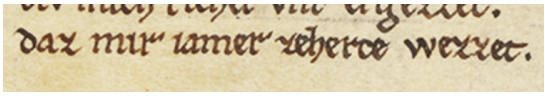
'by foot', cf. NHG *zu Fuß* [t͡sʊˈfuːs]), which must be the root of forms such as NHG *zusammen* ('together' < MHG *zesamen(e)* < OHG *zisamane*).

Perhaps the most important consideration in terms of the lack of orthographically encliticised tokens of *ze* in the MHG monuments is the potential for ambiguity, simply as a result of the orthographic conventions of MHG. Following the Second Sound Shift, Gmc. /*t/ became /t͡s/ word-initially, following another consonant or if the Gmc. stop was a geminate. In MHG orthography, the letter ⟨z⟩ is used to represent this affricate in word-initial position and after a consonant, e.g. *zil* /t͡sil/ 'goal'; *stolz* /stolt͡s/ 'proud'. Elsewhere, however (i.e. postvocalically), ⟨z⟩ is used to denote the sound /s/ (at this point still a distinct phoneme from the sibilant represented by ⟨s⟩, likely a retracted /ʂ/, although the precise phonetic quality is unclear cf. Jones and Jones 2019, 33), including geminates, e.g. *daz* /das/ 'that', *lâzen* /laːsən/ 'let, allow INF', *wazzer* /wasːər/ 'water'. In cases where an affricate follows a vowel (i.e. the Gmc. geminate /*tː/), this is represented with ⟨tz⟩, e.g. *witze* /wit͡sə/ 'reason, wit'. However, when the pronoun *ez* ('it') is encliticised, it is represented as ⟨ez⟩ or simply ⟨z⟩ (/əs, s/); similarly, encliticised *daz* ('that, the') is represented as ⟨z⟩ (/s/). As such, if *ze* were orthographically encliticised to a vowel-final word, it would likely be read as /s/. Furthermore, if it were attached to a consonant-final word, it would be highly ambiguous as to whether it represented *ze*, *daz* or *ez*. Consider, for example the forms ⟨siz⟩ (*sie=ez* [zɪs] 'she=it') and ⟨trvgenz⟩ (*truogen=daz* [truo̯gəns] 'carry, take=it'). Furthermore, if *ze* were written together with *her* ('from away'), the resulting form ⟨herze⟩ would be spelt identically to ⟨herze⟩ ('heart').

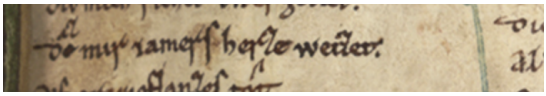
The suggestion that MHG scribes found encliticised *ze* orthographically ambiguous and avoided it in writing finds support in the fact that Hand III of Cod. 857 was apparently working from an exemplar manuscript which regularly *did* orthographically combine encliticised *ze* and a preceding word (with no intervening space), but that Hand III would separate these in order to improve legibility (cf. Martin

[c.1210]/1900, ix). This can be seen in the error made in l.616.10 ⟨iamer zeherce⟩, which demonstrates that the exemplar MS must have had ⟨iamerz⟩ with an encliticised *daz*, which was misinterpreted by the scribe as an encliticised *ze* and 'disambiguated' by placing it with the following word. If the preposition has been reduced and cannot form a weak beat in the verse foot, but cannot be combined with the preceding word either (for orthographic reasons), the scribe is obliged to attach it to the right to avoid obscuring the metre of the verse. This line is correctly rendered in Cgm. 19, although it seems to have caused this scribe trouble, too, as the line involves two corrections: one correcting an initial ⟨do⟩ to ⟨daz⟩ and a second where earlier material ⟨iamer::herze⟩ has been erased and replaced with ⟨rs⟩, possibly correcting the same mistake as in Cod. 857. These lines are illustrated in (15).

(15) Example of enclitic *daz* being misintepreted as *ze* in (a) Cod. 857 (86r), contrasted with (b) Cgm. 19 (51r): l.616.10.

a. 

/ | x / | x / | x / [x]
daz mir ia. mer ze= her. ce wez. zet.
the sorrow that whets my heart

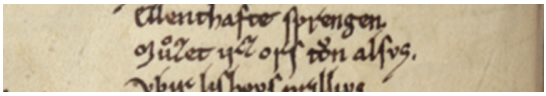
b. 

/ | x / | x / | x / [x]
daz mir ia. mer=s her. ze wet. zet.
the sorrow that whets my heart

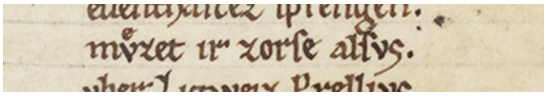
A similar mistake in Cgm. 19 (l.602.05) suggests a comparable state of affairs: ⟨Můzet irz ors tovn alsvs⟩. Here, the error goes in the other direction, with the scribe misinterpreting an enclitic ⟨z⟩ as *daz* instead of *ze*, leaving it as it is. The word *ors* 'steed' is a neuter noun, meaning that a *daz* reading is not ruled out grammatically, but the scribe is forced to add in *tuon* ('do') to make the line scan and make sense (by reading ⟨irz⟩ as /irs/, rather than /irt͡sə/, *ors* comes to occupy a weak beat and a new

syllable must be added to occupy the missing strong beat. In this case, Cod. 857's Hand III correctly identifies this clitic as *ze*, but again removes ambiguity by attaching it rightwards, as illustrated in (16). Here, however, the metre demonstrates that the preposition should be syllabic, even though its vowel is elided orthographically.

(16) Example of enclitic *ze* being misintepreted as *daz* in (a) Cgm. 19 (47v), contrasted with (b) Cod. 857 (84r): l.602.05.

a. 

/ | x / | x / | x /
Mů. zet ir=z ors tǒn al. svs.
*you must, thus upon your steed**

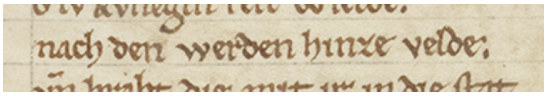
b. 

/ | x / | x / | x /
mv̊. zet ir z[e]= orse̲ al. svs.
*you must, thus upon your steed**

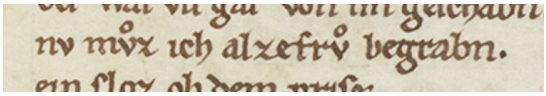
In addition to such differences, the habits of each scribe tend to be idiosynchratic in terms of this preposition, due to the difficulties already mentioned in representing an encliticised *ze*. Cod. 857's Hand III, as illustrated above, appears reluctant to write *ze* together with preceding words, although there are examples, such as ⟨hinze⟩ (*hin=ze* [hɪn͡tsə] 'out to' l.93.24) or *alze*+ADJ, which is sometimes written as a single unit (or with all three words very close together), e.g. ⟨alzefrv̊⟩ (*al=ze=vruo* /alt͡sə͡fruə̯/ 'all too early', l. 160.16), where ambiguity is not a problem, as illustrated in (17). In contrast, *ze* is much more commonly attached to words to the left in Cgm. 19, particularly *niht*, *hin* and *her* when stressed, e.g. *nihtze hoch* (l.151.02) or *hinze ir hvs* (l.647.18), where we find a sequence of two clitics, *hin=ze=ir* ('over to her'), as the metre demonstrates (despite the gap between the preposition and the pronoun), as illustrated in (18). This demonstrates that prepositions and pronouns could form clitic sequences just as easily as multiple pronouns. The reason we only rarely see this in

Parzival is due to the strict binary alternation in the metre (the two clitics must be able to form a single syllable through elision to meet the demands of the verse metre). Indeed, the pronoun is absent from this line in Cod. 857. Note that in such cases, the preceding word is a LEX or a stressed FNC occupying a strong position in the line (and therefore an ω) and that in all of these cases, *ze* follows a consonant and thus unambiguously represents /t͡s/.

(17) Leftwards attachment of *ze* in Cod. 857: (a) l.93.24 (Cod. 857, 13v) and (b) l.160.16 (Cod. 857,).

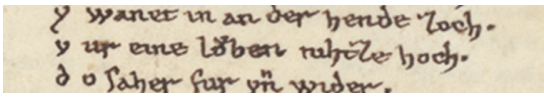
a. 

/ | x / | x / | x / [x]
nach den wer. den hin. =ze vel. de
*out to the field to the noble ones**

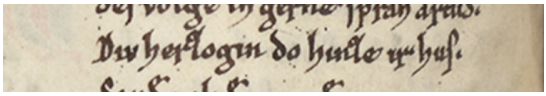
b. 

x / | x / | x / | x /
Nv mv̊z ich al. =ze. frv̊ be. grabn.
*Now I must all too early bury**

(18) Leftwards attachment of *ze* in Cgm. 19: (a) l.151.02 (Cgm., 13v) and (b) l.674.18 (Cgm., 56v).

a. 

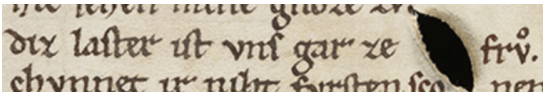
x / | x / | x / | x /
vur ei. ne lo̊. ben niht. =ze hoch.
Leading him past a gallery, none too high

b. 

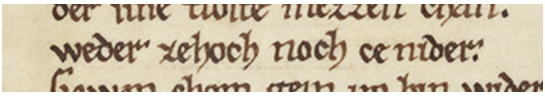
x / | x / | x / | x /
div her. zo. gin do hin. =ze̲ ir hvs.
The duchess then [sent] over to her house

The evidence therefore strongly suggests that the lack of orthographic encliticisation of *ze* is misleading, leading to an erroneous impression that procliticisation is the norm for such words. Earlier manuscripts of *Parzival* appear to have featured this much more prominently, but the surviving monuments avoid this for reasons of legibility. There is significant variation across manuscripts (and even within a single manuscript), but it is certain that the presence of a space between a function word and the preceding word does not indicate a lack of cliticisation. Indeed, there is substantial evidence that encliticisation is the norm, even with prepositions. In this way, a FNC will encliticise by default, unless this is prevented by either (i) a φ boundary or (ii) the previous word ending with an unstressed syllable which is not itself a clitic and cannot be elided, in which case it will be forced to procliticise to a following initially-stressed word. These two circumstances are illustrated particularly clearly in (i) l.597.19 and (ii) l.696.28 (19). The former comprises two balanced phrases either side of a medial caesura, both featuring a clitic *ze*. The procliticised *ze*—following an $\omega_{(\acute{\sigma}\sigma)}$—is written together with the following *h*-initial word, suggesting procliticisation and elision of the vowel (cf. Halle and Keyser's 1966 principles for iambic metre in Chap. 3, Sect. 3.1, (2)). In contrast, the second *ze* ⟨ce⟩ encliticises to the preceding stressed syllable, *noch*, but retains its vowel (occupying a weak beat in the line) and thus has a space to either side (to avoid ⟨nochce⟩/⟨nochz(e)⟩). In l.696.28, ⟨ce⟩ is line-medial, but φ-initial, as indicated by the preceding dot, which is used by the scribe to indicate phrasal breaks, particularly before reported speech or a φ beginning with a function word. In this example, the final vowel of *geben* is elided and *ze* occupies a full weak beat. The dot underscores the fact that it is not encliticising leftwards in this context. A final example provided in (19), suggesting that *ze* is commonly more closely associated with the preceding word than the following is in l.415.20, where the line is split by a hole in the vellum and the scribe chooses to place *ze* on the left side of the hole, rather than with the following word, ⟨frv̊⟩, with which it often collocates.

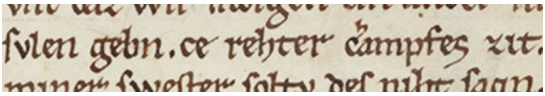
(19) Examples indicating that a space in Cod. 857 does not indicate a lack of cliticisation: (a) l.415.20 (Cod 857, 58r), (b) 597.19 (Cod 857, 83v) and (c) 696.28 (Cod 857,).

a. 

x / | x / | x / | x /
diz la. ster ist vns gar ze frv̊.
This disgrace has [come upon us] far too early

b. 

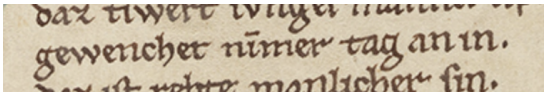
/ | x / | / | x / [x]
we. der ze= hoch noch ce ni. der.
*neither too high, nor too low**

c. 

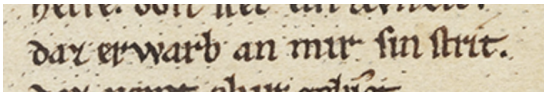
x / | x / | x / | x /
svl en gebn . ce reh. ter cham. pfes zit.
*should give, at the proper time of battle**

Due to the segmental shape of *ze*, beginning with a voiceless obstruent and ending with a schwa, we cannot draw conclusions based on the voicing of preceding stops. However, this is possible with other prepositions, such as *an* (/an/ 'on, to'), or conjunctions, such as *unt* (/und/ 'and'), which are not discussed in the literature on cliticisation in MHG, due to the lack of contracted examples. However, the patterns of voicing of preceding underlyingly voiced obstruents demonstrate that these vowel-initial FNCs were encliticising, despite being written with a space between the FNC and its host. For instance, we frequently find underlying /b,d,g/ written with ⟨b,d,g⟩ before *an* in unstressed position, despite final obstruent devoicing leading these phonemes to be spelt ⟨p,t,c⟩ elsewhere, as in the examples in (20), where we find ⟨erwarb, vnd, tag⟩, rather than ⟨erwarp, vnt, tac⟩.

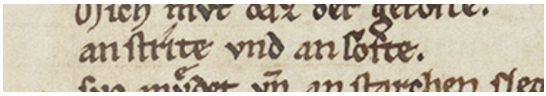
(20) Evidence from the lack of final devoicing, suggesting the encliticisation of *an* (a vowel-initial preposition) in (a) l.172.11 (Cod 857, 24v), (b) 545.14 (Cod 857, 76r) and (c) 743.10 (Cod 857, 103v).

a. 

x / | x / | x / | x /
ge. wen. chet nī. mer tag =an in.
Never waver in relation to them for a single day

b. 

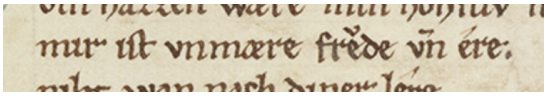
/ | x / | x / | x /
daz er. warb =an mir sin strit.
*his fighting won that from me**

c. 

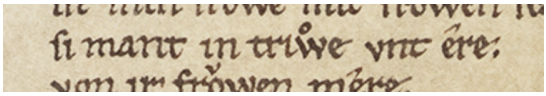
x / | x / | x / [x]
an strî. te vnd =an lŏf. te.
by the battle and by the running

In a similar way, evidence for the fact that FNC words (including conjunctions) will associate leftwards unless they are preceded by a φ boundary is neatly presented by the conjunction *unt*, which, in line with final devoicing and the usual conventions of MHG spelling, is spelt with a final ⟨t⟩, despite its underlying /d/. Compare, for example (21)c (where the dot indicates a φ boundary and unstressed *und* must thus procliticise) with (21)a–b, where *und* encliticises following an elided schwa. The fact that it does not end with ⟨d⟩ before vowel-initial words generally, but only in this specific context (or when a vowel-initial FNC encliticises to it, as in (20)), demonstrates that this is the result of it forming an ω with the following word, rather than this being simply an example of feature-spreading from the following vowel.

(21) Examples contrasting (a–b) encliticised *unt* in l.428.11 (Cod. 857, 60r) and l.686.21 (Cod. 857, 95v), following a schwa and with final devoicing, with (c) procliticised *unt* in l.742.22 (Cod. 857, 103v), after a φ boundary (with no final devoicing).

a. 

x / | x / | x / | x / [x]
mir ist vn. mæ. re frẽ. de̲ =vn̄ ê. re.
Joy and honour are indifferent to me

b. 

x / | x / | x / [x]
si mant in tri[v][15] [w]e̲ =vnt ê. re.
*she urged him loyalty and honour**

c. 

x / | x / | x / [x]
wan frẽ. de . sæl. de . v̲nd= ê. re.
[no more] than joy, fortune and honour

Given that orthography is by its nature conservative, a reliance on orthographic contractions in prose documents thus gives a very misleading picture. Even in poetry, where contractions are motivated by the metre of the verse, there is a complex web of interacting factors which affect the orthographic representation of enclisis and can obscure the true patterns, even resulting in apparent *pro*clisis. One must thus rely on metre to identify the facts of cliticisation. On closer inspection, we find that even prepositions, so often mistakenly assumed to procliticise, in fact appear in the unmarked case to have leaned to the left and done so far more frequently than the orthography alone would suggest.

[15]The scribe uses ⟨iẘ⟩ to represent /yːw/. The transcription has been amended here to ⟨ivw⟩, reflecting the scribe's spelling of /yː/ elsewhere (and Cl-MHG orthography), in order to indicate proper syllabification.

4 Morphologised clitics

The archetypal morphologised clitics are reduced definite articles in German *Verschmelzungsformen* (VFn). These 'fused forms'—arising in OHG and characteristic of both NHG and MHG—result from the encliticisation of the article to a preceding function word, e.g. [t͡sʊm] (< *zu=dem* 'to the'). In contrast to plain clitics, morphologised clitics exhibit complex behaviour and are phonologically opaque. Wiese (1988, 2000) argues that they too are synchronically derivable via deletion rules, but that these rules are lexical, as opposed to the postlexical reduction rules which result in plain clitics. However, the wider consensus in the literature is that they are lexically stored and not synchronically derivable from their full forms. Either way, there is an asymmetry and although it does not appear that the reduced forms of the morphologised clitics are synchronically derived, his intuition that the morphologised clitics are attached at the lexical level and plain clitics at the postlexical level appears to be correct. This section will first present a new account of the prosodic representation of VFn, involving morphologised clitics, which is able to account for the variation and constraints observed in their behaviour. Sect. 4.2 will then discuss the prosodic representation of such forms in MHG.

4.1 Morphologised clitics in NHG

The literature is mixed in its treatment of morphologised clitics in relation to several key questions: (i) what is the status of (FNC=FNC) forms as a constituent?; (ii) how are (FNC=FNC) forms integrated into the φ?; and (iii) how do (FNC=FNC) forms behave when they are not φ-initial? Although morphologised clitics, in the form of (preposition=definite article) VFn, have drawn some attention in the literature, few accounts address these questions directly or distinguish this process from plain cliticisation. Whilst (FNC=FNC) forms have long been acknowledged to form a single phonological

unit (e.g. Wurzel 1970b), the precise nature of this constituent has remained a perplexing issue, with some authors, such as Lahiri and Plank (2010, 2022), Lahiri and Sytsema (2018) and Bögel (2021), suggesting that morphologised clitics form a recursive ω, just like plain clitics. In contrast, neither Wiese (1988, 2000) nor Hall (1999) address the issue, although the latter (claiming that prepositions are LEXs, rather than FNCs) seems to predict a single ω with flat structure, as in Wurzel (1970b). Wiese (2000) explicitly leaves this question open, although he does claim that VFn are maximally disyllabic, with the reduced determiner integrated into the previous word as a 'weak node':

> Man kann den Schluß ziehen, daß die Verschmelzungen im Deutschen maximal zweisilbig sind. Dadurch werden alle Verschmelzungen bei zweisilbigen Präpositionen ausgeschlossen, zu deren Bildung der Artikel eine eigene Silbe erfordert. Dies erlaubt *übers* und *über'm*, aber nicht **über'e* und **über'r* (Wiese 1988, 182).[16]

This is echoed by Nübling (2005), who mentions the apparent desire to form a trochee (but does not elaborate further). Such observations appear to be making reference (at least implicitly) to a *syllabic* trochee. This is able to explain the absence of certain possible structures, but is at odds with the metrical structure of the language, which is certainly weight-sensitive (cf. Chap. 2, Sect. 3.2.2). However, this is not a challenge for the present account, which assumes an uneven moraic trochee, in the form of a recursive F. Nevertheless, in distinguishing between clitic pronouns and VFn, suggesting that the latter are maximally disyllabic and involve *lexical* reduction rules (as opposed to the *postlexical* reduction rules which produce weak pronoun forms), parallels may be drawn between Wiese's (1988) analysis and the present account, which claims that morphologised clitics are attached prior to the postlexical component and are integrated into the host's foot structure.

[16] 'One can conclude that the fused forms in German are maximally disyllabic. This thus rules out all fused forms with disyllabic prepositions for which the article requires its own syllable. This permits *übers* and *über'm*, but not **über'e* or *über'r*.'

Kabak and Schiering (2006) and Itô and Mester (2009) argue that VFn form a foot and provide accounts of their integration into larger prosodic units, although their analyses differ. Furthermore, they do not address the precise nature of the foot, which must therefore be able to comprise ($\bar{\sigma}$), ($\breve{\sigma}\breve{\sigma}$) *and* ($\bar{\sigma}\breve{\sigma}$) sequences. The former suggest that (FNC=FNC) forms are always φ-initial and dominated directly by a φ: $((\text{FNC}=\text{FNC})_{\text{F}}=(\text{LEX})_{\omega})_{\varphi}$ (largely due to theory-internal criteria, such as the rejection of recursivity; see also Hall 1999). Notably, this requires that an F exist independently of an ω, dominated instead by a higher constituent. In contrast, Itô and Mester (2009) (assuming recursive structures to be possible), suggest that such forms result in a nested ω with a $(\text{LEX})_{\omega}$ host, effectively cliticising in the same way as a plain clitic, but adjoined as an F rather than a σ: $((\text{FNC}=\text{FNC})_{\text{F}}=(\text{LEX})_{\omega})_{\omega}$.

Itô and Mester (2009) are distinct in proposing that such forms cliticise to a LEX host and are not directly dominated by a φ. However, they make no mention of reduction and these forms seem to retain their status as an F. Furthermore, they seem again to take for granted that such forms are phrase-initial and by default procliticise. As discussed in Sect. 3.1, a great deal of confusion has resulted from the suggestion that there is an isomorphic relationship between syntactic and phonological mapping, or edge-alignment (e.g. Selkirk 1996). Most notably, it is difficult to explain why it should be the case that we find definite articles encliticising to a preceding FNC rather than a following $(\text{LEX})_{\omega}$ (a fact that puzzles authors such as Kabak and Schiering 2006). Morphologised clitics thus further underscore the left-leaning nature of cliticisation in German. All of the accounts mentioned are silent on what would happen when these forms are phrase-medial, between two LEXs. The suggestion here is that such forms may then cliticise, although, in contrast to Itô and Mester (2009), they will cliticise *leftwards* and must be reduced to a single light syllable, otherwise projecting an ω (cf. Sect. 1). The various arguments are summarised in Table 6.11 (repeated from Sect. 1).

Table 6.11 Various treatments of morphologised clitics, e.g. [aʊ̯fm̩baːnhoːf] *auf'm Bahnhof* < *auf=dem Bahnhof* 'at the train station'. This table provides the structure proposed by each author for (FNC=FNC) forms (i) in isolation, (ii) φ-initially, preceding a $(\text{LEX})_{\omega}$ and (iii) φ-medially, with a $(\text{LEX})_{\omega}$ to either side.

	FNC=FNC	FNC=FNC LEX	LEX FNC=FNC LEX
Kabak and Schiering (2006)	$(\text{FNC=FNC})_{\text{F}}$	$((\text{FNC=FNC})_{\text{F}}\ (\text{LEX})_{\omega})_{\varphi}$	?
Itô and Mester (2009)	$(\text{FNC=FNC})_{\text{F}}$	$((\text{FNC=FNC})_{\text{F}}\ (\text{LEX})_{\omega})_{\omega}$	?
Wiese (2000)	$(\text{FNC=FNC})_{\text{F}}?_{\omega}?$	—	?
Wurzel (1970b)	$(\text{FNC=FNC})_{\omega}$	—	?
Lahiri and Plank (2010)	$((\text{FNC})_{\omega}\text{=FNC})_{\omega}$	$(((\text{FNC})_{\omega}\text{=FNC})_{\omega}(\text{LEX})_{\omega})_{\varphi}$	?
Bögel (2021)	$((\text{FNC})_{\omega}\text{=FNC})_{\omega}$	$(((\text{FNC})_{\omega}\text{=FNC})_{\omega}(\text{LEX})_{\omega})_{\varphi}$	?
Hall (1999)	$(\text{LEX=FNC})_{\omega}$ [a]	—	?

[a] (Hall 1999, 101) considers German prepositions to be lexical words, not function words at all. He does not discuss other [FNC=FNC] combinations, but they would presumably form a single ω with flat structure in his analysis: $(\text{FNC=FNC})_{\omega}$.

Whilst such phonological accounts do exist, much of the literature on VFn has focused on accounting for them in terms of morphosyntax (e.g. Nübling 1992, 2005, 2010) or as inflected prepositions (e.g. Hinrichs 1986; Schiering 2005). However, this overlooks the fact that much of their complex behaviour stems from their phonology, which is essential in accounting for the mismatch between the direction of cliticisation and syntactic phrasing. Morphosyntactic accounts typically struggle to account for the facts summarised in (22), or the fact that definite articles inflected for different morphosyntactic features exhibit differing degrees of resistance to forming fused forms, as demonstrated by the scale in Figure 6.6. However, all of these generalisations can be argued to follow from prosodic structure, as this section will demonstrate.

(22) Characteristics of VFn which have been problematic for morphosyntactic accounts.

a. VFn can be obligatory or ungrammatical, depending on the preposition and the article and their role in a sentence.
b. VFn never involve *die* or *der* in the standard (with the notable exception of *zur*),
c. VFn are most frequently found with =*s* and =*m*

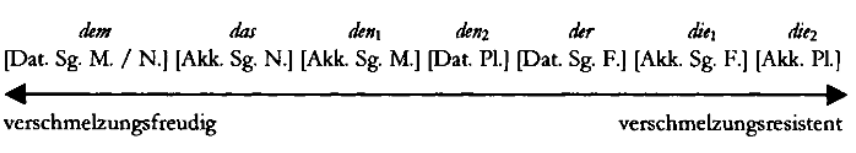


Figure 6.6 Preference scale, from most *verschmelzungsfreudig* ('readily fused') to *verschmelzungsresistent* ('resistant to fusion'), reproduced from (Nübling 2005, 117).

For a comprehensive overview of the data, the reader is directed to Nübling (2005) and Wiese (1988) in particular, who present detailed descriptions of the behaviour of (preposition=article) VFn; the former from a morphosyntactic perspective (focused on issues of grammaticalisation) and the latter providing a phonological account. The number of possible forms provided by *Duden* (in Wiese 1988, 179) are provided in Table 6.12. However, this is the conservative national dictionary which represents only standardised NHG, and a much greater variety of forms are possible in colloquial speech and the dialects (see, for example, Schiering 2005 on Ruhrdeutsch).

Table 6.12 VFn in Modern Standard German (after Wiese 1988).

	dem (DAT.M/N)	das (ACC.N)	der (DAT.F)	den (ACC.M)
an	am	ans		
auf		aufs		
bei	beim			
durch		durchs		
für		fürs		
hinter	hinterm	hinters		hintern
in	im	ins		
über	überm	übers		übern
um		ums		
unter	unterm	unters		untern
von	vom			
vor	vorm	vors		
zu	zum		zur	

These forms therefore exist along a continuum, from the most lexicalised, frequent and even obligatory forms to those which are only possible in colloquial speech, dialects and ultimately fast speech rates, with increasing optionality and decreasing acceptability and frequency. To those forms which are most obligatory, even in the highest register (namely *am*, *im*, *beim*, *vom*, *zum* and *zur*), Wiese (1988) adds the

forms provided in (23). (23)a represents those prepositions which are followed by the accusative article *das* and (23)b those which are followed by the dative masculine/neuter and plural articles, *dem* and *den*. Although not obligatory or necessarily acceptable in the highest register, these forms are nonetheless listed as common combinations in *Duden* (where no apostrophe is required). None of these forms alter the syllable count or structure of the relevant preposition and are frequent and acceptable in colloquial speech (although they are all optional). To these may be added those forms in (23)c, which add a syllabic nasal.

(23) Common non-standard VFn, prevalent in the spoken language.

a. *ans, aufs, durchs, fürs, gegens, hinters, ins, übers, ums, unters, vors*
b. *außerm/n, hinterm/n, überm/n, unterm/n, vorm/vorn*
c. *auf'm, aus'm, durch'n, mit'm, vor'n*

The forms in (24)a (Wiese 1988) are less acceptable than those above (which Wiese ascribes to the gemination of /n/ or the final vowel), but are still common in the dialects and at fast speech rates. This is also true of the forms in (24)b, which add a schwa syllable. Of very questionable acceptability are forms such as *bei'r*[17] or *vor'r* and the forms in (25) are totally ungrammatical (Wiese 1988).

(24) Less acceptable non-standard VFn, mostly found at fast speech rates.

a. *in'n, an'n, zu'n, bei'n*
b. *an'e, in'e, auf'e, mit'e, durch'e*

(25) Ungrammatical VFn.

a. **zwischen'e, *über'e*
b. **hinter'r*

[17]These are most likely related to phonotactics. For instance, tautosyllabic /aɪ̯ʁ/ is non-occurring and /aɪ̯.ʁ/ only occurs in a small number of modern or historic compounds, such as [ˈt͡svaɪ̯.ʁaːt] *Zweirad* 'two-wheeler' or [ˈhaɪ̯.ʁaːt] *Heirat* 'marriage' (or as a result of elision, as in [ˈbaɪ̯(ə)ʁɪʃ] *bay(e)risch* 'Bavarian'). Following /aɪ̯/, /ʁ/ is thus always in onset position (never syllabic or in coda position, as here).

I suggest that the determiners are, in contrast to plain clitics, attached at the word-level (i.e. prior to the postlexical phonology), as their greater degree of lexicalisation would suggest (and accounting for their more affix-like behaviour). Rather than forming a recursive ω, as in Sect. 3, these clitics are prosodified into the same ω as the host, adjoined to an F rather than an ω. This difference is illustrated in Figure 6.7. Assuming the possibility of a minimally recursive foot in Germanic (see Chap. 2, Sect. 2.2), this explains why VFn should seem to make reference to disyllabic feet without abandoning weight sensitivity.

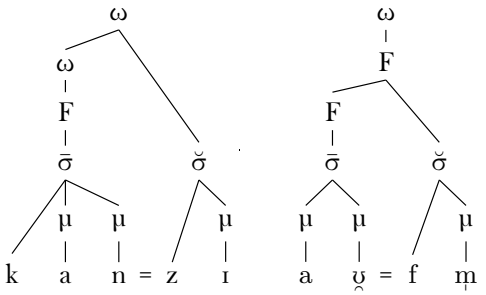


Figure 6.7 Prosodic representation of (a) [kanzɪ] (< *kann=sie* 'can=she.NOM/ACC') and (b) [aʊ̯fm̩] (< *auf=dem* 'on=DET.DAT.M/N').

These morphologised clitics can therefore either be attached to a light base to form a single heavy syllable (and thus a trochaic foot), as in $(\underset{\smile}{\text{ts}}\text{ʊm})_{\text{F}}$ (< *zu=dem*), adjoined as a single light syllable to a nested foot structure, as in $((\text{a}\underset{\frown}{\text{ʊ}})_{\text{F}}\text{fm})_{\text{F}}$ (< *auf=dem*), or attached to such a syllable in a disyllabic preposition, provided this does not result in an additional syllable, e.g. $((\text{ʊn})_{\text{F}}\text{tɐm})_{\text{F}}$ (< *unter=dem*). At fast speech rates, it is also possible to form less optimal $(\breve{\text{σ}}\breve{\text{σ}})_{\text{F}}$ 'allegroforms', such as $(\text{anə})_{\text{F}}$ (*an'e* < *an=die*) or $(\text{ɪnɐ})_{\text{F}}$ (*inner* < *in=der*). This explains why [m] and [s] are the most common and productive clitics: the former may follow a liquid in coda position without resulting in an additional syllable and the latter may follow sonorants or obstruents without beginning a new syllable (for the extrasyllabicity of /s/ in German, see Chap. 2, Sect. 3.2.1). In contrast, /ʁ/ may only follow a vowel, otherwise surfacing as a syllabic [ɐ]. As *zu*

('to') is the only CV preposition, the restriction of VFn incorporating the DAT.F article, *der*, to the form *zur* is predicted by foot structure. In contrast, forms such as */hɪntəʁɻ̩/ (< *hinter=der*) or */t͡sʏvɪʃənə/ (< *zwischen=die*) are precluded, as the addition of a syllabic /ɻ̩/ or /ə/ would result in a trisyllable (cf. Wiese 1988). Nor is this restricted to the feminine gender, also applying to the most '*verschmelzungsfreudig*' ('readily fused') article, *dem* ('DET.DAT.M/N'), e.g. */neːbənm̩/ (< *neben=dem*). Thus, [ə] (< *die* 'DET.DAT.M/N') is particularly rare, as it may only attach to monosyllabic prepositions (which more often take the dative than the accusative case) and in the case of VC prepositions, results in the less optimal [ŏŏ] structure, only possible at fast speech rates. This is summarised in Table 6.13.

Table 6.13 Possible and impossible F structures for morphologised clitics.

(σ́)	(t͡sʊm)$_F$	< *zu=dem*
(σ́σ̆)	((aʊ̯)$_F$fm̩)$_F$	< *auf=dem*
(σ́σ̆)	((ʊn)$_F$tɐm)$_F$	< *unter=dem*
(σ́σ̆)	(anə)$_F$	< *an=die*
*(σ́σ̆)σ̆	*(hɪntɐ)$_F$ʁ̩	< *hinter=der*
*(σ́σ̆)σ̆	*(t͡sʏvɪʃən)$_F$ə	< *zwischen=die*

It will be noted that monosyllabic VFn may be further reduced, as in the case of [t͡sʊm] or [t͡səm], which is sub-minimal and cannot form an F, allowing it to encliticise itself to a leftwards host as a plain clitic. This may also involve consonant reduction, as in [mɪm] < [mɪpm̩] < [mɪtm̩] (*mit=dem* 'with=DET.DAT.M/N'), [aʊ̯m] < [aʊ̯fm̩] (*auf=dem* 'on=DET.DAT.M/N') or [nam] < [naːxm̩] (< *nach=dem* 'after=DET.DAT.M/N'). This again suggests that morphologised clitics are formed prior to the postlexical phonology, underscoring the importance of F structure in cliticisation. Kabak and Schiering (2006) likewise suggest that VFn form an F, but are puzzled by the direction of cliticisation, as they reject the possibility of function words forming an ω (despite the fact that they must be able to under focus, at the very least). However, accepting leftwards attachment and considering these VFn to be formed in

the lexical component, projecting ωs (with the possibility of reduction) accounts for these patterns.

VFn thus have to form prosodically well-formed feet, with a preference for a heavy stressed syllable. Although disyllabic feet are possible, monosyllabic $(\bar{\sigma})_F$ forms such as [am] are preferable to disyllabic $((\bar{\sigma})_F\breve{\sigma})_F$ forms such as [hɪntɐm], as they may themselves be defooted and cliticised. Similarly, $(\breve{\sigma}\breve{\sigma})_F$ forms such as [anə] (< *an=die*) are less desirable after resyllabification than the $(\bar{\sigma})_F$ foot formed by the preposition alone, and trisyllabic $((\bar{\sigma})_F\breve{\sigma})_F\breve{\sigma}$ forms are ungrammatical. This preference scale is reflected in the degree of integration into the written standard language and dialects, with the $(\bar{\sigma})_F$ forms most lexicalised and obligatory, $((\bar{\sigma})_F\breve{\sigma})_F$ forms a colloquial or dialectal feature and always optional and $(\breve{\sigma}\breve{\sigma})_F$ forms a feature of rapid speech. The present analysis accounts for this preference scale in formal terms, unlike past accounts which have largely struggled to explain such observations.

(26) Preference scale for VFn.
Monosyllabic $(\acute{\sigma})_F$, e.g. [am] »
Disyllabic $((\acute{\sigma})_F\breve{\sigma})_F$, e.g. [hɪntɐm] »
Disyllabic $(\acute{\sigma}\breve{\sigma})_F$, e.g. [anə].
Trisyllabic *$((\acute{\sigma})_F\breve{\sigma})_F\breve{\sigma}$ or *$(\acute{\sigma}\breve{\sigma})_F\breve{\sigma}$ are ungrammatical, e.g. *[t͡svɪʃənə].

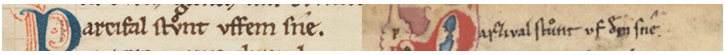
4.2 The mediaeval origins of the modern morphologised clitic

Again, these patterns have remained remarkably pertinacious through time. The earliest VFn arose in the OHG period, e.g. *zëmo* ('to DEF.DAT.M/N.SG'), extending to a greater number of prepositions in the MHG period. Although MHG MS forms were more varied than the modern standard, they nevertheless conformed to the same F structure constraints and were commonly orthographically represented, as in (27).

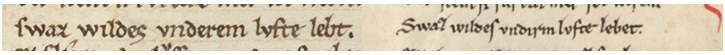
(27) Examples of VFn in MHG, from Cod. 857 and Cgm.19 (to the left and right, respectively).

a. 

Er gert ir anz venster dar.
'to=DEF.ACC.N' < *an=daz*
l.437.19: Cod. 857, 61r (left); Cgm. 19, 33r (right).

b. 

Parcifal stůnt vffem snê.
'on=DEF.DAT.M' < *ûf=dem*
l.459.01: Cod. 857, 64r (left); Cgm. 19, 35r (right).

c. 

Swaz wildes vndirm lvfte lebet.
'under=DEF.DAT.M' < *under=dem*
l.470.17: Cod. 857, 66r (left); Cgm. 19, 36r (right).

The definite article in German has its origins in the simple demonstrative *thër/dër*, which in OHG came to be used as both a relative pronoun and the definite article (Wright 1906, 66). Even in the OHG period, one encounters reduced variants in unstressed positions, especially when they are functioning as an article, e.g. ⟨the,de⟩ for *thiu* ('the NOM.F.SG; INSTR.SG; NOM/ACC.N.PL') and *thia/thie* ('the ACC.F.SG; NOM/ACC.M.PL'). Notably, disyllabic forms, such as *thëmo, thëru, thëra, thëro* ('the DAT.M.SG, DAT.F.SG, GEN.F.SG, GEN.PL') often appear in such contexts with their final vowel elided; represented by a dot below the line or else completely omitted (Braune 1987, 245). However, as Nübling (1992, 343) notes, the resulting forms ⟨them, ther⟩ only occur after prepositions and have nothing to do with the onset of the following word, instead representing the reduction of unstressed syllables. The first (FNC=FNC) fused forms thus appear to have arisen in the OHG period, when forms combining the highly frequent preposition *zi/za* ('to') with the definite article also appear in the textual record, as illustrated in (28).

(28) OHG contractions of *zi* + definite article.

a. *zëmo/zëm* < *zi thëmo* ‘to def.dat.m.sg’
b. *zëru/zër* < *zi thëru* ‘to def.dat.f.sg’
c. *zës* < *zi thës* ‘to def.gen.m/n.sg’
d. *zēn* < *zi thēn* ‘to def.dat.pl’

These forms demonstrate that *ze* and the article leant together, with the vowel quality and quantity in the fused forms suggesting elision of the preposition’s vowel, followed by consonant cluster simplification: [t͡si=dɛmo] > [t͡sd̥ɛmo] > [t͡sɛmo]. This implies procliticisation of *zi*, presumably in φ-initial position (cf. Sect. 3.2.2). However, the fact that the reduced forms ⟨them, ther⟩ appear after full *zi* indicates that the definite article was also at times encliticising to *zi*. The further reduction of [t͡sɛmo] to [t͡sɛm] lends further support to the claim that both FNCs were reduced, behaving as a single unit and weakening (or deleting) unstressed syllables.

In the MHG period, these forms appear to have become firmly established, by which time the preposition and adverb *zuo* were no longer distinct (as they had been in OHG): the MHG adverb always surfaced as unreduced *zuo* (not being a FNC), but the preposition surfaced as *zuo* when stressed and *ze* when reduced. This, in combination with the reduction of unstressed syllables which occurred in the transition to MHG, would have made the forms *zem* and *zer* less transparent and reanalysable as *ze=m* and *ze=r*, as illustrated by forms such as [t͡suo̯m(ə)] *zuome*, built on the strong form of the preposition (in contrast to the OHG forms). Once this pattern had become established, it became possible to extend these clitics to other forms, such as *in, an* etc. The reanalysis of [m] or [mə] (for example) as a reduced clitic form of the definite article thus accounts for the lack of the dental [d] in other VFn. That *zi* should have been the first fused form is thus unsurprising, as it ends in a short vowel, paving the way for elision and fusion.

Further evidence for the fact that such forms were reanalysed as a consonantal clitic can be found in the fact that they were spread to other prepositions as *-m(e)*, *-s*, *-n* and *-r*. As illustrated in Paul (Paul 2007, 31), we find evidence of intermediate stages, such as *anme* > *am(m)e* > *am* ('at DEF.DAT.M/N.SG') or *inme* > *im(m)e* > *im* ('in DEF.DAT.M/N.SG'). As Nübling (2005) notes,[18]

> Nach einsilbigen Präpositionen bleibt der Artikel zunächst silbisch (*ime, vorme* / *vorem, ûzme* / *ûzzem*), während er nach zweisilbigen Präpositionen gleich zu *-m* reduziert (mhd. *hinderm*, *underm*, *überm*), d.h. zuerst bilden sich Trochäen heraus, die dann (bei einsilbigen Präpositionen) monosyllabisch werden (*vorem* / *vorme* > *vorm*).

These observations thus provide early evidence that even in the MHG period—when the encliticisation of articles to prepositions was at a more experimental stage, with more forms permitted than in the modern standard (although not necessesarily the modern dialects)—these enclitic definite articles were already becoming morphologised, behaving as a single unit with their host and constrained by foot structure. Even in the OHG period, the presence of forms of *zër* and *zëm* suggests that there was a preference for monosyllabic forms, resulting in reduction and the deletion of unstressed vowels, presumably allowing the two FNCs to encliticise to a preceding LEX host.

4.2.1 The prosodic representation of VFn in MHG

This section further considers the prosodic representation of MHG VFn, e.g. *zem* < *ze dem* ('to=DEF.DAT.M.SG') and *ûfem* < *ûf dem* ('on=DEF.DAT.M.SG'). It is argued here that the structures observed in the modern language have their roots in the MHG metrical system and that the uneven trochee—which played such an important role in the mediaeval language, from Gmc. onwards—has remained remarkably pertinacious for such a marked structure. Most recent phonological literature considering (FNC=FNC) structures, such as Hall (1999) and Kabak and Schiering (2006), has focused on the

[18] Following monosyllabic prepositions, the article initially remains syllabic (*ime, vorme* / *vorem, ûzme* / *ûzzem*), whilst it immediately reduces to *-m* after disyllabic prepositions (MHG *hinderm*, *underm*, *überm*); in other words, they first construct trochees, then (with single-syllable prepositions) become monosyllabic (*vorem* / *vorme* > *vorm*).

synchronic language, but there has been growing interest in the historical development of such forms. However, such studies are typically syntactic or semantic in focus, at best making vague, passing claims about the role of phonology, such as Nübling's (2005) reference to VFn forming a 'trochee' in earlier stages of the language. Such arguments are furthermore largely corpus based, drawing solely on the orthography of prose manuscripts and overplaying the phonographic nature of manuscript spelling (e.g. Waldenberger 2020).

This section aims to address this gap, drawing on evidence from verse to demonstrate that VFn were more widespread in the MHG period than has previously been recognised and analyse their phonological representation, aiming to clarify (i) the default direction of cliticisation and (ii) the prosodic representation of VFn in MHG. In contrast to Nübling, who stresses the development of VFn along a grammaticalisation cline (from their origins as allegroforms to the plain and morphologised clitics found in contemporary NHG), the present research takes a prosodic perspective. As was described in Sect. 1, it is the position of this paper that recursivity within the ω is perfectly possible, meaning that, for plain clitics, a (host=clitic) sequence can be analysed as a recursive prosodic word with the structure $((\text{host})_{\omega}=\text{clitic})_{\omega}$. In the case of VFn, the picture is slightly more complex: as morphologised clitics, they are part of the same ω as their host, adjoined at the F level, rather than the ω. As such, the two function words together comprised an entire foot, meeting the bimoraic minimal word requirement of MHG (and were therefore capable of forming a prosodic word). However, VFn, headed by a FNC, could then themselves be reduced and encliticise to a LEX host as a plain clitic.

As MHG orthography can be unreliable (and often conservative), the best evidence for prosodic structure thus comes from poetry. Drawing again on Cod. 857, the present analysis focuses on the orthographic representation and metrical versification of (FNC FNC) sequences involving the cliticisation of the definite article to one of two

MHG prepositions: *zuo*, *ze* (/t͡sua̯, t͡sə/ 'to') or *in* (/in/ 'in'). These two forms were chosen because they are amongst the most frequent and highly lexicalised in NHG and are amongst the earliest to appear in the written record. Table 6.14 provides the numbers of occurrences of VFn with the forms of the definite article with which they most readily combined in MHG, according to whether they occupy one or two metrical positions in the line, and whether these were strong (/) or weak (x). In Cod. 857, these forms may be written separately or together (with and without orthographic vowel reduction).

Table 6.14 Metrical positions (strong [/] or weak [x]) occupied by (FNC FNC) sequences in *Parzival*.

	/ x	x /	/	x
zv̊ + dem	15	10	1	77
zv̊ + der	16	0	1	92
zv̊ + den	12	0	0	20
in + daz	15	0	5	15
in + dem	35	0	5	19

The manuscript evidence strongly suggests that encliticisation is favoured over procliticisation wherever possible. In the unmarked case (65%), the (FNC FNC) sequences investigated form a single syllable which occupies the weak branch of a verse foot (e.g. *zem*, *inz*, *ime*). This demonstrates not only that the two forms have combined, but that reduction has also occurred (or else these forms would project an F):

(29) a. 746.02 / | x / | x / | x /
Par. ci. fal **zem** hei. den sprach
Parzivâl to=DEF.DAT.M.SG heathen speak.3.SG.PRET

b. 454.19 [x] x / | x / | x / [x]
in. me ge. stir. ne mit si. nen ö. gen.
in=DEF.DAT.M.SG *constellation with his*-DAT.PL *eye*-PL

Furthermore, these cases do not always involve the graphemes being orthographically combined, and they may even be written with their strong form, as illustrated by (30). Here, the two words must occupy a single weak beat, excluding [t͡sua̯ deːm]

and indicating instead [t͡səm]. Indeed, this is the form that is found in Cgm. 19, where it is written ⟨zem⟩. This is important, as it illustrates that such cliticisation is not always reflected in the orthography, even where it is required by the metre, meaning that prose texts in particular are unlikely to provide a distorted (and much-underestimated) view of the prevalence of such cliticisation if it is assumed that they will always be orthographically represented.

(30) 484.26 / | x / | x / | x /
daz er niht **zů̊ dem** wir. te sprach
that he not to=DEF.DAT.M/N.SG host say.3SG.PRET

However, for rhythmic purposes (or due to focus or emphasis in natural language), a monosyllabic VF can occasionally form the head of an F and project an ω, as in (31)a. In this case, it will attract stress and surface unreduced (cf. Selkirk 1996). However, such cases are rare and seem to be forced by the versification. More common is to find that the two function words in fact form a foot on their own, with one syllable attracting stress. The definite article only attracts stress when it has a more semantic role as a demonstrative or pronoun (i.e. under focus), e.g. (31)b.

(31) a. 71.18 x / | x / | x / | x /
da zer Mvn. ta. ne̲ an kǒ. ka. sas
REL.ACC.N.SG to=DEF.DAT.F.SG mountain at Caucasus

b. 698.05 x / | x / | x / | x /
ze dem der dort min her. ce tregt.
to DEF.DAT.M.SG [him] REL.NOM.M.SG there my.ACC.N.SG heart bear.3SG

This explains why we only seem to find the [x /] pattern (stressed on the second element), with *zuo dem*: given the subject matter of the poem, a chivalric, Arturian grail romance, much of the focus and agency in the poem is centred on male characters. In these cases, the preceding preposition never procliticises to the definite article, but rather always surfaces in its reduced form and encliticises to the preceding $(\text{LEX})_{\omega}$

(e.g. ⟨ce dem, ze dem⟩ *ze dem*). The unreduced ⟨zv̊⟩ only occurs when it attracts stress and surfaces as an ω, or else when it precedes a focused article in φ-initial position, where it can therefore neither procliticise *or* encliticise, again projecting its own ω:

(32) 282.11 x / x / x / x /
(v̂f ei. nem plan)$_{φ}$ ((zv̊)$_{ω}$ ((dem)$_{ω}$ =er)$_{ω}$ (sleich)$_{ω}$)$_{φ}$.
on INDEF.DAT.M.SG meadow to REL.DAT.M.SG he go.slowly.3.SG.PRET

Therefore, if—in contrast to the article—the *preposition* is focused (and thus forms the left-aligned head of the foot), the definite article is perfectly capable of encliticising, either producing a monosyllabic or disyllabic foot (e.g. *zv̊me*, *indem*):

(33) a. 59.12 x / | x / | x / | x /
do man. s[e] zv̊ me sper i. ser bant.
when one=it.ACC.F.SG to=DEF.DAT.N.SG spear head [lit. 'iron'] tie.3.SG.PRET
b. 251.25 x / | x / | x / | x /
Der Wa. leis zv̊ der mei. de sprach.
DEF.NOM.M.SG Waleis to=DEF.F.SG maiden speak.3.SG.PRET

These facts are illustrated in Table 6.15, which compares the stress patterns of different forms of *zuo* + article, both with and without reduction and contraction. Taking *zuo* + *dem* as an example, one finds ⟨ze/ce dem, zem/cem, zv̊ dem, zv̊me/zv̆me⟩. In the vast majority of cases, the maximally reduced ⟨zem/cem⟩ is preferred. When the article is focused, it is written separately, preceded by (i) ⟨ze/ce⟩ (when the preposition encliticises) or (ii) ⟨zv̊⟩ (when it is phrase-initial). Otherwise, the article is only written separately when *zuo* is focused or where it actually represents [t͡sə̯m] (but the orthography favours a conservative, separate spelling). The forms ⟨zv̊me/zv̆me⟩ appear to be reserved for cases where the VF is stressed and disyllabic (ˈt͡sue̯.mə), even if the final vowel is elided in the metre. Such forms are naturally absent from *zuo* + *der* (which lost its final high vowel much earlier) and *zuo* + *den* (which was

always monosyllabic). However, these disyllabic forms are uncommon, and it appears that the disyllabic form was simply used to satisfy the requirements of metre (and that elision of the final vowel of *deme* was already the norm). We therefore find stressed ⟨zv̊me/zo̊me⟩ contrasting with unstressed ⟨zem/cem⟩, with ⟨ze/ce dem⟩ and ⟨zv̊ dem⟩ resulting when cliticisation is blocked by focus. However, the orthography is not wholly transparent, with all orthographic options at times being used to represent [t͡səm]. Likewise, *zem* can occasionally be used to represent disyllabic or stressed forms. For this reason, care must be taken not to take orthography at face-value, with metre proving a much more reliable indicator. These patterns are also to be observed for *zuo* + *der* and *zuo* + *den*.[19]

Table 6.15 Orthographic representations of *zuo* + *dem* and the metrical positions which they occupy (strong [/] or weak [x]).

	/ x	x /	/	x
zem/cem	0	1	1	74
zv̊me/zo̊me	1	0	1	1
ze/ce dem	0	4	0	1
zv̊ dem	12	5	0	2
zer/cer	1	0	1	92
ze/ce der	1	0	0	0
zv̊ der	14	0	0	0
zen	1	0	0	20
ze den	0	0	0	0
zv̊ den	11	0	0	0

The MHG data thus corroborate the analysis proposed here and appear to behave similarly to the modern morphologised clitics: $((\text{FNC})_{\text{F}}{=}\text{FNC})_{\text{F}})_{\omega}$. Unlike Hall (1999), I do not assume the host preposition of a VF is a LEX in MHG, as the reduced article could encliticise to an unstressed, reduced form of the preposition (e.g. *ze* /t͡sə/, rather than *zuo* /t͡suə̯/), as in OHG and MNL (cf. Lahiri and Sytsema 2018). I furthermore differ from both Hall (1999) and Kabak and Schiering (2006) in arguing

[19]The combination *zuo* + *den* is less common than the others and appears less ready to fuse; for instance, in Cgm. 19, ⟨zen⟩ appears only nine times, compared to Cod. 857's twenty occurrences.

that VFn could form an ω in MHG, capable of bearing stress and focus. For instance, Kabak and Schiering (2006) suggest that phrase-initial VFn with no host to the left are obliged to form a foot, adjoined directly to a φ at its left edge. However, what is often overlooked in the literature is that when the VF is not phrase-initial, it reliably surfaces in a reduced form (invariably monomoraic and built on the reduced form of the preposition), essentially defooting the VF to facilitate its cliticisation to the preceding ω. In the metre of *Parzival*, it always occupies the weak branch of a foot immediately following a strong foot head. In this way, it is suggested here that certain VFn could themselves also be reduced below the bimoraic minimum necessary to build an F (e.g. *zen* /t͡sən/), losing their ω status and encliticising to a previous LEX, forming a recursive ω of the structure $((\text{LEX})_{\omega}=(\text{FNC}=\text{FNC})_{\sigma})_{\omega}$ (cf. Lahiri and Sytsema 2018; Wheeldon and Lahiri 2002): $((\text{sprach})_{\omega}=\text{zem})_{\omega}(\text{gaste})_{\omega}$ ('spoke to the guest'). The reduced, defooted form of VF forms thus behave in the same way as plain clitics, as illustrated in Figure 6.8.

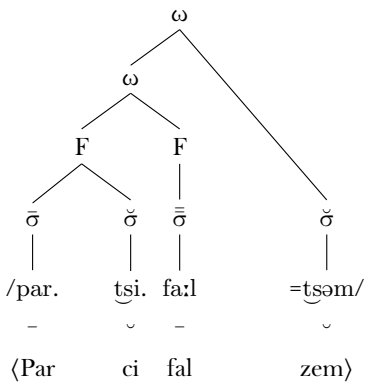


Figure 6.8 Reduction and cliticisation of the VF *zem*: 'Parzival to=DEF.DAT.M.SG'.

It thus seems that clitics themselves cannot form a foot and must be a single syllable attaching to a host. It is only in φ-initial position (where there is no potential head to the left) where function words will procliticise to a lexical host, or, if this is not possible, project their own ω. In the terminology of Selkirk (1996), function words

behave as an affixal clitic when preceded by a legitimate host, otherwise (preceded by a weak function word or φ-initially), they form a free clitic. Figures 6.9–6.10 illustrate the behaviour of VFn involving morphologised clitics in (i) φ-initial position and (ii) following a LEX in the same φ.

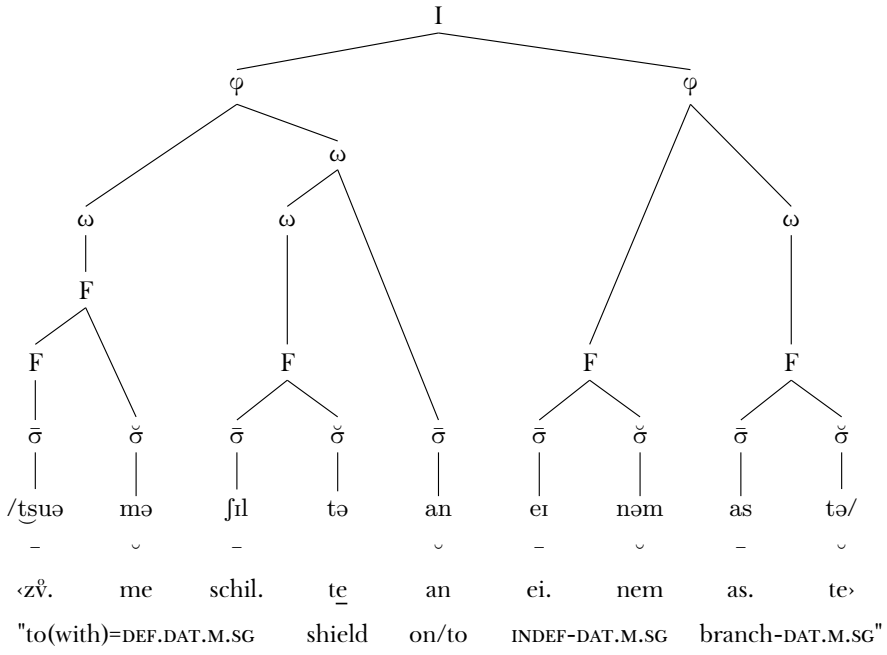


Figure 6.9 Prosodic representation of ⟨zv̊me⟩ in φ-initial position.

5 Conclusions

The analysis presented in this chapter bears similarities to Booij's (1995) analysis of Dutch clitics, which also relies on a distinction between clitics adjoined to an F as opposed to an ω, however, the difference in the present analysis of German is that the distinction is between plain and morphologised clitics, which are all by default left-leaning, as opposed to between en- and proclitics respectively. This analysis furthermore integrates observations that morphologised clitics are more affix-like and

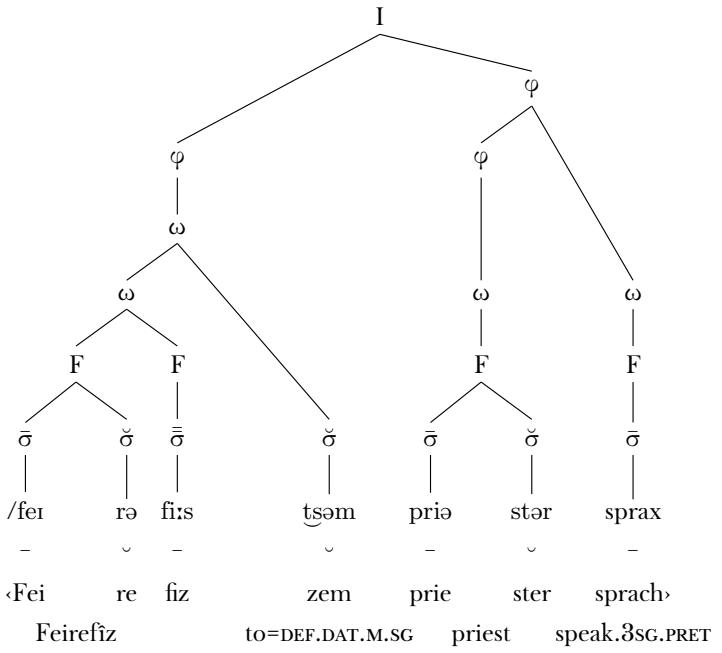


Figure 6.10 Prosodic representation of the encliticisation of *zem* in φ-final position.

may be attached at an earlier point in the derivation, i.e. the lexical level (cf. Wiese 2000), demonstrating that these lexicalised clitics attach at a point where they are integrated into the F structure of their host word. This means that no ω boundary may intervene, as this would result in a lower constituent of the prosodic hierarchy dominating a lower one. Furthermore, the simplification of strings of successive nasals found in forms such as /ɱ+m/ > [ɱ] appears to take the ω as its domain and does not typically occur across ω boundaries. Finally, prosodic structure helps us to explain why VFn, usually obligatory, are occasionally impossible. Such cases result from focus being placed on the definite article, e.g. *zu* DEM *Wald* 'to THAT forest', whereby the article projects its own φ. In order to do so, it must form an ω (and therefore F), so cannot cliticise.

The differences between the two types of clitics in German follow from their different prosodification:

(34) The differing prosodification of plain and morphologised clitics in German.

a. Plain clitics adjoin to a nested ω structure at the postlexical level. $(\omega{=}\text{FNC})_{\omega}$
b. Morphologised clitics are more lexicalised, attach at the lexical level and are incorporated into the F structure of the host, part of the same ω. $(\text{FNC}{=}\text{FNC})_{\omega}$
c. The resulting structures may then be reduced to a single syllable and cliticised to a LEX host as a plain clitic. $(\text{FNC}{=}\text{FNC})_{\omega} > (\omega{=}(\text{FNC}{=}\text{FNC})_{\sigma})_{\omega}$

Whether morphologised clitics such as VFn really represent grammaticalisation in action, on a path towards inflected prepositions (Nübling 2005), they must be accounted for in phonological terms. The present analysis accounts for their special phonological behaviour and their apparent reference to syllabic trochees, despite the language's weight-sensitivity, as well as explaining the asymmetries between plain and morphologised clitics. Furthermore, it explains their apparently puzzling exemption to certain constraints.

Chapter 7

Conclusion

The close study of verse poetry has been central to this research, particularly the analysis of evidence from metre and scribal orthography, which are able to illuminate aspects of prosodic structure in past stages of languages, such as MHG. This research was based primarily upon Wolfram von Eschenbach's *Parzival*, as represented in a number of MHG manuscripts, but with particular focus on Cod. 857, copied in the same larger UG dialect area roughly fifty years after the original, which was originally composed in the first decade of the thirteenth century in an EFr. dialect). However, additional evidence was drawn from the *Nibelungenlied* MS from the same codex, as well as from Cgm. 19, another *Parzival* MS, also of thirteenth-century UG provenence.

Given the fact that MHG, like OHG before it and NHG after it, is considered to be a trochaic language, scholars have traditionally assumed a preference for trochaic metre in poetry of the MHG Classical Period. However, following a review of past scholarship and the theoretical background of this thesis in Chap. 2, a closer analysis of the poem (after all an adaptation of the OF poem *Perceval ou le Conte du Graal*) in Chap. 3 suggested that the standard trochaic analysis is not only insufficient but counter to the linguistic evidence. Contrary to the traditional view, it is argued here that *Parzival* was in fact composed in iambic tetrameter. The present analysis has the

advantage of explaining the peculiarities of scansion in *Parzival* much more parsimoniously than the traditional literary view, which relies on the overgeneralisation of a complex system involving a large amount of additional machinery and questionable reliance on stressed schwa syllables, which are impossible in natural language.

Despite the extensive written record, there has been a lack of in-depth studies into the prosodic system of MHG and this thesis has sought to fill this gap in the literature. Chapter 4 focused on issues of segmental quantity, specifically those changes relating to long vowels: open syllable lengthening (which increased the quantity of stressed vowels in open syllables) and 'eNHG' diphthongisation of the MHG long high vowels /iː, yː, uː/ (which was a change in quality only, maintaining the quantity of the long vowels it affected). The net result of these changes was an overall increase in the quantity of stressed syllables, which would have substantial repercussions for the future prosodic system of the language.

There have been persistent claims (e.g. Kranzmayer 1956; Wiesinger 1970, 2003; Penzl 1974, 1975, 1989) that these changes were somehow linked and even involved in a phonological chain shift, with OSL potentially threatening phonemic contrasts and 'pushing' the long high vowels into diphthongising. However, the position maintained throughout this thesis is that the two changes were distinct processes (of different kinds), both motivated independently by the prosodic system, as reflected in the autonomous genesis of similar changes across the WGmc. dialect area. The relative ordering of the two changes is important and Chap. 4 demonstrates that OSL was absent from the UG (SWBav.) dialect of Cod. 857's scribe, Hand III, although diphthongisation was certainly already present.

Although MHG appears to have inherited the earier OHG prosodic system intact, at some point in the transition from the early and middle period into the early modern, the system found in the modern language developed. Although the details of the different languages' systems vary, German, like its Gmc. relatives, continues to rely on

quantity-sensitive trochees (although the quantity systems of the different languages vary considerably), constructs feet from right-to-left and places main stress within a three-syllable window at the right edge of the word. It is suggested here that the structure of the foot itself has remained remarkably constant in German, but that the differences in the patterns of surface stress assignment result from changes in other metrical parameters, which, although subtle, can have dramatic consequences. The metrical parameters of earlier OHG and NHG are given in Table 7.1 (repeated from Chap. 5).

Table 7.1 Metrical parameters in OHG and NHG (repeated from Chap. 5).

	OHG	NHG
Foot type	Resolved moraic trochee	Moraic trochee
Parsing direction	L→R	R→L
End Rule	Left	Right
Extrametricality	Final non-branching foot	*Final -VC syllable?*[a]

[a] The nature of the extrametrical unit in NHG remains the subject of debate. Extrametrical final -VC syllables have been proposed by van der Hulst (2010b). See Chap. 2, Sect. 3.1.

It is generally argued that the prosodic systems of the WGmc. languages diverged in the mediaeval or early modern period due to an influx of Romance loan words, as well as various sound changes affecting vocalic and consonantal quantity, such as OSL and degemination. However, perhaps influenced by the comparatively low number of Romance loan words borrowed into MHG (compared to the great wave in the modern period), it has previously been tacitly assumed by many that the impact of such loan words on the native system in the mediaeval period was minimal. Given the fact that the stressed suffixes *-ieren* and *-îe* are widely recognised to have entered the language in the twelfth century and that, unlike OHG, MHG adopted loans with stress at the right edge (cf. Chap. 5), this assumption is surprising. It is the position of this thesis that, far from a transitory influence, Romance loan words in this period had

a significant and lasting effect on the native system with consequences for the wider phonological system.

A full treatment of the stress system of NHG is beyond the scope of this paper (although see Chap. 2, Sect. 3.2.2 for a summary of the previous literature). However, the lack of agreement in the literature on even such a fundamental question as whether or not NHG is weight-sensitive (i.e. whether it builds syllabic or moraic trochees) results from the fact that NHG stress, although sensitive to quantity (being able to build monosyllabic ($\bar{\sigma}$) feet), also seems to prefer to build disyllabic feet, even if the stressed syllable is heavy. This is exactly the situation predicted by an uneven moraic trochee and such feet appear to play a role in other phonological processes, interacting with derivational and inflexional morphology and governs and constrains [FNC=FNC] clitic structures. In addition, we also observe a phenomenon whereby stress is (optionally) retracted to an initial ($\bar{\sigma}\breve{\sigma}$) sequence, rather than falling on a final ($\bar{\sigma}$) or ($\bar{\bar{\sigma}}$), e.g. [ˈhaɐ̯ˌlə.kiːn] ('harlequin'), [ˈpeː.li.kan]~[pe.liˈkan] ('pelican'), [ˈɛs.ki.mo] ('eskimo'), [ˈkuː.mu.lʊs] ('cumulus'), [ˈʔal.ba.tʁɔs] ('albatross').

Chapter 6 took such issues as its focus, providing an analysis of the prosodic representation of clitics in German, tracing their diachronic development and providing a synchronic analysis of their structure in MHG and NHG. A new distinction was proposed, between plain clitics, such as enclitic personal pronouns, and morphologised clitics, such as encliticised definite articles in preposition–article (FNC=FNC) fused forms. It was argued that these structures have remained remarkably stable and pertinacious through centuries of change, with plain clitics reduced and encliticised to a $(\text{LEX})_{\omega}$ host as part of a recursive $((\text{LEX})_{\omega}=\text{FNC})_{\omega}$ structure in the postlexical component. In contrast, morphologised clitics are more lexicalised, providing evidence of a word level, and integrated into the foot structure of the host (another function word). Such clitics are constrained by the foot structure of the resulting form, which may

maximally comprise a recursive foot of the structure $((\bar{\sigma})_F\breve{\sigma})_F$, ruling out unattested trisyllabic forms, such as **neben'm* ('next.to=the').

Throughout Chap. 6, it was argued that recursivity at the lower levels of the prosodic hierarchy, namely the F, ω and φ (but not the syllable), is not only possible, but essential in order to account for a range of prosodic phenomena. Furthermore, the pertinacity of such structures was stressed, with a minimally recursive foot argued to be the NHG inheritance of the MHG (uneven) resolved moraic trochee. Throughout, it was argued that cliticisation is by default left-leaning in Modern High German, as well as Old and Middle High German, with phonological and syntactic phrasing being non-isomorphic. This is in keeping with other findings for default trochaic phrasing and encliticisation throughout the history of Germanic (cf. Lahiri and Plank 2010, 2022).

The uneven moraic trochee has therefore remained remarkably pertinacious over the centuries. It is not a basic foot type, accounting for its typological markedness, but is rather to be considered a minimally recursive F which adjoins a light syllable to the right of an ordinary moraic trochee; this structure is therefore the expression of the two competing drives which have been so persistent throughout the history of Gmc.: (i) that stressed syllables should preferably be heavy and (ii) that feet should, if possible, be branching. In other words, both the stressed syllable (the head of the foot) and the foot itself should be binary and branching.

These two competing drives are behind many of the key changes to the prosodic system of German since the mediaeval period, such as OSL, the reduction of unstressed syllables (*Nebensilbenabschwächung*) and the loss of resolution. These changes resulted from system-internal pressures and occurred repeatedly and independently across the Gmc. dialect area. Despite a number of claims that OSL was related to changes in vowel quality, such as the diphthongisation of the MHG high vowels (in a phonological chain shift), this does not appear to be accurate and the

two changes were independent (as demonstrated in Chap. 4). The diphthongisation of MHG high vowels and the monophthongisation of the MHG diphthongs (characteristic of Central German dfialects) were unrelated processes, common to Gmc., and the polygenesis of these changes is well-attested. The diphthongisation of long vowels in any case seems to be a strong tendency of Gmc. languages, and Bav. dialects in particular have also diphthongised many other, non-high vowels.

French loan words, borrowed with final stress and often superheavy final syllables, had a significant impact on the language and I argue that MHG, despite maintaining many features of the OHG metrical system, accommodated these loan words into the native system through the adjustment of a number of parameters. The Germanic foot was still a feature of the language, but the direction of parsing had changed, starting at the right edge rather than the left. This was a substantial change to the underlying grammar, but will not have greatly affected primary stress placement in most native vocabulary; as Dresher and Lahiri note, MHG native vocabulary was 'characterized by short words, rarely attaining two full feet. Long words can be created by compounding, but then each member of the compound forms its own metrical domain' (1991, 272). However, it aided the accommodation of the non-native vocabulary and, it is suggested here, restricted the context in which resolution could occur, ultimately contributing to OSL.

At this stage, we also find the beginnings of movement towards the right edge, or at least an erosion of the previously firm association of primary stress with the stem-initial syllable, as stress was potentially being attracted to the right edge. Crucially, this was only possible if the rightmost foot was branching and its head was heavy; in other words, it must be both more complex *and* more optimal than the first foot in terms of the language's preference for maximal (binary) feet. This situation was markedly different from that of other WGmc. languages, such as ME, where stress

remained strongly associated with the left edge; a later foot would not be stressed at all unless it was branching, and even then it would only attract secondary stress.

The vital difference was that German, unlike English, retained long vowels in final closed syllables of lexical items. These trimoraic syllables (with both a branching nucleus and a branching rhyme, cf. Chap. 2) enabled the borrowing of Romance loan words with final superheavy syllables, unlike English, where they were shortened. This had the effect of increasing the number of final superheavy syllables (particularly amongst simplex words) and paved the way for future change in the metrical system. The result of the change in parsing direction, coupled with the fact that main stress could sometimes be attracted towards the right edge, was that, with minimal disruption to stress patterns in native Gmc. vocabulary, Romance loans could be accommodated and integrated into the native metrical system. In the modern language, the prosodic accommodation of Romance loans can be seen, for example, in the integration of [balˈkɔŋ] > [balˈkoːn] *Balkon* 'balcony' (with final stress).

Of central importance is the fact that superheavy syllables were treated as metrically equivalent to a branching ($\bar{\sigma}\breve{\sigma}$) foot. In line with Fikkert's (2000) account of MNL, it is argued here that MHG continued to defoot final non-branching feet, but that superheavy syllables escaped defooting, as they were treated as branching feet (although Fikkert does not suggest a comparable change in parsing direction for MNL). This equivalence can be seen in Table 7.2, which demonstrates that stress in Romance loan words was very robustly attracted to final ($\bar{\bar{\sigma}}$) and ($\bar{\sigma}\breve{\sigma}$) feet, but remained initial in the case of ($\bar{\sigma}$)-final words. Given the fact that stress-attracting derivational suffixes of Romance origin were being used productively with native vocabulary, even outside a learned context, a change in the system was inevitable. The consequences of the new parameters proposed here would have been significant and it is probable that this, in combination with quantity changes, such as OSL and the reduction of stressed syllables, ultimately led to the loss of resolution in German. It is conjectured

here that the treatment of Romance loans reflects the direction in which the language's word prosodic system was moving and, in line with arguments presented in Lahiri and Dresher (1999), that the changes to the native system led to reinterpretation of final defooting as syllable extrametricality (excluding superheavy syllables), both increasing the uniformity of the system and improving certain sub-optimal structures caused by the parametric changes. OSL could subsequently have acted on the results of this reanalysis, reducing permissible structures again and increasing the consistency of the metrical system, but ultimately resulting in the loss of resolution.

Table 7.2 Stress placement in Romance loans in *Parzival*, demonstrating the equivalence of (σ̿) and (σ̄σ̆) feet in attracting stress (adapted from Chap. 5).

		X́x(x)	xX́(x)
a	HH	3	3
b	HS_H	9	30
c	HHL	0	25
d	LH	7	1
e	LS_H	3	11
f	LHL	0	11

In Mediaeval Germanic, most native words were monopedal, meaning that evidence for parsing direction and End Rule were in short supply (a situation ripe for reanalysis). As Booth and Lahiri (2023) note, change of parsing direction would only have affected the location of stress in a small subset of words, as illustrated in (1):

(1) Main stress assignment with a resolved trochee, End Rule left and (a) left-to-right parsing or (b) right-to-left parsing (after Booth and Lahiri 2023).

a.

X	X	X	X	X
(|x |)	(|x| .)	(|x| .)	(|x | .)	(|x | .)
[L L $]_\omega$	[H L $]_\omega$	[H L L $]_\omega$	[L L L L $]_\omega$	[L H L $]_\omega$

b.

X	X	X	X	X
(|x |)	(|x| .)	(|x|) (|x| .)	(|x | .)	(|x| .)
[L L $]_\omega$	[H L $]_\omega$	[H L L $]_\omega$	[L L L L $]_\omega$	[L H L $]_\omega$

As these examples demonstrate, it is only the final two structures, $(LLLL)_{\omega}$ and $(LHL)_{\omega}$, where main stress falls on a different syllable (although the underlying parsing of $(HLL)_{\omega}$ is also altered). Disambiguating evidence must therefore be found in examples such as these. In German, the change in parsing is clearly in evidence by the sixteenth century (although End Rule left still persisted, cf. Lahiri 2015), as illustrated in (2) (repeated from Chap. 2, Sect. 3.1). Note that these words mirror the final structure in (1).

(2) Evidence of right-to-left parsing in mediaeval and eNHG German.

i. MHG c.1200

```
(   X   )
   (|x|  .)
(ŏ  ō  ŏ)ω
⟨ka pel le⟩
```

ii. eNHG c.1540

```
(   X   )
   (x   .)
(ŏ  ŏ  ŏ)ω
⟨ka pe lle⟩
```

German (and Gmc. generally) has therefore always been trochaic with weight sensitive feet, and the uneven moraic trochee has remained pertinacious into late MHG, early NHG and even contemporary NHG. However, what did change were other stress parameters, such that the same underlying foot resulted in differing output realisations. The phonological structure of the foot was thus pertinacious, but its interaction with the introduction of a large number of Romance loan words and non-initial stress patterns (along with quantity changes) led to a different surface output. *Nebensilbenabschwächung* dramatically reduced the number of resolved ($|\breve{\sigma}\bar{\sigma}|$) heads, which had provided very clear evidence of initial stress and left-to-right parsing. However, it was still recoverable at the time of *Parzival*'s composition, despite the apparent change in parsing direction. However, this shift, resulting from the influx of OF loans, further weakened the sense of initial stress. Resolution therefore became increasingly opaque, although ($|\bar{\sigma}|\breve{\sigma}$) remained the preferred structure and highly salient. The remaining resolved heads thus likely came to be tolerated as exceptional, comprising a very small number of forms, but were ultimately destroyed by OSL. Table 7.1 may

thus be adapted to include the metrical system of Wolfram von Eschenbach's dialect, provided in Table 7.3.

Table 7.3 Metrical parameters in OHG, Wolfram von Eschenbach's (EFr.) MHG dialect and NHG.

	OHG	Wolfram's MHG	NHG
Foot type	Resolved trochee	Resolved trochee	Trochee
Quantity-sensitive?	Yes	Yes	Yes
Parsing direction	L→R	R→L	R→L
End Rule	Left	Left, but attracted to more complex feet at the right edge	Right
Extrametricality	Final non-branching foot	Final non-branching foot	Final -VC syllable?

The focus of this thesis has been the prosodic phonology of MHG, encompassing issues of segmental quantity, syllable weight, foot structure and word-prosodic phenomena, such as lexical stress and cliticisation. Throughout, the aim has been to demonstrate that any given change within the prosodic grammar cannot be taken in isolation, but must be considered in the context of the system as a whole. The changes addressed in this thesis have largely resulted from the pressure to maintain metrical coherence despite perturbations caused by language contact and other changes within the system. Throughout, the pertinacious pressure towards branching stressed syllables and feet have ensured the survival of the uneven moraic trochee, despite the markedly different patterns of surface prominence observed in the different stages of the language.

Appendix A

The total number of rhyming words of different syllable structures in the samples from Books I, VII, XI and XIV

σ̄	324	σ̄	323	σ̄	277	σ̄	271
σ̄ə	95	σ̄ə	97	σ̄ə	120	σ̄ə	160
σ̄σ̄	10	σ̄σ̄	13	σ̄σ̄	27	σ̄σ̄	21
σ̄σ̄ə	8	σ̄σ̄ə	11	σ̄σ̄ə	12	σ̄σ̄ə	4
σ̆σ̆	51	σ̆σ̆	61	σ̆σ̆	62	σ̆σ̆	42
σ̆əə	0	σ̆əə	0	σ̆əə	4	σ̆əə	4
σ̆σ̄	9	σ̆σ̄	0	σ̆σ̄	3	σ̆σ̄	2
σ̆σ̄ə	2	σ̆σ̄ə	0	σ̆σ̄ə	0	σ̆σ̄ə	0
σ̄σ̆σ̆	0	σ̄σ̆ə	1	σ̄σ̆σ̆	1	σ̄σ̆σ̆	0
σ̄σ̆σ̆σ̆	1	σ̄σ̆σ̆σ̆	0	σ̄σ̆σ̆σ̆	0	σ̄σ̆σ̆σ̆	0
σ̄σ̆σ̄	15	σ̄σ̆σ̄	18	σ̄σ̆σ̄	14	σ̄σ̆σ̄	17
σ̄σ̆σ̄ə	3	σ̄σ̆σ̄ə	7	σ̄σ̆σ̄ə	3	σ̄σ̆σ̄ə	4
σ̆σ̄σ̄	1	σ̆σ̄σ̄	1	σ̆σ̄σ̄	5	σ̆σ̄σ̄	0
σ̆σ̄σ̄ə	0	σ̆σ̄σ̄ə	0	σ̆σ̄σ̄ə	2	σ̆σ̄σ̄ə	1
σ̆σ̆σ̄	14	σ̆σ̆σ̄	4	σ̆σ̆σ̄	2	σ̆σ̆σ̄	6
σ̆σ̆σ̄ə	2	σ̆σ̆σ̄ə	0	σ̆σ̆σ̄ə	0	σ̆σ̆σ̄ə	2
σ̄σ̄σ̄	2	σ̄σ̄σ̄	0	σ̄σ̄σ̄	3	σ̄σ̄σ̄	3
σ̄σ̄σ̄ə	1	σ̄σ̄σ̄ə	2	σ̄σ̄σ̄ə	1	σ̄σ̄σ̄ə	1
σ̄σ̆σ̆σ̄	1	σ̆σ̆σ̆ə	1	σ̄σ̆σ̄σ̆σ̄ə	1	σ̄σ̄σ̆σ̄	2
σ̄σ̄σ̆σ̄	1	σ̆σ̆σ̆σ̄	1	σ̆σ̆σ̆ə	1		
				σ̆σ̄σ̄σ̄	1		
				σ̆σ̄σ̆σ̄	1		

Appendix B

Metrical parameters. A summary of the key parameters is given in (a), with (b)–(f) providing additional rules and preferences.

a.

Foot Type:	RMT
Parsing Direction:	R → L
End Rule:	Left
Extrametricality:	Defoot final non-branching feet

b. Branching syllables (after Hayes 1995, 326)
Superheavy syllables $(|\bar{\bar{\sigma}}|)_F$ have a branching structure and VVC or VCC syllables are thus metrically equivalent to a $(|\bar{\sigma}|\breve{\sigma})_F$, resulting in the addition of a catalectic syllable:

$([\mu\mu][\mu])_\sigma$

c. Foot construction
From right to left, construct moraic trochees. Adjoin stray light syllables to the left, forming a recursive F.

d. Resolution
Incorporate remaining word-initial light syllables into a resolved head if (and only if) the following syllable is heavy and does not already form a branching foot, $(|\bar{\sigma}|\breve{\sigma})$ or $(|\bar{\bar{\sigma}}|)$:

$\breve{\sigma}\bar{\sigma} \rightarrow (\breve{\sigma}\bar{\sigma})_F$ / #_F_0#

e. Defooting
Defoot final non-branching feet, provided they are not the only foot:

$(|\mu\mu|) \rightarrow \langle(|\cancel{\mu\mu}|)\rangle$ / F_1_#

f. Stress shift
End Rule Left, BUT:
Shift main stress from non-branching foot to final foot if branching, otherwise shift stress to final foot if its head is heavier, in line with following preference scales:

$(|\bar{\bar{\sigma}}|)$ » $(|\bar{\sigma}|\breve{\sigma})$ » $(|\bar{\sigma}|)$ » $(|\breve{\sigma}\sigma|)$

(C)VVC » (C)VV » (C)VC » (C)V

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