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ORIGINAL PAPER

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

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Abstract
Despite a long history of scholarly interest, the relative chronologies (and even origins) of open syllable lengthening (OSL) and the diphthongisation of the Middle High German (MHG) high vowels /iː,yː,uː/ remain unclear. This paper, drawing on orthographic evidence from a thirteenth-century *Parzival* MS, *St. Gallen, Stiftsbibliothek, Cod. 857*, provides new insights into these two key changes. The changes either maintained or increased the quantity of stressed vowels, leading to a net increase in the quantity of stressed syllables in MHG. Diphthongisation simply altered the segmental quality of already long monophthongs; only OSL increased the quantity of the vowels it affected. This paper argues that OSL was not a feature of the South Bavarian dialect of Cod. 857's Hand III, although his dialect had certainly undergone diphthongisation. It is difficult to reconcile this picture with claims by Penzl, Kranzmayer and Wiesinger that OSL was present throughout the Bavarian dialect area by 1200. This paper challenges claims that diphthongisation was triggered by OSL via a phonological push-chain, maintaining that the two changes were independent. It is furthermore suggested that the scribe is uninterested in marking vocalic quantity, which—in the absence of OSL—was still consistent across inflexional paradigms. Instead, he uses the circumflex "length marker" to indicate diphthongal quality. The scribes' dialect thus represents a key turning point: diphthongisation was well progressed, but OSL had yet to occur.

Keywords Phonology · Middle High German · Vowel quantity · Open syllable lengthening · Diphthongisation

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1 Introduction

Drawing on evidence from verse, this paper aims to provide insights into the relative chronologies and interactions of two key phonological changes to the underlying representation of Middle High German (MHG)[1] 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/[2] ⟨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').[3] 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 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 paper 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 *St. Gallen, Stiftsbibliothek, Cod. 857* (Cod. 857). Often referred to as MS D in *Parzival* literature, this MS is a thirteenth century SBav. copy of the text and provides early evidence of advanced diphthongisation in the scribe's dialect, but shows no traces of OSL.

The structure of this paper 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

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

[2] The MHG vowel system included the following phonemes: the short vowels /a,e,ɛ,i,o,u/ ⟨a,e,e,i,o,u⟩; the long vowels /aː,eː,ɛː,iː,oː,uː/ ⟨â,ê,î,ô,û⟩; the short umlauted vowels /æ,ø,y/ ⟨ä,ö,ü⟩; the long umlauted vowels /æː,øː,yː/ ⟨æ,œ,iu⟩; and the diphthongs /ei,iə,ou,øy,yə,uə/ ⟨ei,ie,ou,öu/eu,üe,uo⟩. Although short vowels were likely laxer than their long counterparts, as in NHG, their precise phonetic values are unknown; transcriptions thus only represent the contrastive quantitative difference. An exception to this is the phonemic contrast between the three *e*-sounds /e,ɛ,æ/.

[3] 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.

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 paper.

2 Previous literature

Diphthongisation[4] 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 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 paper, 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, 134; Goblirsch 2018, 115–6).[5] 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 diphthongisa-

[4] This process is sometimes referred to as 'Early Modern German (eNHG) Diphthongisation'. However, in this paper, 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.

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

tions 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.[6] 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.

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"[7] (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), 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; 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, 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 Sects. 4.1 and 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 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

[6] 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).

[7] "Polygenesis cannot be ruled out."

die Hypothese einer früheren Dehnung im (Süd?)Bair. und der dadurch bewirkten Dipthongierung (als phonologischen Schubs) zu tragen."[8]

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 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 tradi-

[8] "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)."

tional characterisation of length-marking as haphazard[9] 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⟩ 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 paper. 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 other material, such as the *Nibelungenlied*, the codex includes the full text of Wolfram's *Parzival*, an early grail romance, based on Chrétien de Troyes's late twelfth-century unfinished work, *Perceval ou le Conte du Graal*. The codex was produced in the later thirteenth century in the SWBav. dialect area, around 50 years after the EFr. original. 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. /*þ,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 ⟨ė⟩ 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').[10] 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.[11] 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 paper, references are made to standard NHG, but it is important to remember that the discussion focuses on the SBav. dialect area. Wherever relevant to the discussion, any material differences between NHG and modern SBav. dialects

[9] 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).

[10] 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).

[11] "Nicht nur mhd. /ī/,/ū/,/ǖ/, sondern auch die anderen langen Vokale /ā/,/ǟ/,/ē/,/ō/,/ǒ/ 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 /ā/,/ǟ/,/ē/,/ō/,/ǒ/ become diphthongs in certain areas […]; some of these were certainly already present in late MHG'] (Paul 2007, 38).

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 West Germanic (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. [tɔːg̊] 'day' and [ˈg̊øi.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. [g̊aːb̥] ('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 Old High German (OHG) ~ Old English (OE) pairs, with the NHG and Im. reflexes unaffected by OSL: *offan~open* (NHG [ˈʔɔf̥ən], Im. [off] ~ modern English (NE) [ˈəʊpən], 'open'), *wazzar~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 Fig. 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][12] < 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),[13] the diphthongisation of /iː,yː,uː/ > /ei,øy,ou/ can be accounted for in more formal, feature-geometric terms, illustrated graphically in Fig. 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 1 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.[14]

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 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

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

[13] FUL assumes the feature [CORONAL] to be universally underspecified, accounting for its absence in the underlying representation of the non-dorsal vowels in Fig. 2. It is, however, an existing feature which is filled in articulation and is present in the output, hence its inclusion in Table 1 (cf. Lahiri and Reetz 2010, 47).

[14] 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).

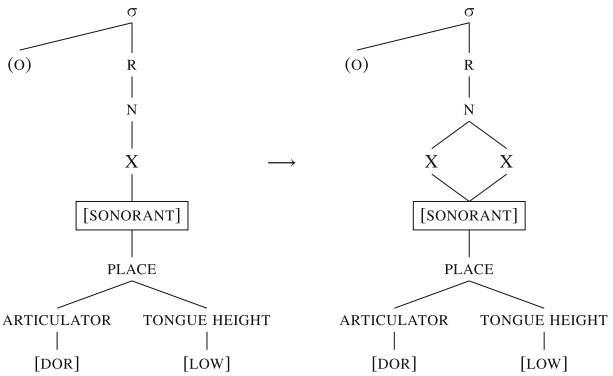
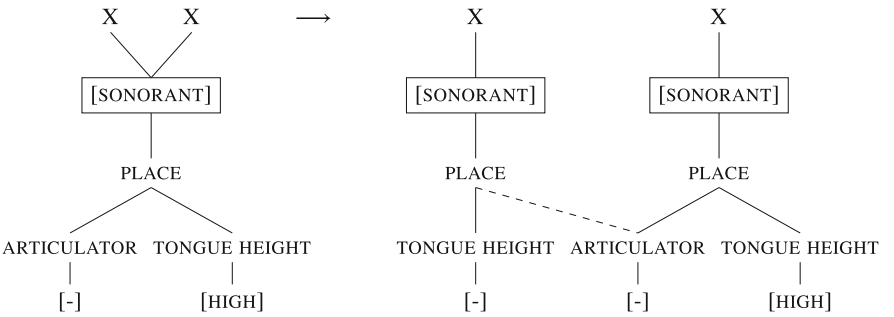


Fig. 1 Feature-geometric representation of the effect of OSL on /a/

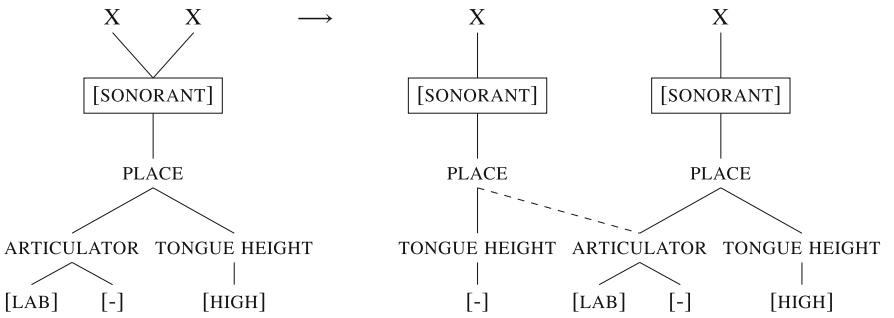
SBav. dialects have resisted degemination and as such do not feature any stressed light syllables. Compare, for example, Im. [ˈpruk.ke], [ˈfɔl.lə], [ˈtɔn.nə] and NHG [ˈbʁʏk̩ə], [ˈfaḷən], [ˈtaṇə] (‘bridge’, ‘fall INF’, ‘fir’).

Prior to OSL, vowel quantity was consistent across inflexional 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/ (‘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 [ʔɛṣən, ʔaːs, gəgɛṣen] (‘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’).[15] 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 short-

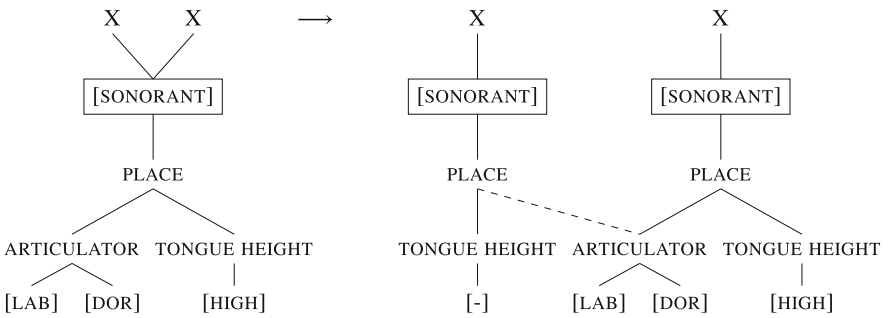
[15] Compare also the equivalent paradigms of ‘meet’: Im. [ˈtrœf.fə, traf, ˈtrof.fə] vs. NHG [ˈtʁɛf̣ə, tʁaːf, gəˈtʁɔf̣ən]. A number of strong verbs have also become weak and even lost the long-vowelled preterite subjunctive and past participle forms, e.g. [ˈpit.tə]~[ˈpit.tət] (NHG [ˈbɪṭən]~[gəˈbeː.tən]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



(a) /iː/>/ei/



(b) /yː/>/øy/



(c) /uː/>/ou/

Fig. 2 Feature-geometric representation of the effects of diphthongisation on the high vowels

Table 1 Feature specifications of the vowels present in the new diphthongs

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

Table 2 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

Table 3 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	gəˈʃpʁɔχ̟ən
	ˈgeː.bən	gaːp	ˈgaː.bən	gəˈgeː.bən
Im.	ˈʃprœx.xə	ʃprax (3SG.PRET.SBJV)	ˈʃprax.xə (3PL.PRET.SBJV)	ˈkʃprox.xə
	ˈĝøi.βə	ĝaːb̥ (3SG.PRET.SBJV)	ˈĝaː.βə (3PL.PRET.SBJV)	ˈĝøi.βə

ening 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 2 and 3:

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/),[16] 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 $\bar{\imath}$ $\bar{\ddot{u}}$ $\bar{u}$ wäre. Das wäre der Anstoß zum phonologischen Kettenschub, denn die Diphthongierung würde dann die Oppositionen im System aufrecht erhalten"[17] (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

[16] 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.

[17] '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 $\bar{\imath}$ $\bar{\ddot{u}}$ $\bar{u}$. This would be the trigger of a phonological chain shift, as diphthongisation would then maintain the oppositions in the system.'

Table 4 Remaining uses of the circumflex over 'short' vowels

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

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.)

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 (all place names).

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/ < /egi/, 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."[18]

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

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

Table 5 Remaining uses of the circumflex over 'short' vowels

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[1]	18	*dv̂* (*du*, *dû*), *nv̂* (*nu*, *nû*)

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

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 ⟨u̍,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 and where they do occur, they fall into the same four contexts as noted above (see Table 5).

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),

Table 6 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

⟨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"[19] (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⟩ (/entʃumpfiərt/ '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 6. 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. [ˈkx̫em.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 ⟨wâs:karfodyâs⟩). It seems likely that Wolfram felt free to employ a short-vowel variant form of the verb *rôten* ('be, become red INF')[20] 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')

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

[20] 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. 1863, 771; Schützeichel 2006, 282).

and the verb *rôten~roten* (/ˈroːtən/~/ˈrotən/ ‘be, become red INF’) or the certainly short *goten* (/ˈgotən/ ‘god PL’ l.45,01).

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

[21] Compare Im. [ˈpøitə, fərˈmiːd̥ (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 *trëtan* ‘step’, explaining the lack of OSL and its geminate /t/.

Table 7 Comparison of the Carinthian chancery documents with the *Parzival* MS

		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	?	✓

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 7.

5 Diphthongisation

5.1 General remarks

It is now possible to investigate Penzl's (1974, 1975) claim that OSL triggered diphthongisation via a push-chain. The concept of push-chains of the kind envisaged by Penzl goes back to Martinet (1952) and later work by Labov (1994), but care must be taken in proposing a push of this kind (see, for example, Hock 1986, 156–7; Gordon 2015 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 paper is not the possibility of chain shifts more generally, but specifically that OSL and diphthongisation cannot be accounted for in such terms. Section 4 demonstrates 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 [e̯i,o̯u] 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 paper. 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,o̊⟩ 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 (ca. 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.[22] Hands

[22] 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*

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 versus non-high vowels

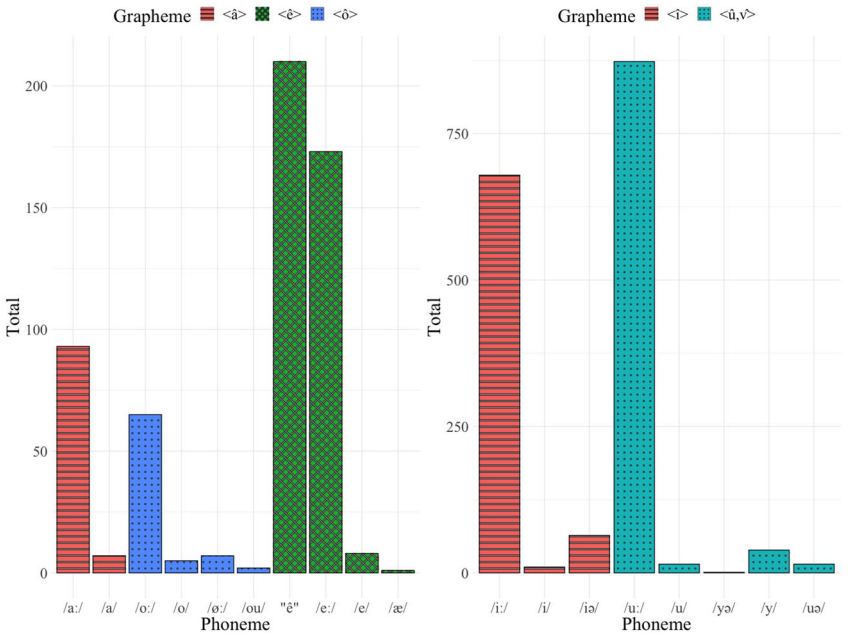
If one sets aside the assumption that the circumflex directly represents length and considers its distribution, certain tendencies soon become apparent. Let us first consider the plain monophthongs: as Figure 3a reveals (note the different *y*-axis scales), there is a significant difference in frequency between the high vowels ⟨î,v̂⟩ (together numbering 1552) and the non-high dorsal vowels ⟨â,ô⟩ (each comprising fewer than 100 tokens in the whole text), with the non-high coronal vowel ⟨ê⟩ (383) somewhere in between.[23] 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.[24] As Figure 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,v̂⟩, 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,o̤,æ,ei,v̊,o̤⟩ (/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/).

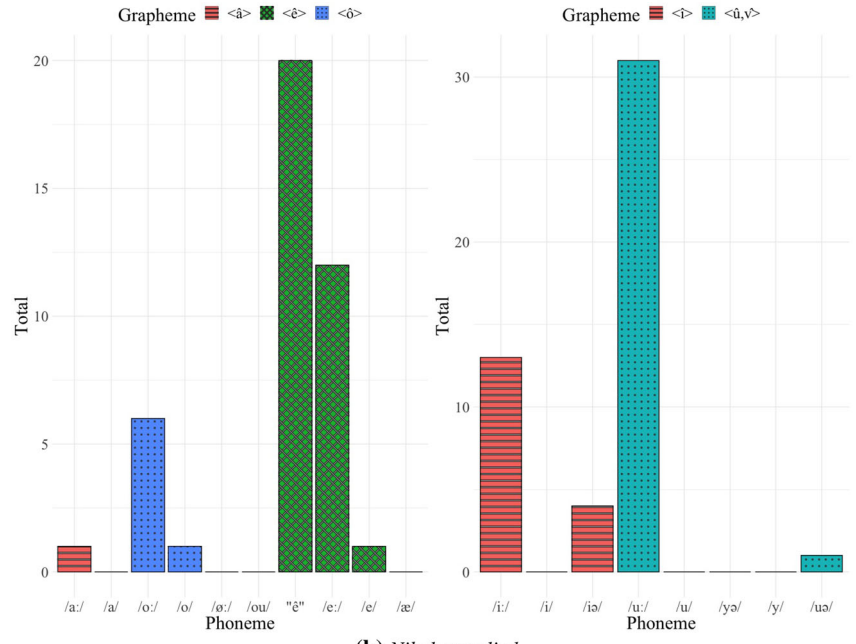
'avow 3SG.PRET') or the non-native suffix ⟨-îe⟩ (<OF *-ie*; NHG *-ei* /-aɪ/), distinct from the MHG diphthong ⟨ie⟩ /iə/ (NHG *-ie* /iː/).

[23] 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.

[24] *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*

Fig. 3 Total number of tokens of ⟨â,ô,ê,î,û⟩ used by Hand III and the phonemes they represent in two MSS

Table 8 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/	⟨v̂⟩	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

Why? Table 8, 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 ca. 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.

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

Table 9 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]$_\sigma$
47	19	8	1	1	3	1

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

Excluding nonnative proper nouns, loans and cases not representing the phonemes /aː/ or /oː/

MS, difficult to account for if the circumflex merely denoted length.[25] 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.

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 9 shows, 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] D 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

[25] 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').

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.[26] 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 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 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 10, 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⟩.

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

[26] 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* ['baɪʃpiːl] 'example', *Eis* ['aɪs] 'ice').

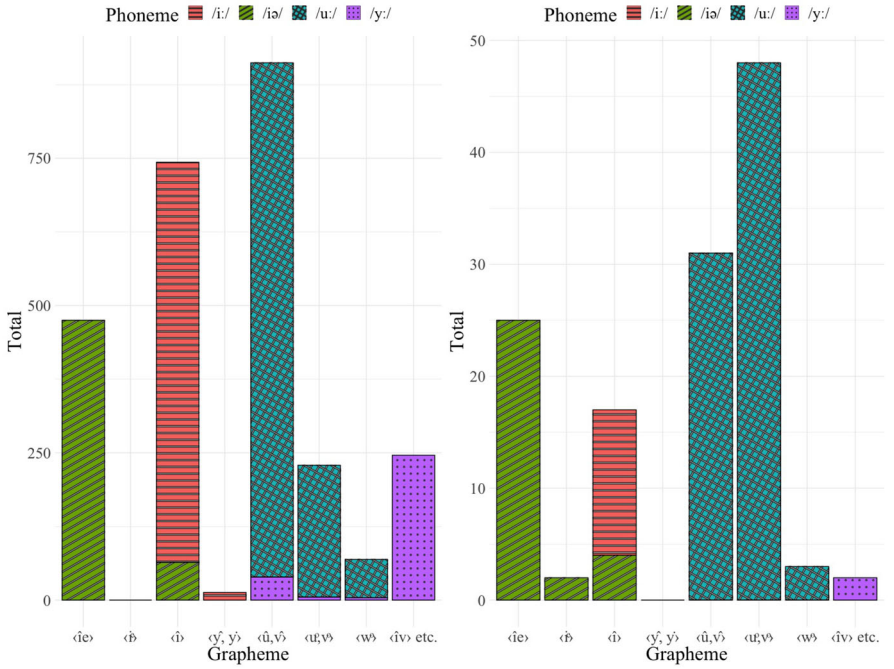


Fig. 4 Alternative spellings of the long high vowels and the diphthong /iə/ used by Hand III in two MSS: *Parzival* (left) and *Nibelungenlied* (right)

Table 10 The proportion of each VV phoneme marked with a circumflex in *Parzival*, separated into monophthongs (M) and diphthongs (D)

	Total number (to the nearest 50)	Percentage marked with a circumflex
M VV Phoneme		
iː	10,000	10.1
aː	9000	1.0
oː	4400	1.4
yː	3400	4.3
eː	2700	13.9
uː	2050	42.5
æː	1600	0
øː	400	1.7
D VV Phoneme		
ei	5950	4.4
iə	5500	9.8
uə	2950	0.5
ou	1900	0.1
yə	800	0.1
øy	50	0

lexeme SÎN ('his') total 1,908[27] 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').[28] 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] '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⟩,

[27] This total does not include the homophonous verb, *sîn* ('be' cf. NHG *sein*/*sein* 'be'/'his'), which is invariably accented.

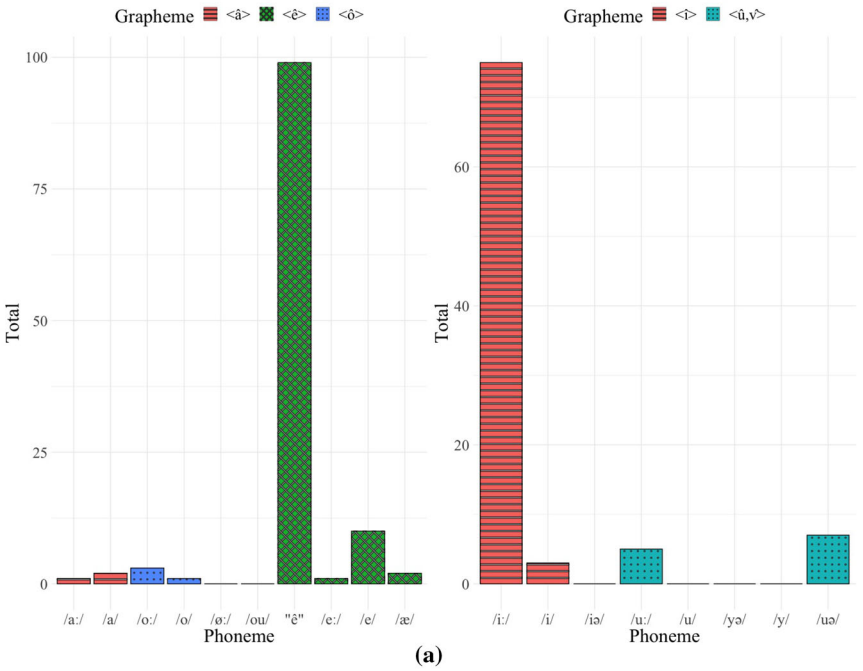
[28] Thanks to an anonymous reviewer for this observation.

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/e̊⟩. 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 ⟨o̊,v̊,o̊/e̊,v̊⟩. 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 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? Figure 5a, b represent the behaviour of Hand V, equivalent to Figs. 3 and 4 for Hand III. Hands I, II and IV, representing extremely small samples, are included for comparison in Fig. 6a–c. 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";[29] 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

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



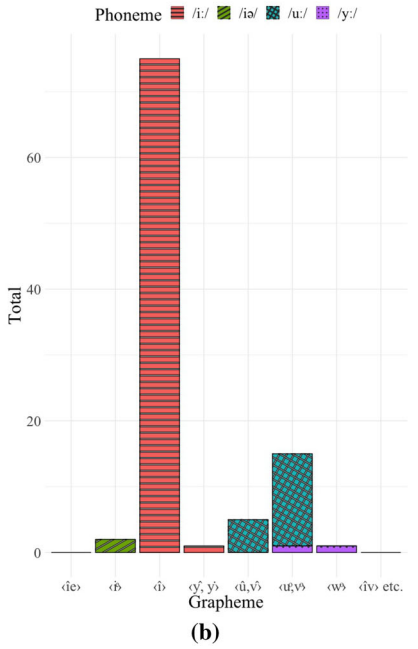
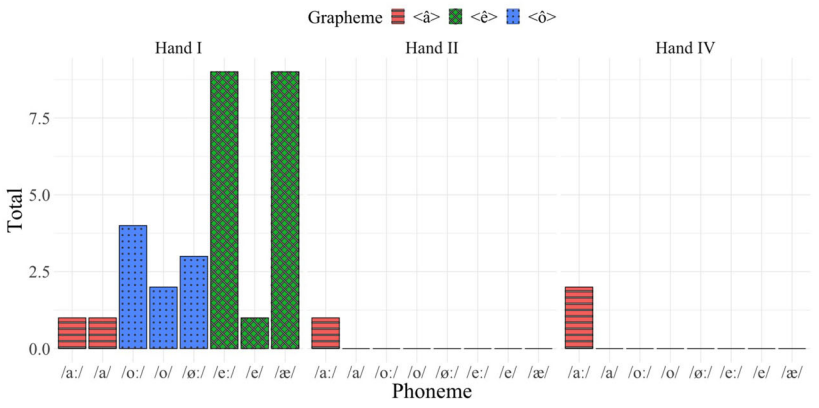
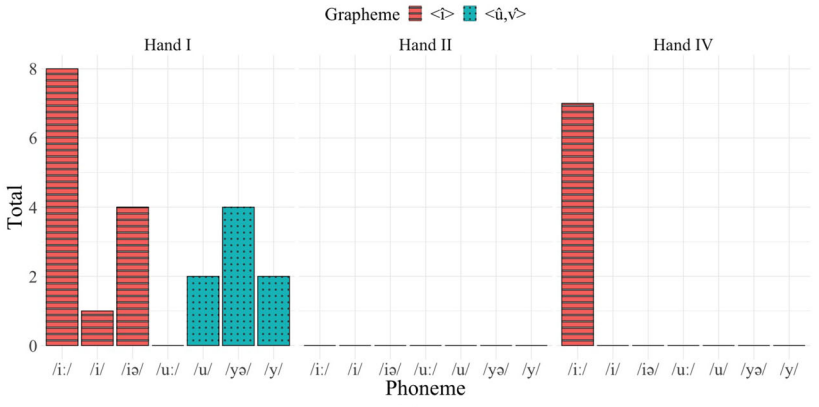


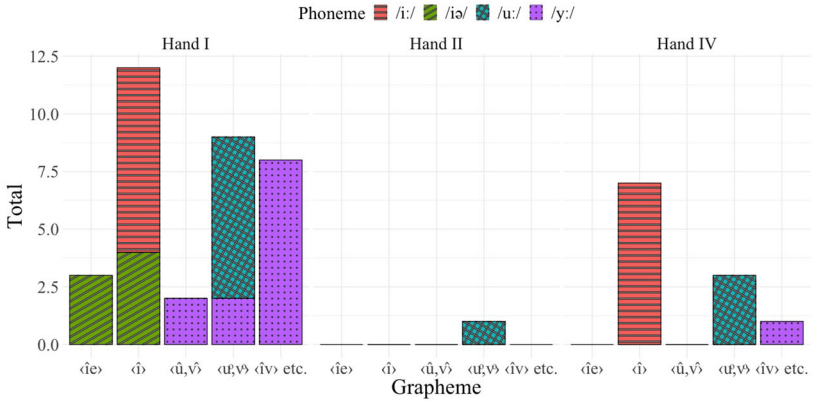
Fig. 5 **a** Total number of tokens of ⟨â,ô,ê,î,û⟩ used by Hand V and the phonemes they represent; **b** alternative spellings of the long high vowels and the diphthong /iə/ used by Hand V



(a)



(b)



(c)

Fig. 6 Total number of circumflected vowels used by Hands I, II and IV: **a** ⟨â,ô,ê⟩ and **b** ⟨î,û⟩; and **c** alternative spellings of the long high vowels and the diphthong /iə/ used by Hands I, II and IV

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 /e/ (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 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,v̂⟩). 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 Sects. 4 and 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 paper 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 paper 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 paper).

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* /ˈtrɛːtən/ 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 paper 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 paper 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 ⟨i, ie, ei⟩ for Cl-MHG *î* /i/ or ⟨o͛, 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 ⟨o͛, v̊, v̊⟩ (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,yː/, 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 paper therefore introduces a new accent marking to the taxonomy of notation of diphthongs, and the evidence presented in Sects. 4 and 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.

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Declarations

Competing interests There are no competing interests to disclose.

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