UNIVERSITÉ LYON III
JEAN MOULIN

François Weber

A history of the semi-vowels /j/, /w/and /ʍ/ in English

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François Weber

M2 LLCE Monde anglophone

Université Jean Moulin – Lyon 3

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Sous la direction de M. Jobert, professeur des universités à l'Université Jean Moulin – Lyon 3

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Abbreviations and conventions

1, 2, 3 – 1st, 2nd, 3rd person

acc. – accusative case

C – any consonant

dat. – dative case

EOE – early Old English

EME – early Middle English

EModE – early modern English

Fr – French

GA – General American

gen. – genitive case

Ger – German

Goth. – Gothic

H – any of the laryngeals (PIE)

IE – Indo-European

ind. – indicative

inf. – infinitive

K – any velar

Kt – Kentish dialect

Lat. – Latin

LOE – late Old English

LWS – Late West Saxon

ME – Middle English

MLG – Middle Low German

ModE – modern English (1476-)

N – any nasal obstruent

n. – noun

Nbr – Northumbrian dialect

nom. – nominative case

NWG – Northwest Germanic

OE – Old English

OF – Old French

OFris – Old Frisian

OHG – Old High German

ON – Old Norse

OS – Old Saxon

part. – participle

PDE – present-day English

PG – Proto-Germanic

PIE – Proto-Indo-European

pl. – plural

pOE – prehistoric OE

sg. – singular

subj. – subjunctive

V – any vowel

WS – West Saxon dialect

'*' denotes reconstructed forms (see 2 – History prior to Old English).

Reconstructed PIE and PG long (bimoraic) vowels have a superscript macron '‾', e.g. *jēra*.

Reconstructed PG nasalised vowels have a subscript ogonek: ' ą ' /ɑ̃/.

For OE, I use superscript macrons to indicate long vowels and 'long' diphthongs, while I leave 'short' diphthongs unmarked. For a discussion of short and long diphthongs in OE, see for example Lass 1992: 39.

OE palatalised consonants are dotted: 'ġ', 'ċ'. See 3.2.

I do not, for any stage of the language, mark affricates by the tie bar '⌢', for the sake of legibility and clarity.

I enclose phonetic transcriptions in square brackets '[ ]' and broad or phonemic transcriptions in slashes '/ /'. When transcriptions are given for both RP and GA, I use the following format borrowed from LPD: 'RP transcription || GA transcription'.

Footnotes are referred to as 'n', as in "Hogg 1992a §5.74n1": footnote 1 in paragraph 5.74.

All translations are mine.

1 Introduction

The goal of this work is to gather in one place the information available in a variety of sources about the development of the phonemes /j/ and /w/ in English. The phoneme /ʍ/ is also treated, not only because it has all but merged with /w/ in most cases, but also because it seemed interesting to include all three glides in my discussion.[1] The other approximants of English are left out, however, because they do not function as glides and do not share as many characteristics with /j w ʍ/ as these three share between themselves.

This historical treatment of the glides of English is concerned both with the sources of English /j/ and /w/, and with the sound changes whereby occurrences of these glides were introduced (e.g. EModE /aːn > waːn/ 'one') or lost (OE /swutʃ > sutʃ/ 'such') in the past. To this end, we will first explore the Proto-Indo-European ('PIE') reconstructed phonological system and, working chronologically, we will make out way to present-day English ('PDE'). The effects the glides have had on neighbouring sounds will also be treated (for example, /wa/ > /wɒ/). However, space being a limitation in a work like this one, some sound changes will be omitted or only briefly alluded to. As a further limitation, I have restricted my research to the major varieties of English – by "major," I mean the varieties with the greatest number of speakers and the better-known: Received Pronunciation ('RP') and General American ('GA') for the contemporary period, and for previous stages of the language, whatever variety is well attested and documents. In the case of Old English too, we will focus on a somewhat standardised lect – more will be said about his in the appropriate section. Lesser-known varieties of English, past and present, as well as foreign languages, will be appealed to when they provide interesting examples and parallels.

This chronological study is divided according to the usual stages of English for the sake of convenience only. The usual divisions may have much to recommend them when the language is considered as a whole (although they also have disadvantages), but the changes affecting /j/ and /w/ in particular do not fit well into these stages. Regardless, I chose to include into each of these sections the changes that began or were most productive at the corresponding period. For example, the merger between /w/ and /ʍ/ is not complete in all varieties of English at the present time, though it is for many speakers; but since it seems to have begun in OE and to have

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1   The official IPA chart is reproduced in the Annex for convenience. All the symbols used in phonetic transcriptions in this work, unless otherwise stated, are official IPA symbols.

very gradually spread to all dialects and social classes, very few new details could be added later in the chronology. It was deemed relevant to place all the relevant information in one section rather than to spread the discussion of a particular feature over several periods. Changes such as deletion and insertion of glides, which occurred under different guises at several points in the history of English, are treated separately at the end of this work.

1.1 Evidence and orthography

Since no recording of spoken English exists before c. 1900, the only physical evidence we have for the great majority of the vast period we cover in this study are written. The other form of evidence available is the English spoken today, from which we can make our way back and make hypotheses as to what the precursor of today's English must have been like. While this method is indirect and mediated and, as such, leaves room for interpretation, it would be wrong to assume that written evidence can be interpreted in an unmediated way. It, too, is subject to interpretation. Inverted spellings are a case in point: the spelling <warsse> or *worse* found in the Cely Letter (late 15th century) shows that for the writer, /a/ could already be rounded after /w/, or at least that (s)he was aware of this new tendency.

From the 16th century on, orthoepists and language reformers leave an increasing quantity of information about English as it was spoken in their time, although this form of evidence too needs to be relied on with caution – often, what we can rely on blindly in the orthoepists' testimony is what they thought was the "right" pronunciation of a word or phoneme, rather than how people actually pronounced them (that is to say, they took a prescriptive approach). Some major 20th-century works that relied on orthoepic evidence are Campbell (1959), Dobson (1968), Jespersen (1965) and Wyld (1956).

The earliest evidence we have of English is in the form of short texts written in the runic alphabet in the 5th century, carved most often in wood, bone or stone. The first lengthy texts are all written in the Latin alphabet: Cædmon's Hymn, the Épinal Glossary and the Erfurt Glossary were all written c. 700 CE. The first of these is a poem written in OE, the other two are Latin texts with OE glosses. The alphabet used in OE is a modified version of the Latin alphabet, which had the additional letters <æ>, <ƿ>, <ð> and <þ> ('ash', 'wynn', 'eth' and 'thorn'). *Wynn* is

not usually printed in recent publications because of its similarity with <p> and <þ>; <w> is used instead (Hogg 1992c: 74-75). Conversely, some familiar letters were not normally used in OE, and in particular <j> did not exist. The letter <y> did, but it represented the vowel /y/, and the phoneme /j/ was represented by <g>, usually printed with a superscript dot – i.e. 'ġ' – in modern publications to differentiate it with other phonemes (see §3). The phoneme /w/ was first noted <uu>, <u> and <w> (Hogg 1992c: 76), until *wynn* was borrowed from the runic alphabet in the 8th century. *Wynn* was replaced by <uu> again in the 11th century and disappeared c. 1300 (Bourcier 1978: 63n95). The letter <v> was sometimes used for /w/, probably because of Latin usage. An example with <uu> is OE *lœuued* (Lass 1992: 49) and <v> is used in the following line from "Saint Mary of Egypt" (c. 1480):

> I sal sa quhow myn saule **v**ithine is fylyt vith a **v**latsum syne
>
> ("I shall see how my soul within is filled with a loathsome sin")
>
> (OEDo, "wlatsome, adj.")

This quote also shows that /w/ can appear in the clusters /hw/ (spelt <quh> here) and /wl/, and an example with /wr/ is *wrītan* 'to write'. We will discuss these three clusters during out treatment of the Old English period. The letter <u> was used in the digraph <qu> or <cu> to represent /kw/ mainly "in very early texts … e.g. [Épinal Glossary] *quiða* 'womb' rather than usual *cwiða*" (Hogg 1992c: 75; Bourcier 1978: 146). Starting in the 12th century, scribes used <qu> again (maybe under the influence of French) and <cw> disappeared in the 13th century (Jespersen 1965 §2.327).

The kind of written primary or secondary evidence available for the historic period does not exist before the Middle Ages. Since we begin our chronology of /j/ and /w/ at the time of the proto-languages from which English has developed, other kinds of evidence will have to be used. Just as we said above that the present state of a language can allow us to peep at its past, proto-languages can be reconstructed by studying their daughter languages. We will use the findings of this technique, called the comparative method, to discuss the prehistory of English.[2]

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2   Introductions to the comparative method can be found in Clackson (2007) and Millar (2015: 191-233).

1.2 The phonetics of /j/ and /w/

The terms 'approximant', 'glide' and 'semi-vowel' are sometimes used nearly interchangeably to refer to segments such as /j/ and /w/. Some authors consider glides a subset of approximants (the latter containing /j w l r/ etc., only the first two of which are glides). While Carr (1994: 145) defines 'glide' as "semi-vowels like [w], [j] and [ɥ], which are often desyllabified versions of /u/, /i/ and /y/," Laver (1994: 270) says 'approximant' is "broadly comparable to the traditional phonetic terms 'semi-vowel' and 'frictionless continuant'."[3] In his framework, Laver classifies segments as contoids and non-contoids, the latter being tantamount to central resonants. Non-contoids are vocoids (I use the term 'vowel') if they are syllabic and approximants if they are non-syllabic (147-49). This classification of vowels and approximants into the one group of non-contoids emphasises the close association that exists between these two types of segments: an approximant is essentially "a rapid vocalic glide onto a syllabic sound of great steady duration" (Cruttenden 2008: 224). Approximants and vowels are, therefore, differentiated by their relative duration, but also by their phonotactics: vowels are always nucleic and syllabic whereas approximants are marginal in the syllable and non-syllabic (this is the consonantal half implied in 'semi-vowel').[4] I will use the three terms somewhat indifferently, but each has its own particular appeal: 'approximant' stresses the open degree of stricture necessary to produce it; 'glide' seems relevant when such a segment is introduced inadvertently between two other segments; 'semi-vowel' is appropriate for cases where such a segment alternates with a vowel, as we will see was often the case in PIE.

In relation to the other classes of segments, approximants have the most open degree of stricture – "they are like vowels in their stricture" (Carr 1993: 55), that is to say that "the articulators are not sufficiently close to induce turbulence and audible friction" (ibid.: 1). I follow Carr's definition of approximants as [-cons -syll], which also implies they are [+cont] (ibid.: 57). In [j], "the front of the tongue … is raised, but not far enough to hinder the airflow" (Ladefoged & Disner 2012: 53), which makes it a voiced palatal approximant. [w] "has a stricture of open approximation between the lips, and also between the back of the tongue and the velum," hence its being labelled a voiced labial-velar approximant (Carr 1993: 6).

[ʍ], the voiceless counterpart of [w], is sometimes considered a fricative (see the IPA chart

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3   Ladefoge & Maddieson (1996: 322) condemn the use of the term 'glide' and refer to approximants as "vowel-like consonants."

4   Jakobson, Fant and Halle (*Preliminaries to Speech Analysis*, 1952) even transcribed *woo* and *ye* as 'uuu' and 'ii' (Ladefoged & Maddieson 1996: 322-23).

in the Appendix). Other sources, such as Laver (1994: 312) consider it as an approximant. The situation is not clear-cut, as shown by the discussion of the issue in Ladefoged & Maddieson (1996: 326). I do not enter into these considerations here and I include /ʍ/ in my study regardless, if only because it is a close parallel to /w/ and it has merged with it for many speakers.

Diphthongs are outside the remiss of this work, but it is not easy to differentiate a segment of a vowel plus an approximant from an actual diphthong, and precisely this issue will arise in OE and ME. When a sequence whose nature (diphthong or approximant) is uncertain, unless an approximant is part of its past or future history (as in PDE *way* < OE *weġ* /wej/), we will ignore it.

2 History prior to Old English

To retrace the history of PDE /j/ and /w/, we have to look back at the previous stages of the language. English is part of the Germanic family, which is itself a sub-family within the Indo-European family. The ramifications of the 'family tree' of the English language are not uncontroversial but the phylogeny presented in Figure 1 (adapted from Ringe 2006: 213 and Hogg 1992a §1.3) is perfectly acceptable for our purpose:[5]

PGer

East Germanic

Gothic (extinct)

Northwest Germanic

North Germanic

Icelandic, Swedish, …

West Germanic

Ingvaeonic

OE, OFris, …

Inland

OHG
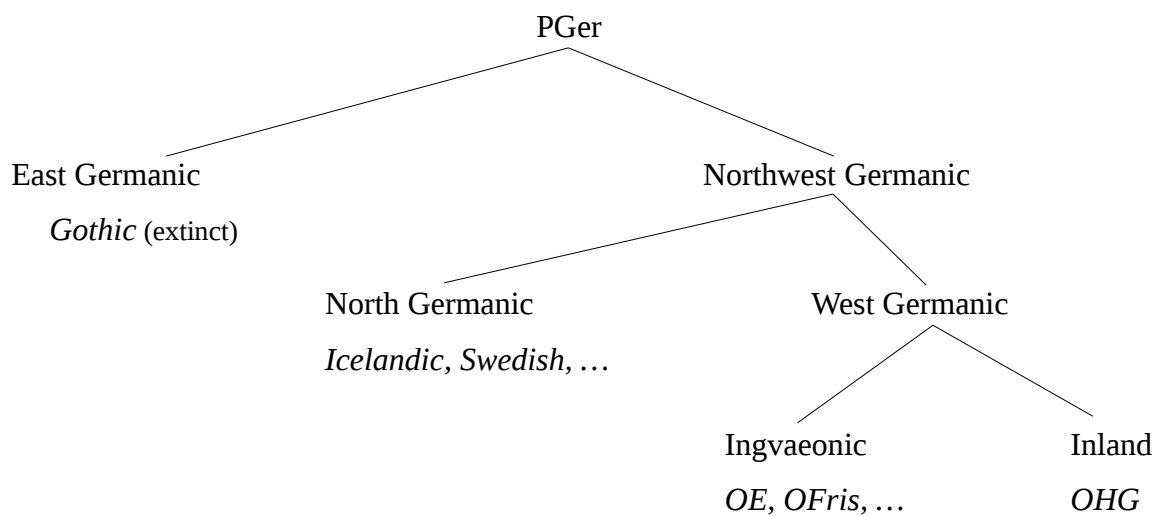
Figure 1*: the phylogeny of Proto-Germanic*

Proto-Germanic, the hypothetical mother language of all Germanic languages, was probably spoken "in and around Denmark a few centuries [BC], but probably not earlier than about 500 BC" (Ringe 2006: 213). One alternative view to the one illustrated in Figure 1 holds that Ingvaeonic and Inland Germanic are not sub-groups within West Germanic, but rather that they are direct offshoots of the Northwest Germanic sub-family. That is, the Northwest Germanic group would have split into North Germanic (or Scandinavian), Ingvaeonic, and Inland Germanic "probably by the end of the fourth century [CE]" (Hogg 1992a §1.3). The position of Germanic within the greater IE family is of marginal importance for the discussion at

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5   See Ringe 2006: 213 for more on the Germanic family. On PIE and the argument that several, different phylogenies can correctly describe a family, see Clackson (2007: 9-15). Millar (2015: 170-71) has family trees for Germanic and IE and Millar (2015: 173) has a "wave diagram" of the Germanic family. Campbell (1959 §2n2) expresses a similar caveat to mine.

hand.[6]

This chapter briefly introduces the PIE and PG phonological systems as usually reconstructed and introduces important phenomena that affected these proto-languages. A major source for this section is Ringe (2006: 68-151, 214-253).

2.1 Proto-Indo-European

Tables 1 and 2 present the phonological system of PIE in its traditional reconstruction.[7,8]

Obstruents:

		bilabial	coronal	palatal	velar	labiovelar
stop	voiceless	p	t	$\acute{k}$	k	k^w
	voiced	(b)	d	$\acute{g}$	g	g^w
	aspirated	b^h	d^h	$\acute{g}^h$	g^h	g^{wh}
fricative			s			
'laryngeal':		h_1, h_2, h_3				

Table 1: *the obstruents of PIE*

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6   For details about the PIE hypothesis and the Indo-Europeans, see Clackson (2007: 2) and Ringe (2006: 4).

7   Tables 1 and 2 are reproduced from Ringe 2006: 6-7 with two emendations. Authors in PIE studies conventionally use a subscript circle to indicate a syllabic sonorant (e.g. **wódr̥* 'water (nom. sg.)) and the symbol 'y' for the voiced palatal approximant (e.g. */áljos/* 'other', realised /áljos/). To avoid any ambiguity – the IPA subscript circle is used to denote voicelessness – I consistently use the IPA subscript notch for syllabic sonorants *(*wódr̩)*. I retain <y> when citing words but I use the IPA symbol 'j' in phonological and phonetic transcriptions.

8   Few, if any, of the entries in this table are uncontroversial. See Ringe (2006: 7-8) on the debate about the realisation of the 'palatal' stops and 'laryngeals'. Since "[t]he PIE 'palatal' and 'velar' stops … merged as velars" early in the history of PG (Ringe 2006: 88), the existence of the 'palatal' series as independent from the velars is of no importance to the present study. For the three series of stops, and for the problem of 'aspiration', see e.g. Clackson (2007: 40-48). For */b/, see note 13 below.

sonorants:		high vowels:		nonhigh vowels:		
j (~ i)	w (~ u)	i	u	e	a	o
	r (~ r̥)	ī	ū	ē	ā	ō
	l (~ l̥)					
	m (~ m̥)					
	n (~ n̥)					

Table 2: *the sonorants of PIE*

The sonorants were underlyingly non-syllabic but could become syllabic in the following circumstances: if a sonorant "was adjacent to a syllabic …, it remained nonsyllabic, but if not, it was assigned to a syllable peak" (Ringe 2006: 15).[9] E.g. ****wódr̥*** ~ ***u****dén* 'water' (nom.sg. ~ gen.pl.) where the underlying */w/ is realised as *[w] before the nucleus */o/ in the nominative singular and as *[u] in the genitive plural. Similarly, */j/ could be realised as *[j] or *[i] (see Ringe 2006: 9-10).

2.2 Proto-Germanic

Table 3 sets out the reconstructed consonant system of PG (emended from Ringe 2006: 214).

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9   See also Clackson (2007: 35) for PIE, and Carr (1993: 42ff) for an example of alternation [u ~ w] in Xhosa.

		bilabial	dental	alveolar	velar	labiovelar
plosive	voiceless	p	t		k	kʷ
	voiced	b [b ~ β]	d [d ~ ð]		g [ɡ ~ ɣ]	gʷ [ɡʷ ~ ɣʷ]
fricative		f /ɸ/	þ /θ/	s z	h	hʷ
nasal		m	n			
approximant			l	r		

glides: j, w

***Table 3:** the consonants of Proto-Germanic*

The voiced and voiceless plosives are presented in separate rows because of structural differences: the voiced plosives were realised as fricatives between vowels and, in the case of *g*, probably also word-initially; they were all realised as stops after a homorganic nasal.[10] Regardless of their surface realisations, I use the notations <b d g> in all environments for the voiced stops. No effort is made here to argue for one or the other manner of articulation in the underlying phonemes.

*h, hʷ were probably [h] word-initially and [x] elsewhere.

The vocalic system consisted of i, *e, a, u*;

$\qquad\qquad$ *ī, ē, ā, ū, ō*;   ('long' or 'bimoraic')[11]

$\qquad\qquad$ *eu, ai, au.*

A few changes with far-reaching effects are described in the following paragraphs.[12]

2.2.1 Grimm's Law

Through this series of changes, the plosives inherited from PIE were regularly shifted in

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10   See Ringe (2006: 215) for a more accurate and complete account of this allophony.

11   Some sources consider 'overlong' or 'trimoraic' vowels as independent phonemes. As their existence did not extend into the OE period, I chose to regard them as sequences of vowels in hiatus – see Ringe (2006: 73-74).

12   For the relative chronology of these sound changes, see Ringe (2006: 93-105); on the view that Verner's Law postdates, or was contemporary with, the shift of stress, see Hogg (1992a §4.4n1), Petrova (2004), and Ringe (2006: 104).

the following fashion, unless they followed another obstruent: for all four places of articulation, PIE voiceless stops became PG fricatives; PIE voiced stops became PG voiceless stops; PIE aspirated stops became PG voiced stops. See table 4.

voiceless stop → fricative	voiced → voiceless stop	aspirated → voiced stop
p → ɸ	b → p	bʰ → b
t → θ	d → t	dʰ → d
k → x	g → k	gʰ → g
kʷ → xʷ	gʷ → kʷ	gʷʰ – see §2.3

Table 4: Grimm's Law

Examples of PIE obstruents shifted by Grimm's Law include (from Ringe 2006 and Millar 2015: 88):[13]

PIE *$ph_2tér$* 'father' → OE *fæder*. Cp. Lat. *pater*, AGk πατήρ (*patér*).

PIE *tréyes* 'three' → OE *þrī*; Lat. *trēs*.

PIE *$dékṃt$* 'ten' → OE *tēon*; Lat. *decem*.

PIE *$gṛh_2nóm$* 'crushed, ground' → OE *corn*; Lat. *grānum* (grain, corn).

PIE *bʰer-* 'to bear, carry' → OE *beran*; Lat. *ferre*; *fōrs* (luck, > *fortūna*); AGk φέρειν (*phérein*; hence PDE *metaphor*).

The labial-velar stops are discussed in §2.3.

2.2.2 Verner's Law

After Grimm's Law applied, the voiceless fricatives in the system (i.e. PIE */s/ and the PIE voiceless stops shifted by Grimm's Law) became voiced fricatives "if they were not word-initial *and* not adjacent to a voiceless sound *and* the last preceding syllable nucleus was unaccented" (Ringe 2006: 102). While there were quite a few visible effects of Verner's Law in OE (see the examples below), the remnants in PDE are few: *death ~ dead, to raise ~ rear* and *was ~ were* are, according to Bourcier (1978: 35), the only relatively frequent examples. We can also think of *forlorn* (< OE *forlēosan*). Table 5 summarises Verner's Law. The stages noted '(1)' and '(2)'

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13 No example of PIE *b* shifting to PG *p* is included because of the scarcity of reconstructed forms containing this phoneme – indeed, it may have been absent altogether from the PIE consonantal system. See, for example, Ringe (2006: 8, 17) and Clackson (2007: 33).

are the reconstructed outputs of Grimm's Law and of Verner's Law, respectively.

ɸ → β	PIE *septḿ 'seven' → (1) *sefúnt → (2) *sebun → OE seofon ['seo.von]. Cf. Lat. septem.
θ → ð	PIE *ph₂tḗr 'father' → pre-PG *faþḗr → PG *fadēr → OE fæder. Lat. pater.
x → ɣ	PIE *sweḱrúh₂ 'mother-in-law' → pre-PG *swehrū́ → PG *swegrō → OE sweġer /'swejer/.

Table 5*: Verner's Law*

Examples of alternations due to Verner's Law in OE include:

ċēosan 'to choose' ~ curon (3pl. present) ~ (ġe)coren (past part.);

weorðan 'to become' ~ wurde (2sg. past);

forlēosan 'to lose; destroy' ~ forluron (3pl. past) ~ forloren (past part.).

The importance of VL for the history of /j/ will be demonstrated in §3.2.

2.2.3 Stress shift

After Verner's Law, the contrastive stress of PIE systematically shifted to the first syllable of morphemes (Lass 1992: 85; Ringe 2006: 105). This state of affairs still obtained in OE to the exclusion of loanwords in some circumstances: compounds usually had primary stress on the first element and secondary stress on the latter.[14] Some prefixes – such as *ofer-* and *un-* – could be either stressed or unstressed, depending on the grammatical nature of the root and of the prefix: compare *oferhyġdum* [ˈoverˌhyjdum] 'excessive pride' with *oferhogode* [overˈhoɣode] 'scorned (past)' (Minkova 2014: 196). At the other end of the spectrum, the prefixes *be-* and *for-* were mostly unstressed, while *ge-* was always unstressed (Campbell 1959: 30-31).

2.3 From Proto-Indo-European to Old English

The following examples are cases in which PIE */j/ and */w/ were maintained until PDE:[15]

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14 An exception to word-initial stress in OE loanwords is *crown* < Lat. *corōna* (stressed on the penultimate), where syncope in the first syllable strongly suggests that it was unstressed (Minkova 2014: 289-90).

15 My references for PIE and PG etymologies, in addition to Ringe (2006), include Harper (etymonline.com), Orel (2003) and Pokorny (1959).

PIE *wérǵom > PG *werką > OE weorc > PDE work. Cp. AGk ἔργον (érgon).

PIE *wos-eyo 'to clothe' > PG *wazjaną > OE werian > wear.

PIE *yer-o- > PG *jērą > OE ġēar > year.

PIE *yugóm > PG *juką > OE ġeoc > yoke. Cp. Lat. iugum (> Fr joug 'yoke').

In addition to PIE */w/, PG inherited some occurrences of */w/ from the PIE labiovelars *kʷ, *gʷ, *gʷʰ. These "were pronounced with lip-rounding but were otherwise identical with the 'velars'" (Ringe 2006: 7). Single labiovelars and *Kw sequences merged into labiovelars in the development of PG (Ringe 2006: 90).[16] Lip-rounding was regularly maintained in the outputs of Grimm's Law for *kʷ and *gʷ – see Table 4:

PIE *kʷón 'whom' > PG *hʷanǭ > OE hwone;
PIE *gʷḗn 'woman' > PG *kʷēniz 'wife' > OE cwēn > PDE queen.

Except word-initially, the output by Grimm's Law of */gʷʰ/ was */gʷ/ (which is congruous with the pattern set by the other aspirated plosives) and often "either the labialization or the occlusion was lost" in PG, yielding */w/ in the latter case (Ringe 2006: 107):[17]

PIE *snoygʷʰos 'snow' > PG *snaiwaz > OE snāw (cp. Lat. ningit 'it snows' from the cognate PIE root *sneygʷʰ-).

Word-initially, however, this phoneme regularly yielded PG */b/:

PIE *ǵʰwér- 'wild animal' > PG *berōo 'bear' > OE bera (cp. Lat. ferus 'wild').

As can be seen in the last set of examples, the PIE glides were lost in a number of circumstances. Other phenomena with similar effects are presented in the next paragraphs.

2.3.1 Siever's Law and related changes

An intricate interaction of sound changes affected PIE sonorants, and */j/ in particular. By Siever's Law ('SL') a nonsyllabic sonorant was replaced by the corresponding syllabic consonant if it was "immediately preceded by two or more nonsyllabics, or by a long vowel and a nonsyllabic" (Ringe 2006: 16), but also possibly by a word-initial *CHC- sequence (ibid.: 121). Compare PIE *pedyós 'of feet' and *neptiós 'of grandsons', both with the suffix *-yó-. Then in pre-Germanic times, the converse of Siever's Law operated: a syllabic */i/ after a light syllable

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16   I will henceforth write Kʷ in such cases, reflecting the early PG state. Ladefoged & Maddieson (1996: 328-68), a discussion of "multiple articulatory gestures," examines the distinction between "a consonant with a secondary articulation and a sequence of a consonant and an approximant" and doubly-articulated obstruents.

17   */gʷ/ could also be the outcome of PIE */kʷ/ through VL: *kʷ > *hʷ (GL) > PG *gʷ.

was replaced by the corresponding glide:

> PIE *kh₂piéti* '(s)he is grasping' > *kapiéti* > pre-PG *kapjéti*;[18]
>
> PIE *kh₂piónti* 'they are grasping' > pre-PG *kapjónti*.

These two related changes are the product of one tendency, whereby a syllabic appears after a heavy syllable and a non-syllabic after a light syllable. This phenomenon is not a single sound change, for if such was the case the alternations between syllabic vowels and non-syllabic glides would have surfaced in pre-Germanic already.[19]

Table 6 details the subsequent application to *kapjéti* of Grimm's Law, the shift of stress to the initial syllable, the raising of unstressed */e/ to */i/ (Ringe 2006: 122) and the loss of */j/ (§2.3.3.1). OE *hefeþ* differs from *hebbaþ* (3pl.), in which */j/ remained and West Germanic gemination ('WGG') and a further case of *j*-deletion consequently applied (whereas raising of unstressed */e/ in the singular form bled WGG).[20]

pre-Ger converse to SL	*kapjéti*	*kapjónti*
GL, stress shift	*habjeþi*	*habjanþi*
raising of unstressed *e*	*habjiþi*	*habjanþi*
loss of *j* (> PG form)	*habiþi* '(s)he lifts'	*habjanþi* 'they lift'
OE	*hefeþ*	*hebbaþ*

*Table 6: derivations of PIE *kapiéti* and *kapjónti**

When the converse to Siever's Law did not apply in pre-Ger (i.e. after heavy syllables), the outputs (especially in verb endings) often contained sequences of syllabic */i/ + V; there resulted an "automatic offglide [which] was reanalyzed as a separate segment" (Ringe 2006: 120), i.e. */j/:

> PIE *wr̥ǵyónti* 'they are working' > *wurǵiónti* > PG *wurkijanþi* > OE *wyr*[tʃ]*aþ*.[21]

A similar change is the insertion of */w/ and subsequent deletion of */u/ in the sequence *CuwV* in the following example:

> PIE *su(H)īnom* 'of pigs' (neuter of the adjective related to *suH-* 'pig') > *suwīnom* > PG
> *swīną* 'pig' > OE *swīn* > PDE *swine*.

---

18   On the development of the 'laryngeals' in PG, see Ringe 2006: 68-81.

19   See Lass's (1992) §2.5.2 "The length and quantity conspiracies" for a similar tendency ("conspiracy") in OE.

20   On WGG and *j*-deletion, see §2.3.2. Carr (1993: 132) defines bleeding as follows: "In cases … where a rule A precedes a rule B, and by virtue of its application derives Rule B of input, we say that Rule A bleeds Rule B."

21   On /y/ and /tʃ/ in OE, see §3.1 and 3.2, respectively. Pre-PG inserted */u/ before syllabic sonorants. In the output, */u/ is the syllable nucleus and the sonorant is non-syllabic (Ringe 2006: 81).

These epentheses can be generalised under the following statement:

$$\emptyset \rightarrow \begin{bmatrix} \text{-cons} \\ \text{-syll} \\ \text{+high} \\ \alpha \text{ back} \\ \beta \text{ round} \end{bmatrix} / \begin{bmatrix} \text{-cons} \\ \text{+syll} \\ \text{+high} \\ \alpha \text{ back} \\ \beta \text{ round} \end{bmatrix} \underline{\quad} \begin{bmatrix} \text{-cons} \\ \text{+syll} \\ \text{+high} \\ \gamma \text{ back} \\ \delta \text{ round} \end{bmatrix} .$$

That is, the epenthetic segment is an approximant with the same values, for the features [back] and [round], as the preceding (high) vowel.[22] The epenthesis did not take place in *i _ i, which produced */i:/ instead; likewise, the sequence *u _ u would probably have yielded */u:/. Therefore, the formula has to exclude the environment of a following vowel with the same values for the features [back] and [rounded].

2.3.2 West Germanic gemination and subsequent loss of */j/

West Germanic gemination ('WGG') only applied in the West Germanic branch (see Figure 1) and "was underway, but not necessarily completed by the early fifth century" (Minkova 2014: 72, 76-78). By WGG, a single consonant other than */r/ preceded by a short vowel and followed by */j/ was geminated. A following */w/, */l/ or */r/ also triggered gemination, but only in a preceding voiceless stop. The conditioning */j/ had often been lost by the period of OE. This change can be informally stated by the following formulae:[23]

C → CC / V̆ __ j;
voiceless C → voiceless CC / V̆ __ {w, l, r}.

Examples include:

PIE *médʰyos 'middle' > PG *midjaz > OE *midd.* Cp. Goth. *midjis*, Lat. *medius*, AGk μέσος (mésos);

PIE *nítyos '(one's) own' > PG *niþjaz 'kinsman' > OE *niþþas* 'people' (attested in pl. only).

The glide */w/ could be geminated itself:

PIE *néwyos 'new' > PG *niwwja- > *niuwja- (vocalisation of the first */w/) > OE *nīwe* (LWS monophthongisation of the output of PG */iu/;the loss of */j/ is discussed

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22   See the similar phenomenon in Xhosa referred to in n9.

23   Despite the notation "CC," I am not making any statement as to the phonetic status of the output: a sequence of two identical consonants, a geminate or a long consonant. See Minkova (2014a: 77) for a treatment of this issue as it applies to /tʃ/ and /dʒ/.

immediately below).

Note that in OE the output of the gemination of /k/ and /g/ is not /-kk-/, /-gg-/ but /-tʃ-/, /-dʒ-/, respectively, as in OE *weċċan* (< PG *wakjan*), *bycgan* /'bydʒɑn/ (cp. Goth. *bugjan*).

After WGG effected its changes in prehistoric OE, the conditioning */j/ was lost, as can be seen in the examples above. This must have happened sometime before the 7th century. Minkova (2014a: 72-73) adduces the following explanation for this deletion: the output by WGG of pOE *bid.jan* 'to beg' (< PG *bidjaną*) was *bid.djan*. The onset cluster of the second syllable was not permitted in the phonotactics of the language and had to be resolved – the loss of */j/ resulted in a legal onset in *biddan*. Another way to solve the illegal onset in *bid.djan* would have been to resyllabify to *bid.di.an* with syllabic */i/. If this is what happened, High Vowel Deletion, which deleted */i/ after heavy syllables, would have yielded the resyllabified form *bid.dan*. Either explanation accounts for the attested OE form. However, since WGG did not occur after PG */r/, *j*-deletion did not apply to forms like *arjaną* 'to plough' and the OE form, *erian*, could have been syllabified as either *er.jan* or *e.ri.an*.[24]

WGG and *j*-deletion account for alternations in the OE present indicative paradigm, as shown by the paradigm of *fremman* 'perform, do' in Table 7 (note that the forms which have geminate -*mm*- in the paradigm of *fremman* have -*i*- after the root in the paradigm of *nerian*. Table 7 is emended from Hogg & Fulk 2011: 260-62). Not all OE geminates arose from these phenomena, however: *mētte* 'I met (preterite)' is equivalent to *mēt-* + -*te* (1sg. past tense

		"do, perform"		"save"	
		OE form	PG	OE	PG
infinitive		*fremman*	**framjaną*	*nerian*	**nazjaną*
indicative present	1 sg.	*fremme*	**framjō*	*nerie*	**nazjō*
	2 sg.	*frem(e)st*	**framis*	*nerest*	**nazis*
	3 sg.	*frem(e)þ*	**framiþ*	*nereð*	**naziþ*
	3 pl.	*fremmað*	**framjanþ*	*neriað*	**nazjanþ*
imperative sg.		*freme*	**frami*	*nere*	**nazi*

Table 7: *gemination in 'fremman'*

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24   Hogg (1992c: 114) favours the former; see also Hogg (1992a §§6.43-.44) and, for a more sceptical view, Hogg & Fulk (2011: 261).

ending); *feorhhūs* 'body' is a compound of *feorh* 'life, spirit' + *hūs* 'house'.

The cases of gemination presented above are not the only traces left by the oft-deleted */j/; before its deletion, this glide also triggered *i*-mutation, discussed in §3.1.

2.3.3 Miscellaneous changes

2.3.3.1 Loss of glides before vowels

The glides were most often lost when they stood before their corresponding vowel, i.e. in /ji/ and /wu/, but they could also be lost before other vowels. An early example of this change is the loss of the labial segment or co-articulation in PIE *$K^w u$* (Ringe 2006: 92):

PIE *$g^{wh}ṇtí$*- '(a) blow' > *$g^{wh}úntis$* > PG *$gunþiz$* 'battle' > OE *gūþ*.[25]

PIE */j/ underwent a parallel development: although it was regularly maintained initially (as illustrated above with *yer-o-* and *yugóm*), by WGer it had been lost word-internally when followed by */i/.[26] Compare

PIE *$h_2éryeti$* 'he is ploughing' > PG *arjidi* > OE *ereþ*

and

PIE *$h_2éryonti$* 'they are ploughing' > PG *arjondi* > OE *eriaþ*.

Deletion of /w/ before /u/ was general in PG, as can be seen in the OE paradigm *beadu* 'battle (nom.sg.)' ~ *beadwe* (acc.gen.dat. sg.) < PG *badwō*. Other words like *beadu* (i.e. from the PG nominal declension -*wō*) are *sinu* 'sinew', *sċeadu* 'shade'. In these nouns, *$\bar{o}$* was raised and shortened to */u/ in the nom.sg. but not in other forms, where the vowel was protected by final consonants (Hogg & Fulk 2011 §§2.31, 2.38-.53; Hogg 1992a §4.7).[27] A similar change must have applied in *tū* 'two (nom.acc. neuter)' < *twō*, cp. *twā* (nom.acc. fem., > PDE *two*) and *twēġen* (masc.) (Hogg 1992a §4.7).[28]

*/w/ was also lost before /i/, as in *sǣ* 'sea' < PG *saiwiz* (Campbell 1959 §406). In the paradigms of verbs with stem-final */w/, this means that the approximant was lost before the

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25   See n21 on */u/ in PG.

26   This simplification is acceptable for the matter at hand. See Ringe (2006: 129) for a more accurate account.

27   Another sound change deleted word-final /w/ in pre-OE and the nom.sg. for the word meaning *claw* should be *clēa*, not the attested *clēaw*; in this and other forms entering in paradigmatic alternation, the /w/ was analogically restored. See Campbell (1959 §§405ff) and Hogg & Fulk (2011 §§2.31, 2.54) for details on this and related changes.

28   The steps from OE *twā* to PDE *two* will be discussed in §4.2.

endings *-is and *-iþ (2 & 3sg. present indic.), but it is nearly always restored by analogy with the other forms in the paradigms.

Also visible in OE is the loss of the initial /w/ of second elements of compounds, as in:

hlāford 'lord' < hlāf 'loaf' + weard 'guardian' (< PDE ward);

hwīlende 'temporary' < hwīl 'while (n.)' + wend- 'to turn';[29]

āht 'anything' < āwiht < ā 'ever(y)' + wiht 'thing, being' (> PDE wight) (Campbell 1959 §468).

Since forms with and without /w/ coexist in the extant texts, it is possible that the contracted compounds could still be perceived as such; gradually, their composition became increasingly obscure and only the reduced forms survived into the modern era (as lord, archaic whilend and aught, respectively).

These cases of deletion of a glide before its corresponding vowel are paralleled in other stages of the language (§7.2) and in other languages – e.g. Gamilaraay (Pama-Nyungan, eastern Australia) wuurri 'give' /ˈuːri/, yira 'tooth' /ˈiɟa/ besides wii 'fire' /wiː/ and yugi 'cry' /ˈjugi/ ("Garay Guwaala"). Loss of initial /j/ and /w/ was also productive in ON: the reflexes of many words with PG *jV- and *wV- lack the initial approximant: Norwegian år 'year' < *jērą, ord 'word' < *wurdą.

Conversely, /j/ and /w/ were sometimes inserted in OE and later stages of the language: see §7.1.

2.3.3.2 <u>Loss of (absolute) final glides in PIE and WGer</u>

PIE word-final non-high short vowels were apocopated in the development of PG. If a preceding glide was itself preceded by a consonant, it was lost too (Ringe 2006: 116-17):

PIE *pénkʷe 'five' > PG *fimf > OE fīf (no glide to be deleted);

PIE *tósyo 'of that (masc./neut.)' > PG *þas > OE þæs;

PIE *wé-dwo 'we two' > PG *wet, wit > OE wit (with glide deletion in the last two examples).

In WGer, absolute final /w/ was dropped after /i/; it was often analogically restored and we find alternations both <-i> and <-iw> in the relevant words: slī ~ slīw 'mullet'. There also occur alternations between <-iġ> and <-iw> (ġiġ ~ ġiw 'vulture') and between <-i(i)g> in nom.sg. and <-iw-> in inflected cases (Tiiġ ~ Tīwes 'Tyr (a god)'). The presence of <-ig> for PG <-iw> does

---

29   OE hwīlwende was more common than hwīlende (OEDo, "whilend").

not mean that the loss of */w/ induced compensatory lengthening: rather, monosyllabic stressed nouns could not be prosodically light and the final vowel was therefore lengthened (<-ig> suggest /i:/).[30]

2.3.3.3 *nw

PIE *nw sequences must have yielded PG *nn, as can be seen in these examples taken from Ringe (2006: 139):

PIE *tn̥h₂éw- 'thin' > PWGer *þunni- > OE þynne (cf. Lat. tenuis);

PIE *ǵénw- 'jaw' > PG *kinnuz > OE ċinn /tʃin:/ (cf. AGk γένυς (génus), Lat. gena).

This change is different from West Germanic gemination (§2.3.2).

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30   On the restriction on short vowels in stressed finals and "word-minimality," see Minkova (2014a: 71).

3 Old English (500-1100)

Any clear chronological delimitation of a language into stages (as in "old" or "middle" English) is necessarily arbitrary: the pre-OE dialect of WGer did not change radically within one year to become more like the language spoken by, say, Bede.[31,32] However, since the history of English is, in its first centuries at least, tied to England, a good starting point for the study of OE is the period when Germanic tribes from the present-day Netherlands, Germany and Denmark began migrating to England. This happened when the Roman garrisons, which had been stationed there since Claudius's invasion in 43 CE, started leaving the province of *Britannia* in 410 CE (Blair 2010: 60-69). Whether or not the Angles, Saxons, Jutes and Frisians spoke mutually-intelligible Germanic lects (Mossé 1940 §2; Hogg 1992a: 3), it is by their presence and interactions in England that OE and its dialects arose. The kingdoms they created – East Anglia, Essex, Kent, Mercia, Northumbria, Sussex and Wessex (collectively known as the Heptarchy) – and the four major dialect regions – Kentish in the South-East; West Saxon in the South; Mercian and Northumbrian (grouped as Anglian) north of the Thames – have held an important place in Old English studies (Baugh & Cable 2002: 51).

This neat division is a simplification and has been criticised (see, for example, Hogg 1992a §1.6): further divisions can be made within each of these dialects, and the English of some Mercians, for example, could be more similar to the English spoken by some West Saxons than to that spoken by other Mercians. The WS dialect, however, can be cited with few drawbacks: it is the best attested and the Late WS form is somewhat standardised. Indeed, it was so influential that Lass (1992: 8) states:

> from the tenth century onwards distinctively non-West Saxon texts only appear in any quantity from Northumbria ... Kentish texts become more and more heavily influenced by West Saxon, and the production of unambiguously Mercian texts is more notable by its absence than its presence.

Lass (2006: 48) also asserts that "[t]here is … no Old English regional variety clearly ancestral to [PDE]." For these reasons, references will be made to WS unless otherwise stated.

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31   Bede "the Venerable" is the chronicler who wrote the *Ecclesiastical History of the English People* – composed in Latin as *Historia ecclesiastica gentis Anglorum* – c. 730 CE (Blair 2010: 60).

32   On the way dialectal variation may spring from a unilingual area, see for example Petyt (1980: 30-31).

Even within OE, several divisions can be made. The main partition is made between early and late OE (the latter being the period of Alfred) but equally importantly, the earliest texts were produced some times around 700 CE (Campbell 1959 §6; Crystal 2003: 10; Hogg 1992a §1.1), which justifies a distinction between prehistoric and historic OE. The end of the period can be set at c. 1100, when the influence of the Norman invasion made itself felt (Lass 1992: 23-26). The whole period can therefore be divided into the following stages: prehistoric OE: 400-700; EOE: 700-900; LOE 900-1100.[33]

In order to examine the evolution of the language, it is best to start at an early stage: therefore, we will start our study of OE in its prehistory. The phonological system of pOE can be reconstructed as follows (Hogg 1992a §§5.1, 5.41):

i(:)   u(:)   diphthongs: io   eo   æɑ <ea>

e(:)   o(:)

æ(:)   a(:)

Phonetically, /a/ may have been back [ɑ] (Hogg 1992a §5.1n2). The difference in quality between corresponding short and long vowels (as in PDE [ʊ] / [uː], [ɪ] / [iː]) was to develop later (Lass 1992: 39; Lass 2000: 63).

The consonant system of pOE is reconstructed as in Table 8:

	labial		dental, alveolar		velar	
stop	p	b	t	d	k	g
fricative	f ~ v <f>		θ ~ ð <þ, ð> s ~ v <s>		x ~ h <h>	ɣ <g>
nasal	m		n ~ ŋ <n>			
liquid			l r			
glides: w; j <g>						

Table 8*: the consonants of prehistoric Old English*

Notes about Table 8:

• By EOE, PG */b/ and */d/ (see Table 3 and notes) had lost their fricative allophones

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33   The division between Early WS and LWS is also set at c. 900.

(Minkova 2014a: 65-66). */g ~ ɣ/ retained its fricative allophone in all environments except after a nasal and in gemination, where it was [g], but I chose to consider the stop realisation the main realisation of the phoneme, which I write */g/, because of subsequent developments. Further developments are discussed in §3.2.

- */g/ in its realisations [g] and [ɣ], and */j/, are all spelt <g> in OE manuscripts. Modern editors use <ġ> for /j/.

- The voiceless fricatives inherited from PG developed voiced allophones between vowels, resulting in alternations such as (WS) *wulf* [f] ~ *wulfas* [v] 'wolf, wolves'.

- All consonants except */w/ and */j/ could be geminated (Minkova 2014: 77). This systemic discrepancy can be explained on acoustic grounds: "geminate sonorants are typologically less common and perceptually less salient" than other geminates (Minkova 2014b: 18).[34]

- */w/ appeared freely initially and medially (Campbell 1959 §50(6)), and finally by analogy (Hogg 1992a §2.77). */j/ could occur in all three positions, but word-finally maybe only after a liquid (Hogg 1992c: 94).

The focus in the next section turns to *i*-mutation, which does not concern the development of /j/ itself but rather the effect /j/ (and /i/) had on preceding vowels. I introduce *i*-mutation now because it seems to belong more in an "Old English" than in a "Proto-Germanic" section: an overview of the phonetic system of early OE was necessary to understand it and the early OE texts exemplify the latest stages of *i*-mutation.

3.1 *I*-mutation

I-mutation, or *i*-umlaut, was probably "under way prior to the earliest OE texts [but] not fully completed until the late eighth to the early ninth century" (Minkova 2014: 160).[35] All NWGer dialects were affected (Millar 2010: 173). By *i*-mutation, back vowels were fronted and front vowels raised (when they were affected at all) by an unstressed */i/ or */j/ in the following

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34 Citing Kawahara, Shigeto (2007). "Sonorancy and geminacy." *University of Massachusetts Occasional Papers in Linguistics 32: Papers in Optimality III*, Amherst: Book Surge Publishing, 145-86.

35 But Hogg (1992a §5.86): "*i*-umlaut is complete by the time of the earliest texts", i.e. c. 700.

syllable (Campbell 1959 §§190, 204(2); Hogg 1992a §5.74).[36] In WS only, all diphthongs were affected. Figure 2 (emended from Minkova 2014: 158) illustrates the effects of i-mutation in WS.[37]
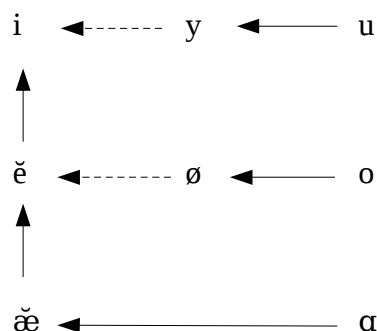
$$
\begin{array}{ccccc}
i & \longleftarrow\!\text{-----} & y & \longleftarrow & u \\[1em]
\big\uparrow & & & & \\[1em]
\breve{e} & \longleftarrow\!\text{-----} & \o & \longleftarrow & o \\[1em]
\big\uparrow & & & & \\[1em]
\breve{\ae} & \longleftarrow\! & & & \alpha
\end{array}
$$

Figure 2*: i-mutation*

The effect on back vowels can be generalised as the following formula:

$$
\begin{bmatrix} +\text{syll} \\ +\text{back} \end{bmatrix} \rightarrow [\text{-back}] \;/\; \underline{\quad} \; C_0 \begin{bmatrix} +\text{son} \\ +\text{high} \\ -\text{back} \end{bmatrix}.
$$

The feature specification [-back] for the conditioning segment, on the right-hand side of the rule, allows /y/ (which can only be the output of the *i*-mutation of */u/) to trigger the mutation (this phenomenon is sometimes called "double umlaut" – see Hogg 1992a §5.74n1). There can be any number of intervening consonants – often one, but also zero (Campbell 1959 §192n3) or more than one (but see the paragraph on */ǽ/ below).

The effect on the front vowels can be subsumed under the following rule:

$$
\begin{bmatrix} +\text{syll} \\ +\text{front} \\ \alpha\,\text{high} \end{bmatrix} \rightarrow [(\alpha+1)\,\text{high}] \;/\; \underline{\quad} \; C_0 \begin{bmatrix} +\text{son} \\ +\text{high} \\ -\text{back} \end{bmatrix}.
$$

The notation "α+1", although very mathematical in aspect, is simply an attempt to express formally the fact that front vowels were raised "one step": open */æ/ became mid /e/ and input */e/ became close /i/ (if it was affected – see the paragraph on */ĕ/ below). */i/ was not raised.[38]

Both short and long back vowels were affected but complications arise for [ɑ] and */o/.

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36   Campbell (1959) writes "*i/i̯*" – i.e. syllabic/non-syllabic *i*, which emphasises important features of the conditioning segment – [+high] and [+front] – regardless of their syllabicity.

37   I write 'ɑ' for the phoneme */a/, assuming that it was a back vowel; however, even if it were front [a], the result of *i*-mutation would conceivably be the same. See the two formulae.

38   For a similar generalisation on the *i*-mutation of diphthongs, which I will not attempt here, and for a suggestion that the three rules can be subsumed under one, see Hogg (1992a §5.74).

The output of the *i*-mutation of the WS vowel usually represented by graphical <a>, when it stood before /m, n/, is often written <e>, not <æ>. However, <a> in this position alternates with <o> and it is widely accepted that even prior to OE, its realisation must have been "closely related to *a*" (Campbell 1959 §193(d)), "a low back unround or round vowel, that is, [ɑ] or [ɒ]" (Hogg 1992a §5.3), and "by the time of *i*-umlaut … [ɐ] or [ɔ]" (ibid. §5.78(1)). In this light, we can surmise that *i*-mutation affected this vowel in the same way as it did */o/, hence the output /e/.

Since the early PG vocalic system did not include short /o/ (see §2.2) and OE /o/ was introduced by a PG harmony rule whereby */u/ → */o/ before non-high vowels, EOE /ŏ/ was rare in the environment of a following /i, j/.[39] The *i*-mutation of */o/ is, therefore, only visible in loan-words when the early sources write <oe> for the umlaut of */o/, and in forms were it was "analogically introduced" (Hogg 1992a §5.77; also §§2.17-.18) – see the examples below.

The long front vowels remained unchanged (Campbell 1959 §191; Hogg 1992a: 128). Long /e:/ is usually the output of the *i*-mutation of */o:/ (prior to *i*-mutation, "[i]nstances of [e:] are rare in WS" (Hogg 1992a §5.53)). The short front vowels were affected in the following ways:

- */æ/ was sometimes mutated but, especially "when the intervening consonants group is non-geminate," (Hogg 1992a §5.80(2)) it is sometimes unaffected. Compare *hebban* and its derivatives in *ā-, on-* (totalling 18 occurrences in the OEAG, 0 with unmutated *-æ-*)*; æfnan ~ efnan* (*-æ-* x 1; *-e-* x 3 (McGillivray)); and *fæstan* 'make firm or fast' and its derivatives in *be-, oð-* (7 occurrences in the OEAG, 0 with mutated *-e-*).[40]

- */e/ is a complicated case. A PG vowel harmony phenomenon whereby */e/ → */i/ before */i/ or */j/ in the following syllable – a phenomenon akin to the one referred to above in the discussion about the *i*-mutation of */o/ – bled *i*-mutation but */e/ could be reintroduced by analogy (Hogg 1992a §3.6; Minkova 2014: 159); as a result it is difficult to say whether an instance of OE /i/ before /i, j/ is the result of the PG harmony rule or of *i*-mutation of */e/. Hogg (1992a §5.81) is very sceptical as to the possibility of */e/ undergoing *i*-mutation, and Hogg (1992c: 113) states that "there were, because of the position in Germanic […], no cases where /e/ could be subject to *i*-mutation, which is therefore purely hypothetical."

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39   PG */u/ → */o/ is responsible for *gold* < PG *gulþǫ. See Campbell 1959 §115, Hogg 1992a §§3.5, 3.10.

40   In addition to the sources already mentioned, Sweet (1897) can be consulted as a reference.

Some of the output vowels then merged with pre-existing phonemes but /y/ (< */u/) and /ø/ (< */o/) filled previously vacant positions in the vocalic system. At first, these were allophones of the input vowel, but when */i, j/ were lost the new phones were phonemicised as they had a chance to become contrastive. The resulting /ø/ started unrounding to /e/ in EWS (Hogg 1992a §§2.17, 5.77) and /y/ "merged with [ɪ] in the East Midlands and the Northern dialects, it was lowered to [e]/[ɛ] in Kentish, and the rounded realisation [i.e. [y]] became characteristic of the West Midlands" in LOE (Minkova 2014: 173; Hogg 1992a §2.17; Lass 1992: 53-54).

Examples are given below (the input is PG, the output OE, unless otherwise stated):

*/u/ → /y/: *trumjaną 'strengthen' > trymman;

*lustjan > OE lystan 'to desire'. Cp. OE lust 'desire (n.)'.

*/u:/ → /y:/: *sprūtjan 'to sprout' > sprȳtan (cf. dialectal sprit 'to sprout' (OEDo, "sprit, v.1")). Cp. sprūt 'a sprout'.

*brūdiz > brȳd;

*/o/ → /e/ (see the caveats above) Lat. oleum > ele 'oil';[41]

*duhtēr-i 'daughter (dat.sg.)' > *dohtr-i > dehtr-i > dehter. For the lowering of PG /u/ before non-high vowels, see the paragraph on /o/ above; on the derivation to dehter, see Hogg & Fulk (2011 §2.91-.93) and Hogg (1992a §3.29). The final */i/ caused i-mutation of the root vowel before it was dropped.

*/o:/ → /e:/: *dōþi 'he does' > dēþ;

*fōt-iz 'feet (nom.pl.)' > fēt; cf. fōt (nom.sg.) < *fōt-s.[42]

*/a/ → /æ/: *gadulingaz 'companion, kinsman' > *gadyling > gædeling.

*/a:/ → /æ:/: *hailijaną 'to heal' > hǣlan.[43] Cp. hāl 'healthy' < *hailaz (and > PDE whole, hale);

*/aN/ → /eN/: *framjaną 'to perform' > fremman.

*/a:N/ → /e:N/: *kanipaz 'moustache' > cenep.

A few pairs of cognate words, such as talu ~ tellan 'tale ~ to tell' seem to indicate that /a/ could umlaut to /e/. This is due to first fronting and, later, a-restoration: pOE */a/ was fronted to [æ] "in most positions" but not before a nasal (see 'aN' sequences above). I-umlaut applied in the verb, yielding /e/ (e.g. tellan) but not in the noun, which lacked the conditioning high front segment. A-restoration later applied to /æ/ before a back vowel, yielding /a/ in the noun but not

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41 Lat. /e/ must have shifted to /j/ (/'o.le.um/ → /'o.ljum/), thus triggering i-mutation.

42 The PG gen.sg. ending *-iz would be expected to trigger i-mutation but the unmutated vowel was "re-formed on the basis of the a-stems," which have gen.sg. -as (Hogg and Fulk 2011 §§2.113; 2.11).

43 PG /ai/ > OE /ɑ:/.

to the verb (Hogg 1992a §§5.10, 5.35).

The conditioning high front segment was usually lost before the time of the earliest texts (see §2.3.2), as in OE *wyrċaþ* < PG **wurkijanþi*. Conversely, some extant texts have occurrences of words with /i, j/ after non-umlauted vowels, such as class 2 weak verbs in *-ian* < pOE **-ōjan* (Hogg & Fulk 2011 §§6.106-.108), where **ō* must have been umlauted and later dropped. In *dæġ* /dæj/, /æ/ is due to first fronting (Hogg 1992a §5.10), not *i*-umlaut. The following /j/ did not further umlaut /æ/ to /e/, possibly because /j/ was in the same syllable, or more likely because it developed by palatalisation (§3.2; Hogg 1992a §7.15) contemporaneously to *i*-mutation. *Huniġ* 'honey' exemplifies a different sequence of changes: pOE **hunag* > **hunæg* (first fronting. Hogg 1992a §6.2n1) > **hunæġ* (palatalisation) > **huneġ* [ˈhunij] (ibid. §§6.48, 6.59; on [i], §3.2.1 of this work); it did not have [-ij] when *i*-mutation was under way. Compounds are another apparent exception: **/i/* in the second element did not trigger mutation in the first if the compound was still perceived as such. Alternations such as *ānliċ ~ ǣnliċ* 'only' may be due to the second element becoming perceived as a suffix: *-līċ* 'de-nominal adjectival suffix', < PG **-līkaz* 'having the body, form of' tended to be unstressed and to shorten to *-lĭċ* (Hogg 1992a §2.89).[44]

The process whereby the high front segment caused preceding vowels to shift has been explained in several ways – (1) vowel harmony, (2) regressive assimilation, and (3) *i*-epenthesis before the consonant(s) palatalised by regressive assimilation – the last two being "now discredited" (Hogg 1992a §5.74n3). (1) In favour of the vowel harmony hypothesis is the fact that the Germanic dialects underwent other similar processes earlier on – see Hogg (1992a §§3.5-.12). (2) The regressive assimilation hypothesis (Sievers's *Mouillierungstheorie*) holds that, in VC*i/j* groups, the consonant assimilated to the following high segment (i.e. C became palatalised) and that the palatalised consonant, in turn, caused the vowel to assimilate in height and frontness. (3) In the third hypothesis, the intervening consonant, once it had been palatalised by assimilation (2), caused *i*-epenthesis and yielded V*i*C- sequences. See Campbell (1959 §192) for arguments in favour of and against this hypothesis.[45] Bourcier (1978: 69) sees *i*-mutation as

> an articulatory anticipation of the [following] *i̯*. Speakers who are about to pronounce a word like **māri* have a mental articulatory model of it. Unconsciously

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44   **-līkaz* is < **līką* 'body', hence also OE *līċ* 'body', present-day German *Leiche* 'corpse' (Orel 2003: "*līkan I", "*līkaz")

45   Of Campbell's arguments in favour of this theory, (2) about *a*N sequences is weakened if the argument about the phonetic realisation of /a/ before /m, n/ (p. 28) is accepted – see Hogg (1992a §5.78n2); (3), *i*-epenthesis, is invalidated by Hogg (1992a §2.18).

and as soon as they pronounce the first vowel, they prepare the emission of the second vowel, thus producing a vowel half-way between the two, i.e. *ǣ* in *mǣre* [famous].[46]

When the mutated forms alternated with non-mutated ones, they acquired morphological functions. Alternations remain in verbs derived from nouns or adjectives, such as *blōd – blēdan* (< **blōdjan*; PDE *blood – bleed*) and *full – fyllan* (< **fulljan*; PDE *full – fill*). In nominal paradigms:

> PG **mann-z, *mann-i, *mann-iz* (nom.sg.; dat.sg; nom.pl.) → OE *man(n), men(n), men(n)*;
>
> PG **mūs-s, *mūs-i, *mūs-iz* → OE *mūs, mȳs, mȳs* 'mouse'

In both cases, the alternation survives in PDE *man ~ men, mouse ~ mice* (Minkova 2014: 161). The change also affected the comparative and superlative forms: the suffixes come from PG **-iz-* and **-ista-* and OE has paradigms such as *lang ~ lengra ~ lengsta* 'long, longer, longest'.[47,48] No traces of the latter type of alternation is left in PDE but present-day German still exhibits *i*-umlaut in verbal, nominal and adjective paradigms – where the phenomenon's effect is indicated by the diacritic "umlaut":

> *fallen* 'to fall' ~ *du fällst, er fällt* 'you, he falls' ([a ~ ɛ]);
>
> *Mann* '(a) man' ~ *Männer* 'men'; *Maus* 'mouse' ~ *Mäuse* 'mice' ([aʊ ~ ɔʏ]);
>
> *lang* 'long' ~ *länger* 'longer' ~ *längst-* 'longest'.

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46 « Le transfert, à rebours, de la caractéristique palatale s'explique, fondamentalement, par l'anticipation articulatoire du *i̯*. Le locuteur qui se prépare à prononcer un mot comme **māri* en possède un schème mental et moteur. Inconsciemment, dès la première syllabe, il amorcera une préparation à l'émission de la seconde, et cela se traduira par un compromis entre les deux, soit le *ǣ* de *mǣre*. »

47 OE -r- in the comparative suffix is due to rhotacism: PG **/z/ (either inherited from PIE **[z] as an allophone of **/s/ or due to Verner's Law) became /r/, hence alternations like *ċēosan* 'to choose' ~ *curon* (past pl.) ~ *coren* (past part.) (Hogg 1992a §4.15). Compare Latin *-ior* 'comparative suffix (nom.sg.)' < Proto-Italic **-jōs* and alternations in nominal paradigms: *corpus ~ corpora* (nom.sg. ~ nom.pl.). In Latin, /s/ → /r/ only intervocallically (Millar 2015: 73).

48 The alternative suffixes **-ōz-, *-ōsta-* are more frequent but the forms with **/-i-/* are found in a number of high-frequency comparative forms: *eald* 'old' ~ *yldra*, *hēah* 'high' ~ *hȳrra*, in addition to *lang*. Even here the non-umlauted form is often found due to analogical levelling (Hogg and Fulk 2011 §§4.63-.68).

3.2 Palatalisation and the development of Proto-Germanic /j/ and /g ~ ɣ/

3.2.1 "The <g>'s of OE"

While some aspects of OE spelling have generated little controversy, <g> has sparked considerable debate. The letter is thought to represent the phoneme /j/ (both from PG */j/ and PG */g/ by palatalisation, on which see below) and the two allophones of /g/, [g] and [ɣ] – hence Minkova's (2014a §4.2.1) section title "The <g>'s of OE." Arguments collated from Hogg 1992a, Hogg 1992c: 91, Minkova 2014a: 75-76 and Ringe 2006 can be summarised as follows. PG inherited */g/ from two PIE sources:

- */gʰ/ by Grimm's Law;[49]

- */k/ by Grimm's Law then Verner's Law (*/k/ → */x/ → */ɣ/).

At this stage, PG distributed the phonemes */g/ [g ~ ɣ] and */j/ as follows: *[ɣ]*ans* 'goose', *[j]*un*[g]*az* 'young'.

Word-initially, LOE [ɣ] became [g] before back vowels or /r, l, n/ – e.g. *gatu* 'gate (nom.pl.)', *grēne* 'green', *glæs* 'glass', *gnætt* 'gnat' – but before a front vowel it was palatalised and merged with /j/ – *ġe-* 'past participle prefix', *ġeat* 'gate (nom.sg.)'.[50,51,52] Palatalisation to /j/ also occurred in syllable codas after front vowels: *dæġ* 'day', *swēġ* 'noise, din' (< PG *swōgiz* with *i*-mutated root). The debate as to whether LOE /j/, in this position, was a semi-vowel or the second element of a diphthong – i.e. was *dæġ* [dæj] or [dæi̯]? – is addressed in §4.1.

Medially, palatalisation occurred between front vowels – *dæġes* 'day (gen.sg.)' – or between a front vowel and a syllabic consonant – *næġl* 'nail' (< PG *naglaz*, cp. German *Nagel*). Palatalisation also occurred medially between an umlauted vowel and a following back vowel: the presence of the front vowel in the former syllable reveals the former presence of */i/ or */j/ in the latter, and it is this segment which caused palatalisation: *fēġan* 'join, unite' < PG *fōgijaną*. Conversely, palatalisation did not occur between two front vowels if the second is the

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49   And marginally */gʷʰ/. Examples are few: PIE *sengʷʰ-* 'to chant' > PG *singʷaną* 'sing' > OE *singan*. See §2.3.

50   Compare standard PDE *gate* with /g-/ and dialectal *yate* (OEDo). OEDo favours an explanation of the PDE pronunciation by analogical levelling (the pl. forms had /g/) but Scandinavian forms with initial [g] were also an influence (Blake 1992: 11; Glain 2006: 56). See Dobson 1968 §376 for similar examples.

51   A transitional quality as the voiced palatal fricative [ʝ] may have existed (Hogg 1992b: 94).

52   But the front outputs of *i*-mutation did not cause palatalisation of initial <g>: *gylden* 'golden', *gēs* 'geese' had [g].

i-mutation of a back vowel, as in *wērgian* 'grow weary' < *-*ægōjan* or *-*īgōjan*, where */o:/ was deleted (Campbell 1959: §§426-29).

Word-final /g/, when it was not palatalised, became devoiced to [x] by LOE – *burg, burh* 'town' [burx]. Only medially in environments other than those described immediately above did [ɣ] remain until ME, as in *dagas* 'days (nom.pl.)' (Campbell 1959 §430). For [ɣ] and [g] it seems unnecessary to postulate a new phoneme since the mutually-exclusive environments in which they occurred made them unlikely to contrast with each other. The new [j] merged with the pre-existing /j/, but maybe only partially so since [j] < /g/ could enter into morphophonological alternations (e.g. *dæ*[j] ~ *da*[ɣ]*as*), but [j] < PG */j/ could not. Word-final [x] < /g/ (as in *burh*) must have merged with the allophone [x] of /h/ after back vowels, as in *sōhte* 'sought'.

The relative chronology of palatalisation and *i*-mutation can be deduced from the distribution of [j] and /g/ ([g ~ ɣ]) shown above: palatalisation must have been the earlier change, for otherwise the OE reflex of PG *fōgijanǫ* would have been **fē*[ɣ]*an* and *wērgian* would have had [-j-].

OE also inherited /j/ from PG */j/, as in *ġēar* 'year' < PIE *jēro-*, *herġas* 'armies (nom.pl)' < PIE *kóryos* 'detachment'.[53] /j/ from both sources caused affrication after /t/ and /d/, hence EWS *ġefeċċan* /t͡ʃ:/ alongside *-fetian, -fetiġan* (on the last form, see p. 49) < PG *fatjanǫ* and hence PDE *fetch*; LWS *orċeard* /t͡ʃ/ 'orchard' alongside *ort-ġeard* (examples from Campbell 1959 §434).[54]

Hogg (1992a §7.16) recapitulates the intricate series of changes discussed here as follows:

all velar consonants were palatalized when adjacent to and in the same syllable as either /i/ or /j/ and ... velar fricatives [and initial velar stops] were also palatalized when adjacent and in the same syllable as any front vowel[.]

Concisely, palatalisation consists in "fronting of the velar consonants, which acquire the feature [+anterior]" (Glain 2013: 58).[55] Laver (1994: 323) describes the articulatory and acoustic aspects of palatalisation as follows:

Palatalization involves the body of the tongue being used to constrict the vocal

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53   Compare *here* 'army (nom.sg.)', < PG *harjaz*, where the ending was dropped and */j/ syllabified to */i/, later /e/ (Hogg 1992a §§3.31, 5.80(1), 6.50).

54   Derived either from Lat. *hortus* 'garden' + *ġeard* 'yard' or from *wort*, see OEDo "orchard, n.". On *h*-less spellings for Lat. words with <h>, see Minkova 2014a: 111.

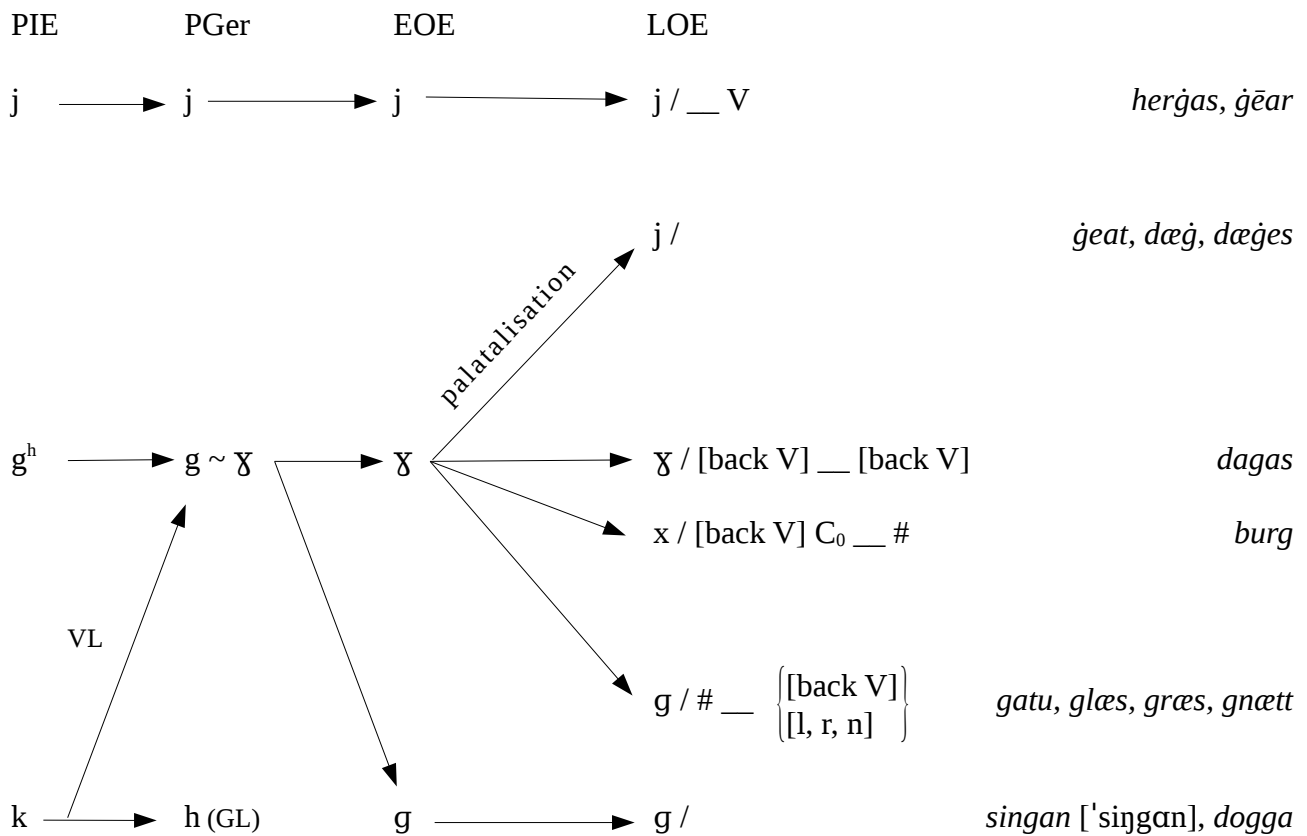55   « une antériorisation des vélaires, qui acquièrent ce faisant le trait [+ antérieur]. »

PIE   PGer   EOE   LOE

j ————→ j ————→ j ————————→ j / __ V   *herġas, ġēar*

                                              j /   *ġeat, dæġ, dæġes*
                                         ╱ palatalisation
gʰ ————→ g ~ ɣ ————→ ɣ ———→ ɣ / [back V] __ [back V]   *dagas*

                                              x / [back V] C₀ __ #   *burg*

         VL ↑   ɡ / # __ {[back V]}   *gatu, glæs, græs, gnætt*
                                                        {[l, r, n]}

k ————→ h (GL)   ɡ ————————→ ɡ /   *singan* [ˈsiŋɡɑn], *dogga*

Figure 3: *the <g>'s of Old English*

tract in a stricture of open approximation at the palatal location, as an accompaniment to a stricture of greater degree ... In the performance of palatalized segments in many languages, the secondary stricture tends to be relaxed from the palatal location relatively slowly, and this then gives the offset phase of the palatalized segment a characteristically [j]-like offset (or, to put it another way, gives the following segment a [j]-like onset)"

Figure 3 is a (necessarily simplified) sketch of these changes.

A minor change was indirectly triggered by palatalisation: not only could /j/ now stand word-finally after a vowel, but a preceding unstressed /e/ became [i] – e.g. "*hāliġ* 'holy' < *hāleġ* < *hālæġ*" (Hogg 1992c: 88); *huniġ* 'honey' < **huneġ* < **hunæġ* (ibid.: 114).[56] The unstressed vowel system did not then comprise a phoneme /i/ and this [i] is considered an allophone of /e/ before front consonants. The ending /-ij/ regularly developed to /-ɪ ~ -i/ in PDE.

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56   The final /-ij/ in these two words was later shortened: see §4.1.

/k/ and the clusters [ɡɡ] and [ŋɡ] were also palatalised by adjacent front vowels, while /sk/ was palatalised to [ʃ] "in any environment" (Stévanovitch 2008: 22),[57] including in environments which precluded palatalisation in the cases seen above: before a consonant *(shrew* < OE *scrēawa* < PG **skreu-* or **skraw-)* or a back vowel *(shoe* < *OE scoh* < PG **skōhaz).*[58] Palatalisation of /k/ to [tʃ], and of [ɡɡ] and [ŋɡ] to [(ŋ)dʒ] was restricted by the same factors as for /ɡ/. Examples where palatalisation occurred include:

> *ċin(n)* 'chin' < PG **kennuz*;
> *ænġel* 'angel' < Lat. *angelus* [ˈaŋɡelʊs];
> *ecġ* 'edge' < PG **agjō* (§2.3.2).

Palatalisation of velars by adjacent front segments is frequent in the world's languages. See Glain (2013: 58n1) for examples and note that the OF affricate in *chant*, for example, also developed from a Latin velar (OF *chant, chanter* < Lat. *cantō*). Similar changes were to apply again in EModE (§5.1).

3.2.2 Palatal diphthongisation

The main evidence of this change in early OE is the presence of spellings such as <ea>, <ie> (LWS <y> for <ie>), <eo, iu> for expected <æ>, <e>, <o> respectively after a palatal consonant (Hogg 1992a §§5.47-.73). Examples include *ġeaf* 'gave', *ġiefan* 'to give' < PG **gebanq* – cp. OHG, OS *geban* (Orel 2003, "*gebanan*"), and rare spellings such as <ʒevan> in the 12th century (OEDo, "give, v.", form 1. a. α. c1175).[59]

The major issue presented by this graphical phenomenon is whether it should be interpreted as merely diacritical – i.e. to differentiate the stop from the approximant, both written <g> – or as indicating an actual phonetic change, possibly to a diphthong. The discussion of the arguments in favour and against each hypothesis must be twofold, as they apply differently to the front and back vowels. For the front vowels, arguments in favour of the "diphthong" view include the following, as expounded in Hogg (1992a §5.49): (1) the outputs behave in the same way as sounds written <ea> and <ie> from other sources when they undergo later sound changes. (2) The regularity with which the orthographical modification is carried out shows "more likely … a phonological shift than … a purely graphical function." (3) The change seems phonologically plausible ("a preceding palatal would cause a partial raising of /æ/ together with

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57   « Pour [sk], la palatalisation … se produit quel que soit l'environnement. »
58   The etymology of *shrew* is uncertain: see OEDo, "shrew, n.1" and Harper.
59   As in *gate* (n50), the OE form of *gave* with initial [j] was displaced by a Scandinavian form with [ɡ] (OEDo.).

diphthongization, the second element being dissimilated to low central, [giving diphthongs] of the order of [ɛa] [and] [ɪə]" which would then have merged with the similar-sounding pre-existing diphthongs. (4) the derivation of *cȳse* 'cheese' from Latin *cāseus* can only be explained convincingly if palatal diphtongisation is an actual sound change (Hogg 1992a §5.72).[60] See Hogg (1992a §5.49) for arguments in favour of the "diacritical" interpretation. As to the effect on back vowels, Hogg (1992a §5.59) suggests that some *i*-mutated forms cannot be accounted for if palatal diphthongisation is not an actual sound change; yet the ME reflexes of, for example, *ġeoc* 'yoke', *sċeort* 'short', are monophthongal *yok, scort*, which suggests the OE forms had monophthongs.

The inputs and effects of palatal diphthongisation vary from one dialect to another. */e(:)/ and */æ(:)/ are only widely affected in WS (Hogg 1992a §5.54). The effect was more widespread on */u(:)/, however: all dialects have forms of the order of *ġeoguð* 'youth', *ġeong* 'young'. Since these forms come from PG forms with */u/ (*jungaz*, cp. OFris, OHG *jung,* ON *ungr*), the development is thought to represent /ju(:)/ or /ji̯u(:)/ (Hogg 1992a §§5.59ff.) except in *ġēomor* 'sad' and derivatives, possibly /ˈjoː-/, with a reflex ʒomer in ME (OEDo, "yomer, adj.").

Palatal diphthongisation is responsible for a few morphophonological alternations in OE, such as *ġildan ~ ġeald* 'yield (infinitive ~ 1 & 3 sg. past)'; cp. PG *gald* 'yielded (1 & 3 sg.)'. Note, finally, that palatal diphthongisation was also triggered by the other palatals in the system, /ʃ/ and /tʃ/ (Hogg 1992a §§5.47ff). As often, the alternations have been analogically restored, leaving no such paradigmatic alternations in PDE though forms of *give* with /j/ appear at least up to the 16th century, especially for the past participle (OEDo).

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60   The expected output of *cāseus* without palatal diphthongisation is **ċǣse. The proponents of the "diacritical" hypothesis recur to *ad hoc* accounts to explain the form *ċȳse*.

3.3 <hw>

This and the next section are dedicated to the sequences <hw->, <wl-> and <wr->. The clusters <hl-, hn-, hr->, although their study does not fall within the scope of this work, will allow useful comparisons to be drawn. These clusters occur in onset position only: *hwæþer* 'which of two', *wlite* 'appearance', *wrīðan* 'writhe'. In each case, it is debatable whether the phonetic representation of the clusters should be a sequence of consonants or a simplex with complex articulation. While the sequences <hw> and <wr> of OE are continued in PDE <wh> and <wr>, the cluster <wl> has disappeared and the only surviving lexeme with OE <wl> seems to be *lisp* < *wlispian (Minkova 2014a: 133; the OE form is only attested in the compound *āwlispian* and no form with this sequence is attested after the 15th century. OEDo "lisp, v."). The general tendency has been, since OE, to simplify these clusters and the history of /hw/ has not reached its conclusion to this day.

OE <hw> usually comes from PG *hw* /xw/, itself the output of PIE *k^w* by Grimm's Law. Examples in OE include *hwā* 'who' (< PIE *$k^w is$*, cf. Lat. *quis*), *hwǣr* 'where', *hwettan* 'whet', *hwisprian* 'whisper', *hwȳ* 'why' (originally the instrumental of *hwā*, i.e. literaly 'by what/whom').

3.3.1 <hw>: one or two segments?

The phonetic representation of <hw> as one segment would be [ʍ]. As two segments, <hw> could be [hʷ], [hw] or [hʍ]. If it was [ʍ], the cluster would have contrasted with [w] – e.g. *hwer* 'cauldron' ~ *wer* 'man', 'were(gild)'; also *hwōpan* 'threaten' ~ *wōpen* 'wept', near-minimal pairs and, if and when unstressed /a/ and /e/ were merged (Hogg 1992a §6.62), minimal pairs.[61] Alexander Ellis suggested a pronunciation [ʍw-] for the English of his time.[62]

The following facts argue in favour of the plurisegmental analysis of /hw/:

- the occasional spelling <quh> for <hw> in ME (Hogg 1992c: 94).

- Alliterative evidence adduced by Minkova (2014a: 76, 109): since "<hw> alliterates regularly on [h-]" (<hV-, hl-, hn-, hr->) – in the earliest stages of OE at least – the onset must have been a "velar/glottal," not a labial-velar. However, she also insists that [h-] in this segment must have been weak, allowing "an allophonic interpretation … as [ʍ]" (on

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61   But Minkova 2014a: 76 insists on the "absence of contrastive [ʍ] in OE".

62   Ellis, Alexander J. (1874). *On Early English Pronunciation,* vols. I-V. London: Asher Co. & Trübner & Co. Quoted in MacMahon 1999: 468.

h-lenition, see Hogg 1992a §7.45). Example lines (from Minkova 2014a: 76) of EOE alliteration are:[63]

ac se **hw**ita **h**elm / **h**afelan werede ('but the white helm / [his] head protected' – *Beowulf* l. 1448)

hwalas ðec **h**erigað, / and **h**eofonfugolas ('whales hear you / and heavenly birds' – "Daniel" l. 386)

- Lass (2000: 123) quotes Abraham Tucker (1773): "We speak "wh" by the figure "hysteron proteron" [i.e.] preposterously, a cart before the horse, as in "when, *hu*en, whim, *hu*im"" (my italics).

- Spellings with <w> for <hw> arise roughly at the same time as the evidence for early *h*-dropping and the simplification of <hl>, <hn> and <hr> by loss of /h/ (Hogg 1992a §7.48). This suggests that /h/ was lost from /hw/, which must therefore be a cluster.

- Although the simplification was usually from /hw/ to /w/, in some cases it is the labiovelar segment or articulation that was lost: *who* < OE *hwā, whose* < *hwæs*, whom < *hwām* (Minkova 2014a: 109). My conclusion here is the same as in the previous bullet point.

Conversely, Campbell (1959 §51) and Mossé (1942 §22.4.a) interpret <hl, hr, hn, hw> as "voiceless sounds" while Wells (1982: 228-29), for PDE, admits two phonological representations depending on the dialect: /hw/ and /ʍ/. If this is pertinent nowadays, it might well have been in OE. Wells also reports that those English-speakers who pronounce /wh/ nowadays (§6.1) tend to pronounce /w/ in low-stress environments (e.g. *w(h)ich, w(h)en*). This phenomenon is parallel to what happens with words such as *him, her* for most PDE speakers and suggests that an /h/ is dropped. However, it could also be a case of voicing assimilation or lenition in which the [voice] feature of [ʍ] is changed to [+voice] when voiced sounds are adjacent.

Finally, the Gothic alphabet provides inconclusive data: the letters *hwair* (transcribed 'ƕ' by modern editors) and *quertra* ('q') transcribe /hw/ and /kʷ/, respectively (Mossé 1942 §22; but note that <hl-, hn-, hr-> are transcribed as diagraphs). The fact that Wulfila, in designing the Gothic alphabet, transcribed some "sounds" as diagraphs (<hl-, hn-, hr->) but *hwair* as one suggests that he perceived /hw/ as a single phoneme (Mossé 1942 §19). See Hogg 1992a §2.72

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63   Section 10 of Minkova 2014a (326-56) is an introduction to OE alliterative verse.

for more on the literature generated by this debate.

Whatever the phonetic realisation of <hw> may have been, the change to /w/ is phonologically plausible: /hw/ sequences may have lost /h/ (with lenition first: see again Hogg 1992a §7.45); a single labialised /h/ may have become debuccalised and merged with /h/; voiceless /ʍ/ may have become voiced when adjacent to a voiced segment (<hw> always appears in a voiced environment). Besides, [ʍ] was the only voiceless approximant in the system; this instability may have contributed to its merger with the nearest phoneme (Minkova 2014a: 112).

3.3.2 Simplification

Spellings with <l, n, r> for expected <hl, hn, hr> are common in LOE/EME and Minkova (2014a: 108) reports the absence, in the *Linguistic Atlas of Early Middle English* and the MED, of the clusters after c. 1250. Spellings with <hw>, however, persist and [w] may not have been the dominant realisation in ME, although more so (1) in prosodically weak items and (2) in all prosodic positions "[i]n the Midlands and in the South" (ibid.: 109).

Spellings with <w> for expected <hw> and inverted spellings with <hw> for etymological <w> start appearing in LOE: <wælweg> 'whale's path' for expected <hw-> ("The Seafarer" l. 63); <bilhwit> 'innocent' for <bilewit>.[64],[65] Dobson's (1968 §414) argument that *hwō* 'who' must still have had /hw/ in the 13th century because it developed into *hō* (> PDE *who* [huː]) – which could not have happened if the word had been simplified to /wɔː/ – is compromised by the dates found in the OEDo ("who, pron. (and n.)") for early occurrences of *wa/wo*, on the one hand, and *ho(o)*, on the other hand. We find <wa, wo> spellings as early as 1175 and <ho, hoo> spellings since 1330.[66],[67] If anything, these dates indicate that pronunciations without /h/ were common some time before the pronunciation without /w/.

The poetry of the period shows that <hw-> could alliterate on <w-> (compare with the alliterating lines above):

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64   *Wælweg* is often emended to the standard form with <hw->. Owen (1999: "The Seafarer, with notes") reports that "critics have offered convincing arguments for its manuscript form." The poem is dated to the 10th century (ibid.: "General Introduction").

65   It seems less likely, in light of the relative frequency of <hw-> and <hl->, that the unetymological <h> in this form belonged with the preceding /l/ than with the following /h/, even though its position in the word may suggest the contrary. Both examples are from Minkova 2004: 17.

66   1175: "... to underʒeite **wa** an alle his cynerice him were frend oðer fend" ("Cotton Homilies" l. 231) – "to understand who, in all his kingdom, was [a] friend and [who was a] foe."

67   1330: "**Ho** that nolde do bi heore red, Cristen men tak of heore hed" (*King of Tars*, l. 990) – "They who would not do by [=heed] their advice, Christian men would take off their heads."

þa **hw**ile þe hi **w**æpna / **w**ealdan moston ('as long as they their weapons / could wield' – "The Battle of Maldon" l. 83)

and he þar **w**unode / ða **hw**ile þe he lyfode ('and he lived there / for as long as he was alive' – "The Death of Alfred" l. 21)

(Minkova 2014a: 76).

Simplification started before the Norman Conquest in 1066 but the arrival of Norman French-speakers, whose source phonetic system did not comprise [ʍ], probably contributed to the elimination of this phoneme (Minkova 2004: 33; OEDo, "wh, n." has the same explanation for the northward spread of [w] for /wh/ in ME).

Unetymological <h>'s became more frequent in ME: Minkova (2004: 18) gives as examples *iwhat* 'went', *whingen* 'wings', *iwhiten* 'know', *whit* 'with' and a few others – both prosodically week and strong items, as well as "place and personal names" (ibid.: 19). There is ample evidence to show that the merger was common in ME, and Minkova (ibid., 23) affirms that it was not considered a "provincial" feature (unlike "the clerk's vowels and the third person plural pronouns in Chaucer's *Reeve's Tale*"). Another change in ME is the reversal of the spelling <hw-> to <wh-> from the 13th century on (Bourcier 1978: 167). An explanation of this phenomenon adduced by Minkova (2014a: 111) is that, since /h/ was lost in Latin and its descendants "by the seventh century", <h> was available for use in digraphs such as <ch>, <ph>, <th>, and in ME also for <gh, rh, sh>. The digraph <hw> naturally followed and started being written <wh> (see also Millar 2015: 53).

Interestingly, however, the merger lost ground in the 16th and 17th centuries among "educated southerners" Minkova (2004: 28-29).[68] Minkova proposes that the socially ambitious may have considered unmerging /w/ and /ʍ/ as a way to distance themselves from common elocution. Two factors may have contributed to this tendency arising at that period in particular: the influence of Scottish pronunciation in the 17th century and, I surmise, the gradual spread of written works some time after Caxton's press was established in 1476 – spelling pronunciations must have become increasingly common as printed books became more readily available. While individuals may have unmerged the merged phoneme to regain the contrast between /w/ and /ʍ/, from the point of view of the English-speaking community as a whole, "[w]hat is happening is not unmerging at all, but a sizable shift in frequency and distribution of unmerged and merged variants" (Milroy 2004: 50).

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68   The OEDo ("wh, n.," paragraph "*Pronunciation*") evokes a similar – maybe the same – phenomenon, but has it occur in the 19th century, "due in part to Scottish and Irish influence, and in part to conscious reference to the spelling."

This tendency did not continue in the 18th century, as suggested by the lexicographer John Walker who claimed, in 1791, that "particularly in the capital … we do not find the least distinction of sound between *while* and *wile*" (quoted in MacMahon 1999: 384), and similarly "[t]he printer Philip Luckombe, in 1771, expressly claimed that the contrast no longer existed" (ibid., 468). However, MacMahon, following Alexander Ellis, questions the reliability of these statements (ibid., 377-78).

The recent history of this <wh> is discussed in §6.1.

3.3.3 Theoretical analysis

That conservatives spellings with <hw-> should continue appearing much later than the last attested occurrence of <hl-, hn-, hr-> is an interesting discrepancy which might be explained by a difference in frequency. A count of OE *types* with these clusters in Sweet (1897) yields the following results: approximately 70 x <hw->, 93 x <hl->, 29 x <hn-> and 52 x <hr->. A count of *tokens* thanks to the OEAG's search engine totalled:[69]

- 292 x <hw-> (across 15 types),

- 132 x <hl-> (27 types),

- 8 x <hn-> (7 types),

- 173 x <hr-> (32 types).

(The OEAG has "about 32,000 instances of 4,600 words.") It seems that some high-frequency words had <hw->, which may explain the retention of the conservative spelling and pronunciation. The other clusters probably had fewer high-frequency lemmas and the oddness of these initial clusters contributed to their elimination from the system. Furthermore, Minkova (2004: 31-32) emphasises the fact that the four clusters were not equally "good" syllable heads – a good syllable head, as defined by Venneman's Head Law, exhibits "a continual drop of Consonantal Strength from the beginning toward, and including, the nucleus."[70,71] The initial clusters under discussion can be ranked accordingly:

/hw-/ >> /hr-/ >> /hl-/ >> /hn-/

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69 I counted lemmas. For example, *hlēoþor* 'melody', *hlēoþorcwide* 'speaking, song', *hlēoþrian* 'utter' and *gehlēoþor* 'harmonious' counted as 1 type.

70 Venneman, Theo (1988). *Preference Laws for Syllable Structure and the Explanation of Sound Change*. Berlin/New York: Mouton de Gruyter. Cited in Minkova 2004: 31.

71 See Saussure's discussion of aperture, and explosive and implosive sounds (1995: 83ff).

best   →   worst

(Minkova 2004: 32)

This rule satisfyingly explains the retention of /hw-/ well after the other clusters disappeared from the system but it does not account for the fact that /hw-/ and /hr-/ were simplified first.

Minkova (2004: 21 ff.) suggests an explanation to the geographical division between merging and non-merging areas (the North and Scotland being conservative in this respect). Maybe due to the influence of Celtic languages, [hw-] and [kw-] merged into [xw-] (possibly [χw-]) in these areas (see Millar 2015: 65 on Orkney and Shetland English). If it was so, according to Venneman's Head Law the cluster was more optimal as a head than [hw-]. Moreover, contrary to /h/, which does not have a specific place of articulation, the velar articulation of [x] makes this phone sufficiently distinct from the following approximant (Ladefoged & Disner 2012: 120; Laver 1994: 305).

The other Germanic languages have also tended to simplify these clusters (Millar 2015: 64). Among the reflexes of PG *hwat* 'what' are:

Danish *hvad*, German *was* and Norwegian Bokmål *hva* all with [v-], Dutch *wat* [ʋ-]; but Faroese *hvat* [kv-], Icelandic *hvað* [kʰɣ-], Norwegian Nynorsk *kva* [kv-].[72,73]

A similar situation obtains for the other clusters. For PG */hl/:

PDE *laugh*; Danish, Norwegian, Swedish *le*; Dutch, German *lachen*; Faroese *læa*, < PG *hlahjaną*, all with [l-]; but Icelandic *hlæja* 'laugh', OE *hlehhan*, [l̥-].

For /hn-/, compare OE *hnutu*, Icelandic *hnot* with [n̥-] with Faroese *nøt*, German *Nuss* (< PG *hnutz*), Lat. *nux* (all from PIE *knew-*: Pokorny 1959, "ken-1"). For /hr-/, compare PDE *rath(-er)*, Dutch, MLG *rad* 'swift' with OE *hræð*, Icelandic *hraður* (all < PG *hraþar*), both with [r̥].

Finally, specific developments of /hw/ in northern Scotland include shift to /f/ in the north-east and to ø in other areas – e.g. *what* /at/ (Millar 2015: 65; Wells 1982: 397-98). Some Irish English speakers have a voiceless bilabial fricative /ɸ/ for /wh-/, as in *where* [ɸeːɹ] ("potentially

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72   Bokmål *hva* has an alternative pronunciation [ka].

73   Most introductory Icelandic textbooks mention only the pronunciation [kʰɣ] for <hv-> but Neijmann (2001: 7) says of [xɣ-], "This speech variant is found in southern Iceland, and is considered by some to be 'better' Icelandic." I have not tried to ascertain which pronunciation is the older. That the pronunciation with [x-] is considered "better" could suggest that it is the more conservative alternative, but cf. the situation in PDE where the (diachronic) split between [ʊ] and [ʌ] is considered standard, although it is the situation in the linguistic North (i.e. no split: [ʊ] in both *put* and *bus*) that is the more conservative.

homophonous with *fair.*" Wells 1982: 434).[74]

Speakers who do not have a phonemic contrast between /w/ and /ʍ/ nonetheless have a voiceless realisation of /w/ after stressed voiceless plosives, e.g. *twitch* [ˈtʍɪtʃ], parallel to voiceless [j̊] in the same context *(spew).*

3.4 <wl->, <wr->

These clusters may be "odd" to the modern English ear, but even at the time of OE they were typologically odd since they "violate the so-called 'sonority hierarchy', whereby less sonorous segments should be closer to the margins of the syllable" (Hogg 1992a §2.83(1)). In other words, the reverse order, <lw-, rw->, is more typical (cf. Fr *loi* [lwa], *roi* [rwa]).

PIE too had */wr-/ onsets:

wreyt- 'twist' > PG *wrīþaną > OE *wrīðan* > PDE *writhe* (cf. Icelandic *ríða* 'weave'; Danish, Swedish *vrida/vride* /vr-/ (Forvo); Fr *rider* < OHG (TLFI)).[75]

PIE *wr̥C- clusters normally yielded PG *wur-* (e.g. PIE *wr̥ǵyéti* 's/he is working' > PG *wurkīþi > OE *wyrcþ* – see n21).

The spelling /wr-/ survives to this day but few, if any, English speakers now pronounce it as a cluster (see below). The other modern Germanic languages have also tended to simplify the cluster, as can be determined by a glance in Orel (2003): while the ON forms for reflexes of PG */xl-, xn-, xr-, xw-/ seem to have consistently retained <h> (e.g. PG *hrīman* 'frost' > ON, OE *hrīm)*, the ON reflexes of */wl-, wr-/ had often lost /w/ (see above for examples of loss of /w/, but also *vrida* which maintains /w/).

Several processes could contribute to the simplification to /l-, r-/: (1) metathesis, (2) epenthesis and (3) loss of the segment /w/ (and possible labialisation of /l, r/).

(1) Metathesis is evidenced in MLG *wlispen ~ wilspen* (OEDo, "lisp, v.") but was not widespread in OE or ME.

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74 On /hw/ > /f/ in Scotland, cf. the development of word-final /x/ to /f/ in *enough* (Lass 1992: 29).

75 Such onsets (with non-syllabic */r/) are exceptional: sonorants became syllabic if they were not adjacent to a syllabic (cf. p. 14); */w/ in *wreyt-* should, according to this rule, syllabify: **ureyt-*, but Ringe (2006: 17) sees these cases as exceptions.

(2) Early examples of epenthesis in /wr/ are OE *"wrohte ~ worohte* 'wrought' … early ME *werangus* 'wrong'" (Minkova 2014a: 133).[76] In such forms, the epenthetical vowel would naturally be unstressed and the initial *w*V- would possibly be dropped eventually.

(3) Evidence appears in the 14th century of the loss of /w/ in /wr-/: *runkel* for *wrynkle* 'wrinkle'; the inverse spelling *wright* for *right* 'right'; also the alliteration *riche: ryden: wrathe* ("Piers Plowman") (examples from Minkova 2014a: 134).[77] Jespersen (1965 §§12.81-.82) suggests the shift may have been to a "rounded /r/" – [rʷ]? – adducing as evidence the impression of some 16th-century French authors that English /wr/ sounded like /rw/, "*written* like *rouitten*, though this may be also a clumsy F[rench] way of imitating the unfamiliar group /wr/."[78] Kjederqvist (1904: 23) reported that "*w*, or at least the lip-articulation of a *w* together with the tongue-articulation of an *r*, is very common" in words with <wr-> – his description seems to indicate [ɹʷ].[79] He also reported that etymological simple /r/ had merged (in some words at least) with /wr-/ in Pewsey's dialect.[80] Jespersen's suggestion that /ɒ ~ ɔː/ in *wrath* can be explained by the influence of /r/ (§5.4) also confirms the hypothesis of /wr/ as [rʷ].

According to Minkova (ibid.; Cruttenden 2008: 221), the resulting phone may then have shifted to [ʊ] (and it must have survived into the 19th century, as suggested by "substitutions of <r> for <w> as in *Wichard, Twinity*"); [ʊ] then lost its labial articulation and merged with the pre-existing /r/. However, the shift from [rʷ] to [r] (i.e. only de-labialisation) seems more likely than from [ʊ] to [r], in which case both the place and the mode of articulation change. Besides, [rʷ] might not have been different enough from the various realisations of /r/ for the two phonemes to remain separate (Dobson 1968 §416). Epenthesis (2) might have occurred in speech without the spelling reflecting the change – scribes who pronounced (or copied from someone who pronounced) an epenthetical vowel and who were aware of the possibility of [wVr-] being a realisation of /wr-/ might have written <wr> all the same. Thus, the simplification exemplified here may be, occasionally at least, a late written reflex of changes

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76   Citing Jordan, Richard (1974). *A Handbook of Middle English Grammar: Phonology.* Trans. and rev. by Eugene Jospeh Crook, Janua Linguarum Series Practica 218. The Hague: Mouton. P. 148.

77   Jespersen (1965 §12.81) dates the simplification [wr] > [w] to the 17th century because the change "is unknown to the 16th c. phoneticians."

78   The orthoepist Hart, in his *Orthographies* (1569), transcribed *write* as <ureit>. Hart uses <u> to transcribe both /u/ and /w/; it seems unlikely that he was trying to transcribe /ureit/, so <ureit> must represent something along the lines of [wreit] (Lass 2000: 64).

79   Kjederqvist's description of the dialect's /r/ (*op. cit.*, 19) seems to indicate a voiced alveolar approximant. His systematic description of the sounds he describes has, for /r/, "point-open", which I take to indicate an apical or laminal approximant.

80   He mentions "*wræbit* rabbit, *wrees* race, *wræen* rain, *wreak* rake, *wråp* rope, *wrɔb* rub, *twrɔi* try, *seekwrət* secret, *sɔwri* sorry."

which had occurred some time before.

There is evidence of the retention of the complex initial cluster in the 18th century: the anonymous author of *The Writing Scholar's Companion* (1695) and *Right Spelling very much Improved* (1704) "comments on the difficulty of pronouncing" the cluster and qualifies it as an affected pronunciation (Dobson 1969 §416). Even in educated speech [wr-] became rare and "abnormal" in England after 1650 (ibid.).[81]

The history of /wl-/ calls for fewer comments than /wr-/. PIE */wl-/ onsets were rare and, as did *wr̥, *wl̥, developed an epenthetic */u/ in PG:[82]

> PIE *wĺkʷos 'wolf' > PG *wulfaz > OE *wulf*; cf. AGk λὔκος (lúkos), Lat. *lupus* > Fr *loup*
> (Clackson 2007: 98, Ringe 2006: 116).
> PIE *h₂wĺh₁neh₂ 'wool' > PG *wullō > OE *wull*; cf. Lat. *lana* > Fr *laine* (Pokorny 1959:
> "u̯el-4", Ringe 2006: 70).

Conversely, some PIE roots with /wVl-/ have PG reflexes reconstructed with /wlV-/, e.g.:

> *wel-* 'to see' > PG *wlitaną > OE *wlītan*; c.f. Lat. *vultus* 'face (n.)' (Pokorny 1959, "u̯el-
> 1").

As mentioned previously, Minkova (2014a: 133) estimates that *lisp* is the only survival of OE <wl->. The OEDo, however, suggests that *luke(warm)* may come from an unattested OE adjective *hlēow 'luke(warm)'.[83] Dobson (1968 §415) reports that orthoepists give no evidence of /w/ in *lisp*, and no <wl> spellings, after Chaucer and the 14th century. The OEDo has a few attestations in the 15th century – *wlach* 'tepid, lukewarm' in Trevisa's English translation of Ranulf Higden's *Polychronicon*, 1425 (OEDo, "wlak, adj."); a much later example is *wlonkes* (a beautiful person) in William Dunbar's "Tua Mariit Wemen" (c. 1513 – Dunbar being a Scottish poet, this example may represent an antiquated or regional use. OEDo, "wlonk, adj. and n."). The OEDo has examples of metathesis in *wlatsome*: *waltsom* (Chaucer's "Nun's Priest's Tale", l. 233); "O waltsome murther, that attaynteth our fame" (William Baldwin, *A Myrrour for Magistrates*, 1563); *waltsomnes* (Trevisa's English version of Bartholomew de Glanville's *De Proprietatibus Rerum*, 1398). The realisation of /wl-/ may have been a sequence [wl-] as suggested by the spelling, or possibly a velarised and/or labialised /l/, [lʷ].

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81 Dobson cites Wright stating that "the older generation of [Scottish] dialect speakers" – i.e. c. 1905 – retained [wr-]. Wright, Joseph (1905). *English Dialect Grammar*.

82 Orel (2003) has three PG words with */wl-/, Sweet (1897) has 7 such lemmas for OE, the OEDo has 10 lemmas with /wl-/, the OEAG has 3 types and 30 tokens.

83 Attested forms related to *hlēow include *hlēowe* 'warm(ly)', *gehlēow* 'warm' and *unhlēowe* 'chill (wave)', all three attested only once (OEDo, "lew, adj.1 and n.2"; Sweet (1897)).

4 Middle English (1100-1500)

As stated in §3, the influence of the Norman Conquest makes possible a division between OE and ME around 1100 CE. With them, William and the rest of the Norman elite brought their culture and their language, Norman French (Gillingham 2010: 121-22). Beside political and social changes, the 11th century also saw the decline of Anglo-Saxon alliterative verse in England; alliterative poetry after the Conquest was often influenced by Latin and French (Blake 1992: 6, 7). The spelling also changed a great deal towards the beginning of the period, to the effect that excerpts from 10th-century and from 13th-century texts look considerably different (see the examples in Blake 1992: 9) and indeed ME looks more like PDE to modern readers than OE. The standard spelling system or *Schriftsprache* which developed in LOE was gradually lost in ME as the prestige of the West Saxon monasteries diminished and the influence of (Norman) French increased (Blake 1992: 10).[84] Indeed, as Lass (2006: 59) puts it, "[b]etween the end of the eleventh century and the latter part of the twelfth, English textual attestation (apart from the continued copying of OE texts in some centres) appears to be sucked into a black hole." Lass lists five "major early changes" that justify a partition between OE and ME: early quantity adjustments (homorganic lengthening, pre-cluster shortening and trisyllabic shortening), radical remodelling of the vowel system, including the addition of diphthongs (on which, see §4.1), weak vowel mergers (see the examples of *-en* deletion in the same paragraph) and fricative voice contrast.[85] For about three centuries, French was the dominant language at Court and among the higher classes, who spoke little or no English (Glain 2013: 65).[86] One date for the end of ME is 1485 "with the accession of Henry VII, the first Tudor monarch" (ibid.: 1) but it is also around this time that English "succeed[ed] in displacing both [French and Latin]" (Baugh & Cable: 153). The Hundred Years' War (1337-1453) may have something to do with the transition: it is often seen as a milestone for the construction of English identity and the conflict against the French must have encouraged the use of the English language instead of French

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84   "Chancery forms were not followed, by instance, by the scribes copying the manuscripts of Chaucer's *Canterury Tales* in the fifteenth century, who continued to use … a dialectal mixture of non-chancery forms. Even by the last quarter of the fifteenth century, these scribes had not adopted chancery forms for common items like *these, their, given* and *through*" (Nevalainen & Tieken-Boon van Ostade 2006: 287. Also Bourcier 1978: 124).

85   On homorganic lengthening, see n3. Contrast fricative voice contrast in ME with the OE situation, p. 27.

86   But English was still the majority language in England. Minkova (2014a: 10-11) estimates that the percentage "of monoglot French speakers in England … ranged, roughly, between 2 per cent and 10 per cent of the population."

(Minkova 2014a: 11). The establishment of Caxton's press in London in 1476 probably also contributed to the evolution of English as books became more available and the spread of a new standardised English was accelerated.

The inventory of monophthongal vowels "in all dialects" by 1100 must have been roughly as presented in Table 9 (Lass 2006: 63).

i: i		u u:
e: e		o o:
ɛ: _		_ _
_ a		_ ɑ:

Table 9*: The vowel system of ME c. 1100*

Some of the slots left empty at this time were filled in ME, such as /ɔ:/ < /ɑ:/, as in ME *home* < OE *hām*. It has often been argued that /y/ was part of the ME system, at least for speakers acquainted with French. If it was, its presence is not important for our discussion. See Jespersen (1956 §3.819), Lass (1992: 55) and Lass (2000: 99).

4.1 Vocalisation of /j/ and /w/; diphthongisation

This section deals with a series of changes which applied to the glides as soon as OE but that spanned several centuries. Given their similarities, I treat them all here.

Already in OE, occasional spellings such as <wei>, <dæi> against the usual <weg>, <dæg> "have suggested to traditional scholars that vocalisation did take place" (Hogg 1992c: 87) but as mentioned in §3.2, it is debatable whether OE *weġ*, for example, should be analysed as /wei̯/ or /wej/ (compare Campbell 1959 §§266, 272 and Hogg 1992a §7.69). The situation is simpler for intervocalic <ġ> (as in *weġes*), which was a glide. Whatever the situation in OE, Hogg (1992c: 87-8) affirms that diphthongs of the type /wei/ arose in ME and Lass (1992: 49) states that "[d]iphthongal or 'perhaps-diphthongal' spellings are common in twelfth-century texts" such as the *Peterborough Chronicle*, copied c. 1121 (Blake 1992: 6): <ðeines>, <dæi> for *ðeġnes*, *dæg* ('thane's', 'day'); also "<uu> for postvocalic /w/ in *læuued < lǣwed* 'unlearned'," which Lass believes represents a diphthong and not /æw/ – i.e. /ˈlæu.əd/. Since all diphthongs had been lost by LOE except in Kt (Hogg 1992a §5.206; Campbell 1959 §329(2)), it could be argued that these diphthongs arose after the changes whereby diphthongs were lost – otherwise, they would

have undergone the same change as the OE diphthongs and been lost. But since the output diphthongs were different from the ones inherited from EOE, they might have been affected differently.

When /j/ was preceded by a high front vowel, it vocalised to /i/ and produced /iː/[87] (but /y/ could also develop into /yː/, see directly below), e.g. LOE *niġen* 'nine' > *nīn*; *ryġe* 'rye' > *rie, ry*.[88] Evidence for the value of these forms comes from inverted spellings such as <big> for *bī* 'by, around'; <hig> for *hī* 'them' in LWS (the change is sporadic in EWS, rare in other dialects: Hogg 1992a §7.75). In unstressed syllables, especially in the suffix *-iġ*, the development was to short /i/: *twentiġ* > *twenty, tuenti*; *hefiġ* 'heavy' > *hefi, hevy* (Hogg 1992a §7.70n1). A similar orthographic phenomenon is the insertion of <g> in specific forms of weak class 2 verbs, as *lufige ~ lufie* 'I love (present ind. and subj.)', *lufigað ~ lufiað* 'they love' (inf. *lufian, lufiġean* – OEAG, "lufian"). Hogg (1992a §7.76) warns that this change, however, "may reflect a genuine alternation between /ij/ and /i/, according to the front or back nature of the following nature" – see §2.3.1.

When WS /j/ was preceded by a vowel other than /i/ and followed by /d/ or /n/, it was dropped and the preceding vowel underwent compensatory lengthening. As an intermediate stage, /j/ may actually have been vocalised and formed an unstable diphthong which soon merged with a pre-existing long vowel (Hogg 1992a §7.71). Examples quoted in Campbell (1959 §243) and Hogg (ibid.) include OE *mǣden* < *mæġden* 'maiden' (cf. Ger *Magd* 'maid'), *hȳdiġ* 'thoughtful' < *hyġdiġ*, *þēn* 'thane' < *þeġn*. Examples before /l/ are scanty but include *snēl* 'snail' < *sneġ(e)l, snæġ(e)l* and *hrǣl* 'garment' < *hræġl*. When these forms entered in paradigmatic alternations, the change could extend to other forms: the change *breġdan* 'brandish' > *brēdan* also caused the past pl. and past part. to change: *brugdon* (with [ɣ], not /j/) > *brūdon*, *brogden* [ɣ] > *brōden* (see Hogg 1992a §7.71 and n1; Hogg & Fulk 2011 §§6.43, 6.51). The forms without <g> start appearing in EWS and "are in the overwhelming majority" in LWS (Hogg 1992a §7.71).

When /j, w/ were preceded by vowels with different values for the features [back] and [high], vocalisation may have been followed by diphthongisation in LOE or EME. Hogg's (1992a §7.69) point of view, following Colman, is that diphthongisation may have occurred when a front vowel was followed by /w/, in which case the result would merge with the pre-existing /iu, eu, æu/. In all other cases – that is, vowel + /j/ and back vowel + /w/ – new

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87   [ij] according to Minkova (2014a: 205).

88   With subsequent diphthongisation by the so-called Great Vowel Shift ("GVS"), accounts of which can be found in Lass 2000: 72 and Minkova 2014a: 248ff.

diphthongs would need to be posited. Colman's argument against the existence of these new diphthongs is that their later history is much the same as that of the simple vowels: they undergo second fronting in West Mercian (Hogg 1992a §§5.87ff) and the developments /ɑ/ > /a/, /ɑ:/ > /ɒ:/ are parallel in these diphthongs and in simple vowels – their behaviour, in other words, is so similar to the behaviour of the simple vowels that it seems intuitive to see these diphthongal spellings as representing simple vowels. Revealingly, "[w]hen in ME diphthongs of the type /ei, ai/ do emerge, then their subsequent behaviour is different from that of monophthongs" (Hogg, ibid.).[89] Examples of potential diphthongs formed by a front vowel followed by /w/ include:[90]

> OE *hīw* 'appearance, colour' > ME *hiu, hiow, heu* > *hue*;
>
> *hlǣw* 'mound' > ME *hlau* > *law* 'man-made mound' (OEDo, "low, n.1");
>
> *strēaw* 'straw (n.)' > ME *strauw(e)* > *straw*.

Hogg (*op. cit.* §7.73) interprets the occasional <w>'s in the ME forms as orthographic and analogical.

Whether or not diphthongisation in OE was limited as per the above, a variety of V*j*, V*w* sequences had undergone the change by ME, especially word-finally after grammatical endings were lost (e.g. the optional *-en* in the infinitives below).[91] Examples from Bourcier (1978: 150) and Lass (1992: 50) include:

> /æ(:)j/ > /ai/, and /e(:)j/ > /ei/ > /ai/:
>
> | | |
> |---|---|
> | *dæġ* 'day' > *dæi, dai* | *grǣġ* 'grey' > *grai*; |
> | *weġ* 'way' > *wei, wai* | *twēġen* 'two' > *twein;* |
>
> /ɑw/ > /au/:
>
> | | |
> |---|---|
> | *dragan* 'draw, drag' > *drau(en)*[92] | *clawu* 'claw' > *clawe, clau;* |
>
> /æ:w, æ:ɑw/ > /ɛu/:
>
> | | |
> |---|---|
> | *slǣwþ* 'sloth' > *sleuþe, sleuthe* | *scrēawa* 'shrew' > *shreu(e);* |
>
> /i:w/ > /iu/, and /eo:w/ > /eu/ > /iu/:
>
> | | |
> |---|---|
> | *snīwan* 'snow' > *snew(en), sniue* | |

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89 Bourcier (1978: 150) asserts that the diphthongs produced in ME by sequences of a vowel + /j, w/ "did not, in each case, produce a distinct phoneme – the system could not have functioned with so many distinct elements" (« ils n'ont pas à chaque fois généré un terme phonologiquement distinct : le système n'aurait pas pu supporter un tel foisonnement. »).

90 To verify ME spellings, I used the CME and the MED in addition to the OEDo.

91 When the deletion of an ending caused the word to end in C*w* clusters, as in **folw* < *folw(en),* an epenthetic vowel (usually /o/ or /u/) developed, hence PDE *follow*.

92 Medial [ɣ] lenited to /j/ or /w/ in ME (Campbell 159 §430). Since word-final [ɣ] had already been devoiced to [x], it disappeared from the consonantal system of English altogether (see §3.2). After vocalisation, "/j w/ no longer occur in codas, but only syllable-initially" (Lass 1992: 51).

hrēowan 'rue' > *reu(en), rew(en);*

/ɑ:w, o(:)w/ > /ɔu/:

āgan 'own' > *own(en), ouen*   *cnāwan* 'know' > *knou(en), cnaw*

(ġe)flogen 'flown' > *flow(en)*

plōgas 'ploughs (nom.pl.)' > *plou(g)(h)*[93]   *grōwan* 'grow' > *grou(en), grow.*[94]

See Jespersen (1965 §§3.601-.992) for more examples.

Since OE /w/ occurred word-finally only due to analogy (§3), some OE words have forms with and forms without -*w*. PDE *tree*, for example, is the regular development OE *trēo*, while the analogical form *trēow* (though the more common: OEAG) would have regularly yielded PDE /trəʊ/ (OEDo, "tree, n.").

Vowel length distinctions were neutralised: *dæġ* /æj/, *clǣġ* /æ:j/ both give ME /ai/. Bourcier (1978: 150) accounts for this in the following way: ME allowed mono- and bi- moraic syllable rhymes but longer rhymes were avoided or even excluded. The output, by the change under discussion, of /æj/ would be bimoraic but the output of /æ:j/ [æ:i] would be trimoraic, hence its shortening to [æi].

The formula below is a tentative generalisation of vocalisation (the lenition of [ɣ] to [j] or [w] preceded vocalisation – see Campbell 1959 §430):

$$\begin{bmatrix} \text{-syll} \\ \text{-cons} \\ \text{+high} \end{bmatrix} \quad \rightarrow \quad \begin{bmatrix} \text{+syll} \end{bmatrix} \quad / \quad \begin{bmatrix} \text{+syll} \\ \text{-cons} \end{bmatrix} \_\_.$$

That is, high approximants (/w/ and /j/ in the OE system) became vowels with the same values for the features [back] and [round].[95] The conditioning environment "[+syll -cons] __" picks only vowels since approximants are [-syll -cons] and their [+syll] counterparts are, by definition, vowels (Carr 1993: 55). This formulation also excludes /hw/, whatever its realisation may have been at the time of vocalisation, since /hw/ only occurred morpheme-initially. Given the subsequent adjustment of the vowel sequences to various diphthongs, it seems fruitless to

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93   OE nom.sg. *plōh* would have yielded the same ME form through 'Middle English breaking', on which see Lass (1992: 49-50).

94   But see §4.2 for another development, as in OE *bogas* > PDE *bough* with /aʊ/.

95   The specification [high] excludes [l] and, if it existed in OE, [ɹ]. According to Lass (1992: 148-49), OE /r/ was "an alveolar approximant [ɹ] … with velar and pharyngeal articulation. In another publication, Lass calls OE /r/ a "multifocal" – labial, coronal, palatal, velar and pharyngeal – approximant similar to the "bunched" American /r/ (Navarro 2016: 52-53, citing Lass, Roger (1983). "Velar /r/ and the history of English." Davenport M., Erik Hansen & Hans F. Nielsen (eds.). *Current Topics in English Historical Linguistics*. Odense: Odense University Press). See Laver (1994: 300-01) for tracings from cineradiographic films of the production of bunched /r/.

attempt a generalisation of this later change. The new diphthongs merged with those borrowed from OF – e.g. *grain* 'grain' /ai/ – and ON – *hreinn* 'reindeer' /ei/ (Lass 1992: 51-52, Minkova 2014a: 208).

Vocalisation must have been productive for several centuries, since early examples are drawn from EWS but /j, w/ < [ɣ] could still be vocalised in ME (see n92).

4.2 Raising influence of /w/ on adjacent vowels

Discussed separately here is the raising influence exerted by /w/ on preceding or following vowels, whether or not the glide was vocalised.

ME /ɔː/ was often raised to /oː/ when preceded by /w/. /oː/ from this and other sources (usually OE *ō*) then developed into ModE /uː/, whereas the reflex of ME /ɔː/ is ModE /oʊ/. So the regular development of OE *āc* 'oak' is to ME /ɔː/, ModE /oʊ/, whereas OE *twā* 'two' > 16th-century /uː/ (Dobson 1968 §153) – with usual loss of /w/, see §7.2. OEDo ("two") describes the successive stages of this change in *two*: /twaː > twɔː > twoː > twuː > tuː/. *Ooze* < OE *wase* (with /aː/ in ME due to open-syllable lengthening: Minkova 2014a §7.5.2.1) underwent a similar development (OEDo, "ooze, n. 1"). Since no spellings with initial <w-> are attested in this word after the 15th century, it follows that raising, if it is indeed due to the influence of /w/, must have taken place mainly before this period. However, the first spellings without <w-> also appear in the 15th century, so even if the spelling did not immediately reflect the new pronunciation, a date for the change (in this word at least) before the 14th century cannot be posited with certainty. In some words /w/ was retained longer (as in *two*) or even kept to this day in most varieties of English: OE *wamb* 'womb' (< PG *wambō*) developed into ME *womb* /womb/ ~ /wɔːm(b)/, later /uː/.[96] Compared to the development of *two* above, *o*nly the last stage (deletion of /w/) did not occur in *womb*.

When ME /oː/ and /ɔː/ are followed by /w/, the glide is usually lost and either /uː/ or the diphthong /ou/ results (§4.1). For example, OE *sugu* 'sow (female pig)' > ME *sowe* and OE *sāwan* 'to sow' > ME *sow(en)* later diverge again, giving the PDE pronunciations /saʊ/

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96   The /o/ in *womb* can be due to two sound changes: /a/ > /o/ before a nasal (p. 28) or (conceivably 'and') lengthening of /a/ before the homorganic cluster /mb/ (Minkova 2014a: 135) followed by the normal development of /aː/ > ME /ɔː/. See Minkova 2014a §5.3.2 for the loss of /b/ in /-mb/.

and /səʊ/, respectively, where /aʊ/ must be the output of /uː/ by the Great Vowel Shift (n88). Likewise, OE *boga* 'bow (weapon)' > ME *bou* and OE *bōh* 'bough' > ME *bou* later also diverge to the modern pronunciations /oʊ/, /aʊ/ (Dobson, *op. cit.* §172).

Rounding of /a/ by adjacent /w/ is evidenced only later and is discussed in §5.4.

5 Modern English (1500-1900)

One respect in which ModE is different from the preceding periods of English is the wealth of metalinguistic commentary that began to emerge as orthoepists such as John Hart (who published *An Orthographie* in 1569) and foreign scholars like Jacques Bellot (*Le Maistre d'escole anglois*, 1580) started describing the language more than ever before (Ihalainen 1994: 197; Lass 2000: 58ff). There is an undeniable advantage in having access to first-hand descriptions of the language as it was spoken centuries ago, but the orthoepists' testimonies must be taken with caution, as some of them had prescriptive views and described not the English that was spoken but what they thought English ought to sound like (see, for example, Ellis' comment on Luckombe, p. 42.)

The Modern English period is often further divided into Early and Late Modern English but this has not seemed relevant in this study; however, it must be said that the period after 1700 is characterised by the rise of a desire for standardisation. Standardisation has brought about a greater degree of stability to the language, which is at least partly responsible for the fact that present-day English speakers faced with a text by, say, Shakespeare (c. 1600) can make out more that the gist of the story; the difference seems much greater if one looks at Chaucer or even at the difference between Chaucer and a text from 1000 CE. On the factors that led to standardisation, see Stévanovitch (2008: 10), to which can be added the creation of the French Academy in 1635.

5.1 Palatalisation (yod-coalescence)

The approximant /j/ already exerted a palatalising influence on preceding consonants in (prehistoric) OE, as seen in §3.2. Again in the 16th century (with early examples in the 15th), /j/ had a similar influence on /s, z, d/ and /t/. The changes effected by this process, called yod-coalescence by modern scholars, were as follows:[97]

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97   See Glain (2013: 101) for a discussion of the term "palatalisation" for this phenomenon and for the assimilation process.

/sj/ > /ʃ/	/zj/ > /ʒ/	/tj/ > /tʃ/	/dj/ > /dʒ/.

Palatalisation in unstressed medial tautosyllabic /-si-/: the first instances are in EModE. Examples cited by Lass (2000: 121), Minkova (2014a: 143) and Wyld (1956: 293) are from the Paston Letters: *sesschyonys* 'sessions' (1450) and the Cely Letters (1472-88): *derecshons, oblygashons, consederraschons* 'considerations' (see Wyld, ibid., for more examples). These examples originally had /-si-/ since the French suffix *-sio(u)n* was first disyllabic /si.ɔːn/ but reduction to monosyllabic /sjɔːn/ happened between the 15th and the 16th centuries (compare Jespersen 1965 §9.81 and Minkova 2014a: 144; see also Minkova 2014b, entry for p. 144). Yod-coalescence probably did not happen in the disyllabic form, in which /i/ was not weak enough to be absorbed, Palatalisation to /ʃ/ was widely accepted "[b]y the mid-seventeenth century" and the orthoepist Richard Hodges transcribed the sequence as a simplex phoneme in the 1640s (Lass 2000: 121).[98] The <y> in *sesschyonys;* Jespersen's (1956 [1909] §12.22) comment that *halcyon* was often /hælʃiən/; and the secondary transcription /ˈtɪʃjuː/ in LPD (cf. Glain 2013: 105-06) suggest that /j/ may have been retained in some speakers up to the 20th century. The development can be modelled as follows:

/-si-/	>	/-sj-/	>	/-ʃj-/	>	/-ʃ ^j-/	>	/-ʃ-/.

When ME /-si-/ stood between two syllables with half or full stress, it could become non-syllabic without two stressed syllables coming into contact. Since this is not normally permitted by the stress system of English, /i/ remains syllabic in such cases as *enunciation* (*/ɪˌnʌnˈsjeɪʃn̩/), but it may still palatalise the preceding /s/ (cf. Jespersen 1956 §§12.23, .24).

Palatalisation in /-sjuː-/ (as in *assuredly*): this occurred later than in the above. It could not occur before /iu/ had developed into /juː/ (or at least, not before /iu/ became a rising diphthong, see §5.2), since the prominent element /i/ carried the stress – only unstressed /i/ or /j/ would allow palatalisation to occur. The earliest example recorded by Wyld (1956: 293) is *persheue* 'pursue' in a letter by Richard Rawlyns in 1515, but it appears to be precocious: his other examples appear from the 1590s and examples are not common before the mid-17th century. Lass (2000: 122) cites *shue, suitor* for *sue, suitor* from "the First Folio text of *Love's Labour's Lost*" printed in 1623. As late as the 1780s, Robert Nares commented that palatalisation in stressed syllables was not done by 'elegant speakers' (Lass, ibid.).[99] To this day, palatalisation of /sjuː/ is not carried through consistently: LPD (2008) had, for *assume*, the unpalatalised and the *j*-less pronunciations (§5.3) as standard and the palatalised /-ˈʃuːm/ as non-standard, although

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98   See Dobson (1968 §388ff) for detailed orthoepic evidence.

99   GA also treats /j/ differently in stressed and unstressed environments: see §5.3.

Cruttenden (2008: 227) acknowledges the rising acceptability of *a*[ʃ]*ume, pre*[ʒ]*ume...* Jespersen (1956 §12.26) regarded palatalisation in *shupercargo, shuit, shupreme* in the 18ᵗʰ and 19ᵗʰ centuries as Irishisms.

Palatalisation of /dj/, /tj/ and /zj/: Early examples are *sawgears* 'soldiers' (Machyn's *Diary*, 1550-53, reported by Wyld 1956: 294) and *nigeot < an idiot* (Plutarch 1579, OEDo).[100] *Sogers* and *teges* 'tedious' are found in the Verney Memoir, 1639-96. The effects of yod-coalescence are not normally visible in the standard spelling of affected words but Glain (2013: 102) offers the example of *Cajun < Acadian*, in which the assimilated sound is fossilized formally. For /zj/ > /ʒ/, Wyld (ibid.) cites *pleshar, plesshur* (Verney Letters, 1642). Hodges apparently palatalised /zj/ but not /dj/ and /tj/ (Lass 2000: 121). Walker, who wrote around 1800, approved of /tʃ/ for /tj/ in *nature, fortune, feature* but not in *tutor, tumour* or before "native suffixes" and grammatical endings (Minkova 2014a: 144), such as *pit̲iest* – that is, he approved of palatalisation only in unstressed syllables and within morphemes, but not in stressed syllables or at morpheme boundaries before a native suffix. However, his testimony does not mean that people at large made this distinction. Coalescence of /tj/ and /dj/ in stressed syllable was not generally accepted as standard RP until the late 20ᵗʰ century but it is now widely heard (Glain (2013: 116-18).

Jespersen (1956 [1909] §12.33) had only one example of /ʒ/ before a stressed vowel, *luxurious*, which Walker disapproved of. Jespersen explains it as resulting from analogy with *luxury*. *Presume* with /-ʒuːm/ can be found in England at the present day but analogy with a derived noun of the same root cannot have played a role in this case. The results of LPD's preference polls for the pronunciation of *presume* in RP were "-ˈzjuːm *76%*, -ˈzuːm *16%*, -ˈʒuːm *8%*."

Palatalisation across word-boundaries is evidenced in the 18ᵗʰ century, with Bertram's translations *kudsju, hædsju* for *could you* and *had you*, in 1753. OEDo ("gotcha") records *got cher* for *got you* in 1859, cp. PDE *gotcha*, one of the rare cases where palatalisation across word-boundaries is reflected in the spelling. OEDo attests *whatchamacallit* from 1928.

The output /ʃ/, /tʃ/ and /dʒ/ merged with the pre-existing phonemes inherited from ME; /ʒ/ was not a simplex phoneme in OE but it gradually made its way into the phonological system of the language at the end of the Middle Ages through loanwords from French. Since OF /dʒ/ did not simplify to /ʒ/ before the 13ᵗʰ century, /ʒ/ from French loanwords could not have appeared in

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100 Plutarch: *The Lives of the Noble Grecians and Romanes*, transl. Thomas North.

English before this period (and English did not simplify /dʒ/ to /ʒ/); *blancmange(r)*, the oldest loanword from French with /ʒ/ I have found in OEDo, is first attested in 1377; *rouge*, another early loanword, is first attested in 1437. The development of /ʒ/ into an English phoneme can tentatively be dated to the 15ᵗʰ century. /ʒ/ from English words could only occur word-medially (and mainly, if not only, in Latinate words); only in recent loanwords could it occur initially and finally (as in *genre*, first attested in 1770 by the OEDo, and *rouge)*. The adoption of /ʒ/ may have been hindered at first by the fact that French and Norman French speakers may have been aware of the correspondence /ʒ/ ~ /dʒ/ in words from Lat. /j/ in Norman vs. Parisian French, but this force must have been counterbalanced by the fact that /ʃ/ was then the only fricative in the system which did not have a voiced counterpart, which "undoubtedly increases the likelihood that the speakers would perceive, produce and learn the /ʃ/ – /ʒ/ contrast" (Minkova 2014a: 142).

A comparison between Jespersen's account, written in 1909, and the present situation in Great-Britain (as exemplified by LPD), shows that palatalisation has spread in stressed syllables, where in his days *Duke* "does not become [dʒu]" (1965 §12.53); see also *presume* above.

Unpalatalised pronunciations are still used in PDE, especially in careful speech, and some items which were previously affected by yod-coalescence have reverted to unpalatalised pronunciations, such as *tedious* (OEDo has the palatalised variant as a non-standard form) or *frontier*. In recent decades, yod-coalescence has spread to new environments and this will be explored in §6.3.

A particularly advanced form reported in Australian English in 1887 (Turner 1994: 300) can be mentioned in passing: *do yo hear me* realised as [ˈdʒɪː mi]. Here palatalisation is followed by the deletion of /uː/ and /h/, but these phenomena fall outside the scope of this work.

5.2 Merger of ME /iu/ and /ɛu/ into /juː/

Some of the examples of this merger already given in §4.1 are repeated here with added naturalised Old French vowels:

/æːw, æːɑw/, OF /ieu/ > /ɛu/:
  slǣwþ 'sloth' > ME *sleuþe*   *scrēawa* 'shrew' > ME *shreu(e);*
  OF *beauty*;

/iːw/, OF /ieu/ > /iu/:

    snīwan 'snow' > ME *snew(en)*   OF *rule*;

/eoːw/, OF /y, yi/ > /eu/ > /iu/:

    hrēowan 'rue' > ME *reu(en)*   OF *due, fruit.*

The ME reflex of OE /iːw/, on the one hand, and of OE /eoːw/ and OF /y, yi/, on the other hand, merged into LME /iu/.[101] The reflex of OE /æːw, æːw/ was /ɛu/. OF /ieu/ was sometimes naturalised as /ɛu/, sometimes as /iu/. The orthoepic evidence adduced by Lass (2000: 98-99) shows that "[u]p to the mid-seventeenth century [/iu/ and /ɛu/] were generally kept apart." Typical spellings are *flute, rule, new* for /iu/ and *few, beauty* for /ɛu/. The two diphthongs then merged into [iʉ] (Lass, ibid.), for which the broad phonological transcription /iu/ is adequate; this diphthong then merged with the inherited /juː/.[102] Wells (1982: 207) dates this last change to the end of the 17th century, in London at least, while Minkova (2014a: 268) has it start in the 16th. Lass (2000: 99) suggests the following steps to explain the resulting sequence: the EModE falling diphthong [iʉ̯] became a rising diphthong [i̯u], "[t]hen the non-syllabic [i̯] was reanalysed as the consonant /j/, and assigned to the syllable onset rather than to the nucleus."[103] As the original [i̯] was lost from the syllable nucleus, the remaining vocalic element underwent compensatory lengthening. A diphthong is retained in a number of varieties of English, such as "conservative Welsh, north-of-England, and American accents," which keep distinct pairs that have become homophones in other dialects: *threw ~ through* are homophones in RP and GA but not in Welsh: "[θrɪu] *threw* vs. [θruː] *through*" (Wells 1982: 206).[104]

The output clusters C*ju-* were to start a phenomenon of simplification known as yod-dropping, discussed immediately below. Note also that the /j/ could now occur in positions not previously allowed by English phonotactics. With /j/ after /h/, the phonetic realisation in PDE is often [ç], a voiceless palatal fricative (as also in German *ich* /ɪç/), a new allophone of /j/.

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101 Lass (2000: 98) draws a parallel between the evolution of /e/ in /eu/ and in /eː/ (in the Great Vowel Shift – cf. n88) – in both cases, /e/ was fronted to /i/.

102 Phonetically, [jʉː], with a high central rounded vowel. An equivalent IPA notation is [ü], where the diacritic ' ¨ ' denotes a centralised vowel. "Many modern dialects with [uː] in *boot* often have [jüː] or [jʉː] in *beauty*" (Lass 2000: 99). Jespersen (1956 §13.77) asserts that some speakers with [üː] in /juː/ and [uː] otherwise maintain the distinction when they drop the preceding /j/ (see yod-dropping, §5.3), thereby keeping *rood* and *rude* (< /iu/) distinct.

103 Similar phenomena are sometimes posited to account for other changes in the history of the language, such as a switch from falling to rising diphthongs to explain the PDE vowel in *shoot* < OE *sċēotan* (Minkova 2014a: 177). This phenomenon is also known as *Akzentumsprung*.

104 See also note MacMahon (2000: 405n31).

5.3 Yod-dropping

Sometime after yod-coalescence and the shift from /iu/ to /juː/ were most productive, /j/ in /juː/ could be deleted after certain consonants without affecting said consonants in any way. This sound change became really productive only in the 18th century (Lass 2000: 100) and it must have been roughly contemporaneous with the change /iu/ > /juː/. Spelling can hardly provide any clue as to when yod-dropping started being productive since no <j> could be deleted to demonstrate it. Instead, orthoepic testimony has to be relied on.

Early examples of jod-dropping involve stressed /(C)rj-/ clusters, with *rue* /rjuː/, for example, becoming /ruː/ (the normal pronunciation in most accents of present-day English. See Jespersen 1956 §13.7; Lass 2000: 100; Wells 1982: 206). In 1764, both /juː/ and /uː/ are presented as acceptable by Johnston, and Sheridan, 6 years later, has only /uː/. As for other sound changes in the golden age of orthoepy, the progressive pronunciation was considered vulgar and sloppy by conservative speaker (Lass, ibid.). Yod-dropping also affected the clusters /tʃ/, /dʒ/ and /Cl/ roughly at the same period as /rj-/ (e.g. *chew, juice, blue*). Wells (1982: 206) refers to *j*-deletion after these consonants as "early yod-dropping."

EModE /j/ + /iu/ must have followed a different path. If a speaker had /iu/ > /juː/ as the earlier change, a cluster */jjuː/ should theoretically have arisen but seems impossible, so the relevant words would probably have shifted directly from to /juː/. If /iu/ > /juː/ was the latter change, the following steps would, theoretically, have taken place: /jiu/ > /jiu/ (yod-dropping, no effect) > */jjuː/ (/iu/ > /juː/), with the same direct simplification to /juː/. A third possibility is simplification of /jiu/ to /ju/ (deletion of /i/ after /j/ is a plausible change, see §§2.3.3.1) and in this case, given the general restriction on word-final stressed short vowels in English, on the one hand, and the pre-existence of /juː/ sequences, on the other hand, */ju/ would have merged with /juː/.[105]

Loss of /j/ after the following consonants appeared later and took more time to become accepted: /l/ not preceded by another consonant; /θ/; /t d n/. After #*l*- and V*l*-, forms with /j/ often survive to this day: for *lute* LPD gives the *j*-less form as primary and /ljuːt/ as secondary (whereas /j/ is never retained in RP in *chew, jewel* or *blue*). Simplification after the alveolars /t d n/, though frequent in North America, is not standard in Britain. Wells (1982: 147) refers to deletion after the alveolars as "later yod-dropping."Walker called /nuː-/ for /njuː-/ a 'corrupt' Londonism in 1791 (for yod-dropping in the 20th-century London, see §6.2).

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105   See n30.

After /s, z/ and /θ/, both pronunciations coexist – e.g. *sue, assume, resume, enthusiasm* (MacMahon 2000: 473). Yod-dropping after "plosives, nasals [except /n/], /f/, /v/, and /h/" is prohibited in GA ans RP but is a notable feature of East Anglian accents, allowing pronunciations such as *beauty* /buːti/ – Wells calls this phenomenon "generalized yod-dropping" (1982: 207). Glain (2013: 100) has an implicational hierarchy matrix of early, variable, later, and general yod-dropping in PDE. A speaker who had the feature represented in one column would probably also have the features represented in the columns more to the left.[106]

Yod-dropping after /r, tʃ, dʒ/ and in /j/ + /iu/ seems highly phonetically motivated. Sequences of an affricate and /j/ were complex clusters (and English has been ridding itself of clusters since OE),[107] and the loss of /j/ after the sibilants may not have made a great acoustic difference. The sequence /rj-/ was difficult to pronounce if /r/ was [ɹ], but presumably not as much after tapped [ɾ]. Note, however, that the conservative Welsh, Northern English and American accents which retain a diphthong from EModE /iu/ (§5.2) have the diphthong when most varieties drop /j/, as in *chew, rule, use*: /tʃɪu rɪul jɪus/ (Wells 1982: 206). The principle of least effort may also have played a role in the simplification after C*l-* clusters (e.g. *blue*), but in the /#lj-, nj-, sj-/, etc., the economy of articulatory effort was less: simultaneous articulation of /l, n, s/ with /j/ is simple and, in the first two cases, can easily lead to the simplex phoneme [ʎ] and [ɲ]. In these cases, simplification may have been partly encouraged by the change in *rue, chew, jewel*, etc. The risk for words with the simplified clusters /puː, buː, fuː, vuː, huː, muː/ to become homophonous with other words does not seem to be greater than for the clusters in which simplification happened, so the absence of yod-dropping after these consonants should be explained in otherwise.

In unstressed syllables, yod-dropping is restricted in GA and seemingly non-existent in RP (Wells 1982: 248). It occurs in GA when the following vowel is not /ə/, as in *avenue, attitude*: LPD gives /ˈæt̬ətuːd/ and /ˈævənuː/ as primary pronunciations and a secondary pronunciation with /-juː/. In weak syllables before *schwa*, it occurs neither in GA nor in RP, but yod-coalescence can occur instead: *education* /ˌedʒuˈkeɪʃən/. *Figure* < Fr (attested in English since the Middle Ages (OEDo)) is /ˈfɪgə/ in RP, with a secondary pronunciation in LPD with /-jə/,[108] whereas GA has /-gjər/ and a non-standard, "generally condemned" form without /j/ (LPD). Yod-dropping after /g/ in an unstressed syllable would be exceptional (cp. *gules* /gjuːlz/) so

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106 « [U]n sujet qui éliderait le yod dans les mots de la colonne de droite l'éliderait certainement aussi dans les mots de la colonne du milieu. »

107 E.g. OE c*nict* with /kn-/ > PDE *knight*, OE *climban* /ˈklimbɑn/ > *climb.*

108 OEDo has a third variant with /-jʊə/.

there must be another explanation. Since the word appears in ME texts as *figure*, it seems likely that it was naturalised just like other French words ending in *-ure* were, i.e. probably /ˈyːr/ at first, then developing into /iu/ (§5.2). For the verb *figure*, OEDo suggest both the English verb *figure* < OF and the OF verb *figurer* as sources. OF *figurer* may have had a weaker vowel in the second syllable than in *figure* (n.); if so, the word might have been borrowed into English as /ˈfigər/ and this pronunciation might have spread to the noun too. This scenario seems unlikely, however, since the spellings reported by the OEDo all have <u> as expected, which probably would not be the case if the main pronunciation had a weak vowel.

In a few words it is the second element of the diphthong or cluster that was dropped, hence PDE *minute, biscuit, pedigree* < Anglo-Norman *pé-de-grue* (lit. crane's foot), but also occasionally *regular, particular* in Walker (1791, quoted in Jespersen 1956 §2.332), which now have /-j-/ (LPD has a non-standard pronunciation with /-ə-/ for *regulate* and its derivatives).

5.4 Backing and rounding influence of /w/: /wa/ > [wɒ]

On the raising influence of /w/ on neighbouring vowels in ME, see §4.2. A similar phenomenon, the backing and rounding influence of /w/ on a following /a/, is evidenced as soon as the 15th century but was only sporadic until a few centuries later.[109] While RP and GA have rounded allophones of /æ/ after /w/ (as in *wash* /wɒʃ ‖ wɑʃ/), there was no such alternation in ME. Even as late as the 18th century, English poets could rhyme /wa/ with /a/, as shown in the following examples drawn from Lass (2000: 66) and Minkova (2014a: 239-40):

arm ~ warme (Thomas Wyatt, 16th century)	*harm ~ warm* (Shakespeare)
scars ~ wars (John Dryden, 17th c.)	*land ~ war* (Byron, c. 1800).

Minkova (2014a: 239) reports early evidence of the rounding of /a/ in the Cely Letters (1472-88): *was* is spelt <w(h)ose> and *worse* <warsse> (< ME *worse*), which suggests that the change was incipient in the second half of the 15th century; the inverted spelling <warsse> quite

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109 ME /o/ < OE /o/ had lowered to [ɔ] by the 16th century (Lass 2000: 86). While Görlach (1991: 70) thinks that EModE /ɔ/ had further lowered to [ɒ] "in the sixteenth century," Lass (2006: 86) states only that this lowering had happened by the 17th. Since the change under discussion was mainly productive in the 17th century but started earlier, the two changes must have been nearly contemporaneous. I chose to write [ɒ] for the vowel /a/ merged with after /w/ but it must be the case that speakers with a conservative realisation of ME /o/ merged it with [ɔ] and progressive speakers with [ɒ].

rules out the hypothesis that <w(h)ose> for *was* is a misspelling. Dobson (1968: 716-17) suggests that unstressed words were affected first. However, the phenomenon seems to have become more general only in the late 17th century. Lass (2000: 67) states that "the rounding of ME /a/ after /w/ … must postdate the rule of Queen Anne", i.e. 1714, whereby he probably meant that rounding became *general* in the 18th century: he asserts, later in the same work (p. 86), that "[t]he first good witness is Simon Daines (*Orthoepia Anglicana*, 1640), with rounding especially before /r/ *(ward, dwarf)*." For a while, both pronunciations must have co-existed, and the orthoepist John Walker, a contemporary of Byron's, mentions both [wæ] and [wɒ] pronunciations in some eligible words. The Irish actor Thomas Sheridan (*A General Dictionary of the English Language,* 1780), transcribed /kwæ-/ in *quantity* (MacMahon 1999: 375) and Walker made a statement to the same effect in 1791 (quoted in Jespersen 1965 §10.94).

The shifted vowel has a different reflex before coda /r/ in RP and GA: *war, quarter* have /ɔ: ‖ ɑ/. It seems rash to draw a conclusion as to the chronology of the rounding of /wa/ from this correlation. The innovation could have occurred once in Britain and been brought to America by migrants, but it could also have occurred in the 18th century and have spread in America thanks to contact with Britons. For the innovation to occur separately and spontaneously in British and in North American English seem less likely, even though this sound change is phonetically motivated and occurs in other languages: in Gamilaraay, for example, /a/ is something like [ɒ] after /w/ ("Garay Guwaala").

A few items inherited from ModE have pronunciations with /ɑ:/ after /w/ in RP, such as *waft, quaff* (Lass 2000: 86), a phenomenon Lass ascribes to the conservative pronunciation with [æ(ː)] throughout the eighteenth century.[110],[111] The same items also have alternative pronunciations with [æ] (LPD, OEDo). *WAP* (acronym for *Wireless Application Protocol*, first attested in OEDo, "WAP, n.4" in 1997) only has [æ] in OEDo and LPD; compare *swap* (always with [ɒ]). [æ] in this word may be due to its being an initialism and the original vowel (from *application*) was therefore maintained. However, *S.W.A.T* (*Special Weapons And Tactics*, created in the 1960s (Wikipedia)) only has /ɒ ‖ ɑ/. *Swam* with /æ/ "must be due to the analogy of other verbs of the same conjugation, such as *began*" (Dobson 1968: 717). *Memoire* with /ɑ:/ is due to the French pronunciation (Jespersen 1965 §10.91). LPD records a secondary pronunciation /ɔ:/ in GA. RP /ɔ: ~ ɒ/ in *wrath* is unexpected – cp. *wrap* /æ/ – and may be due both to the influence of *wroth* and, according to Jespersen (1965 §10.93), to the rounding of /r/ after /w/. The absence

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110 "*waft, quaff* with [ɒ:]" in Lass (2000: 86) must be a typographical error. '[ɑ:]' should be read instead.

111 Jespersen (1965 §10.95), however, seems to ascribe the retention of /æ/ before /f/ to the same phenomenon as before velars (discussed below).

of spellings with <o> makes it impossible to date the shift to this new pronunciation and, therefore, to establish a relative chronology between this shift and the simplification of /wr-/ (on which, see §3.4).

Rounding did not occur before any of the velar obstruents – hence *wag, whack, twang* with GA and RP [æ] – except in a few words, such as *quagmire*, for which the *English Pronouncing Dictionary* (first published in 1917) gives [ɒ] as an alternative pronunciation (OEDo, "quagmire, n."), and for which the LPD's preference poll recorded 62% [ɒ] in RP. To account for this separate development before velars, Dobson (1968: 717) appeals to the raising influence of the velars. The lip articulation associated with the velars may have exerted additional influence: it may be that the other consonants involved some degree of lip-rounding or that lip-rounding in these consonants did not significantly hinder perception, whereas the velars may have been articulated with open or spread lips. If /a/ was an [æ] articulated with spread lips (as it may have been in 20th-century RP)[112] when /a/ underwent the influence of /w/, the articulatory properties of /a/ and of the following velar may have inhibited the rounding influence of [ɒ].[113] Since the ModE vocalic inventory did not then include an unrounded low back vowel (Görlach 1991: 65), there was no vowel /a/ could have merged with when it was backed.

A minor phenomenon which does not seem to have had any impact in later stages of the language is the retraction of /ɪ/ to [ʌ] after /w/, as in *wull* 'will', *wuth* 'with' reported by Cooper in *The English Teacher* in 1687 (Lass 2000: 65).

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112 Ginésy (2008: 21).

113 "The lowering of [ɔ] [in the 16th century] narrowed the space available for /a/, which was restricted to front allophones [æ]" (Görlach 1991: 71). Lass (2000: 86) dates "the stabilisation of [æ] [< ME /a/] to about the 1650s."

6 Present-day English

This period is not marked by new changes affecting /j/ and /w/, but some earlier tendencies have continued to develop in the last century or so. The elimination of /hw ~ ʍ/ from the phonological inventory has been progressing and so have yod-dropping and yod-coalescence – and they have gained wider acceptance. The recent history of <wh> is discussed in §6.1 and yod-phenomena in §§6.2 and 6.3.

6.1 <Wh> since the 19ᵗʰ century

According to MacMahon (1999: 467), "most speakers of educated Southern English, until at least the second half of the nineteenth century," kept /w/ and /ʍ/ distinct.[114] In the early 20ᵗʰ century, the merger was evidently still frowned upon by some in the UK but Jespersen (1965 §13.51) asserts that it was not then "regarded as nearly so 'bad' or 'vulgar' as the omission of [h], and is, indeed, scarcely noticed by most people." He reported that many "'good speakers' always pronounce [w] and look upon [hw] as harsh or dialectal." In the late 20ᵗʰ century, Wells (1982: 228, 408-9) reported that Scotland, Northumberland (and neighbouring areas) and rural Ulster largely maintained the distinction, while the merger was "now usual in Belfast and some other urban parts" (ibid.: 446). OEDo ("wh, n.", 1986) stated that [hw] was "used by a large proportion of educated speakers in England" and Wells sees in the use of [hw] south of Northumberland "the result of a conscious decision … found principally among the speech-conscious[,] in adoptive RP" and in "verse-speaking and dramatic declaration."[115] Minkova's (2014a: 112) diagram "(4) Variability of /hw-/ ~ /w/ in the history of English" suggests that, in recent decades, the North of England has started to merge the two phonemes and Millar (2015: 65) testifies that the same development is afoot in southern Scotland (see the same source for

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114 The jocular imitation of non-standard speech reported by Wyld (1956: 292) consisting in saying "*vich* for *which*," etc., must have been twofold: (1) substitution of /w/ for /ʍ/, (2) substitution of /v/ for /w/ – on (2), see §7.3.

115 An opinion shared by Dobson (1968 §414) and Henry Sweet (1888. *A History of English Sounds from the Earliest Period with Full Word-Lists*. Oxford: Clarendon Press) who call /hw/ in the Sourth an "artificial pronunciation." Quoted in MacMahon 1999: 7-8.

particular developments in specific Scottish dialects).

In the US, simplification took place over the course of the 20th century: the merger was "comparatively rare" at the turn of the century, by the 1940s the merger was "centered around the eastern cities who looked to London as a cultural center" ("The Merger of whale/wail"). It was the norm at the end of the century except maybe in parts of the South and in a few isolated localities across the country (ibid.) – Minkova (2014b: 30) estimates the proportion of US English speakers with the merger at "10-12 per cent." The history of the merger in Canada is similar. Minkova (2004: 29) accounts for the conservative retention of the split in North America for centuries after Britain by the fact that /hw-/ (maybe [xw-] or [χw-]) was retained at least until the 15th century in East Anglia, whence many Puritans (who had a strong interest for literacy) migrated to the US.

6.2 Yod-dropping and yod-coalescence in London English after 1800

We saw in §5.3 that yod-dropping after /n/ (e.g. /nuː/ for *new*) was non-standard and uncommon in England, and that Walker called it a Londonism in 1791. Yod-dropping after the other coronals and after the consonants not mentioned in the discussion above *(b, v, k...)* is not normally found in England either: LPD records *j*-less forms for *new* and other words with /ˈnjuː-/ but tags them as non-standard.

Wells (1982: 330-31) describes a "switch in Popular London speech towards Yod Coalescence," contrary to the situation up to the 1960s, as shown Sivertsen that year. Yod-coalescence was more progressive than in other communities of the same period: /tʃ dʒ/ for /tj-dj-/ in stressed syllables were widely reported, as was coalescence across word boundaries (*What colour's your hair* /ʒ/), even after elision (*last year* [ˈlɑʃɪə], *What class (are) you in* [ˈklɑʃəʉ ɪn]).

But Yod-dropping seems to have become more frequent again in popular London English. Tollfree (1999: 174) describes the result of a survey on South East London English. In broad forms, yod-dropping could occur "after /h, n, m, s, d, t, l, b/" – i.e. it occurs in more environments than is usual in England, except in East Anglia. Dropping after /f/ and /k/, reported

by Sivertsen (Wells 1982: 330), was not attested in Tollfree's survey.

If the extended yod-dropping found in Sivertsen's study was not attested in the late 20th century but has returned – still as a minor phenomenon – in recent decades, it may be because the emergence of RP as a standard caused linguistic insecurity in speakers and incited them to use standard forms, as Glain (2013: 113-14) reports. Cockney English may have kept yod-dropping after /t h b/ etc. dormant, with very few speakers using these forms, and when the pressure caused by standardisation and RP abated (see Glain again) the process became productive again in this wider array of environments. Recently, Cruttenden (2008: 227) stated that "[i]ncreasingly pronunciations without /j/ are also heard following /n/ in accented syllables, e.g. *neutral, news*" in RP, maybe under the influence of GA (p. 81). If Wells (1982: 301) was right in stating that the London working-class was at his time "the most influential source of phonological innovation in England," yod-dropping may be expected to become increasingly widespread in England and even in RP.

6.3 New cases of palatalisation

Palatal assimilation has extended to new conditioning environments in recent decades. It can now occur in *studio, student*, yielding /ʃt(ʃ)uː-/. This change can be seen as a further step in the story of palatalisation: with palatalisation of stressed /stjuː/ becoming more common and better accepted in the 20th century, forms such as /stʃuːdənt/ must have appeared gradually; the step from this form to /ʃtʃ-/ must have been easily taken and the simplified form /ʃtuː-/ is also heard. These new forms, in turn, have had an impact on other clusters. Another new case of palatalisation in the late 20th century is /str/ > /ʃtr/, the phonetic motivation of which is also obvious since the clusters /tr/ and /dr/ have been known to have palatalised realisations /tʃr/, /dʒr/ (Cruttenden 2008: 87; Glain 2013: 125). Palatalisation in *stop, score*, also reported by Cruttenden (2008: 199), are not as easily accounted for but they may be an extension of the types of palatalisation in *student* and *train*. These cases of contemporary palatalisation are reported in American (including Hawaiian, as soon as the 1970s), Australian and British English (Harrison 1999). It seems as if English may be taking the same path as German, in which all initial *st-* clusters are /ʃt-/: *schnell* 'quick', *schlagen* 'to beat', *Stück* 'a piece (of something)', *Straße* 'street'. Glain (2013: 123ff) treats the palatalisation of these clusters in detail.

7 Recurring changes

The changes discussed here span several periods of the history of English, or they are types phonetically motivated changes that are likely to occur with few constraints and which can be found in other languages as well. For example, the insertion of an on-glide before certain vowels is quite natural, especially if it allows speakers to avoid hiatus (compare *earth* with initial /j-/ in §7.1.1 and *he is* [hᵊiː.jɪz] in §7.1.3); equally natural is the excrescence of a glide between palatals and front vowels: the position of the tongue naturally as it moves from the articulation of the first to the second phone "glides through" the position of an approximant. The opposite phenomenon, the deletion of a glide before its corresponding vowel (as in *sword*), is also common: in this case, the articulation of the glide and of the vowel are so similar that the glide becomes part of the vowel. In these cases where a highly phonetically motivated change occurs, the result is not always easily perceptible, so the innovative forms are not necessarily recorded in the spelling or commented on and for this reason we can assume that at least some of the changes discussed in this section can be observed (in their productive state or in fossilised forms) in some dialects or in particular communities. Some changes may have been noticeable trends confined to a particular period and whose outputs existed alongside the conservative variants. As such, their effects had little or no impact on the subsequent history of the language – the change described immediately below is one of those.

To the paragraphs on the influence of approximants on neighbouring vowels (§§4.2, 5.4) can be added the minor change described by Nares and Sharp in the late 18ᵗʰ century, whereby *yes*, *yesterday* have their vowel shifted to [ɪ] by the preceding glide (MacMahon 2000: 445). Crystal (2005: 91) thinks it was already a feature of Shakespeare's English.

7.1 Glide insertion before vowels

The following developments have their roots in ME and were still in progress in ModE times. These changes consist in the insertion of /j/ or /w/ before a long vowel of similar

articulation and often results in the shortening of the vowel. Since part of the duration of the vowel is transferred into the newly-formed glide (see below), the shortening can be though of as "compensatory shortening."

7.1.1 Insertion of /j/

This was common before ME /eː/, /ɛː/ in initial position "between the fifteenth and the eighteenth centuries inclusive" (Wyld 1956: 308) but it was frowned upon by educated speakers and qualified as vulgar. Dobson (1968 §430) quotes numerous examples from 17th-century orthoepists – *earth, earn, East...* with initial /j-/ – but none of these survive to this day. Wyld (ibid.) states that *year* for *ear* "still survives among good speakers … and that is fast becoming archaic." *J*-insertion was also possible after initial /h/ and /l/: *here, leave, mean*.[116] In his 1674 dictionary *A Collection of English Words Not Generally Used*, John Ray records *yance* 'once', *yane* 'one' and *yoon* 'oven' as North country peculiarities (Ihalainen 1994: 202). His collaborator, Brokesby, comments on these forms, "They place y before some words beginning with vowels; yane, yance; as in some other parts of England, yarely for early; yowes for ewes." This suggests that yod-insertion before front vowels was usual for them but that /j/ before /a/ and /o/ was not (I assume /a/ and /o/ in *yane, yoon* respectively).

After the velars /g/ and /k/, *j*-insertion occurs before a wider variety of front vowels in Sourthern English[117]. Wallis (1653) has /j/ in *cjan, gjet, begjin* (Lass 2000: 86), in which /j/ may be no more than a palatal co-articulation: /kæn > kʲæn > cæn/, etc (cf. Jespersen 1965 §12.61). These pronunciations are, for Elphinston, "essential to a polite pronunciation" (Wyld 1956: 310). Wyld remembers hearing the feature in a speaker born in 1802 and Ellis says he heard it in the 1840s (MacMahon 2000: 374) but it becomes restricted to Irish English (Jespersen 1965 §12.62). The phenomenon lasted longer in North America (MacMahon 2000: 473).

7.1.2 Insertion of /w/

Before back rounded vowels, this change has had few lasting effects. One notable example is *one*, either as /wɒn/ < ME /ɔːn/ (the regular development of OE *ān* /aːn/) or as the RP /wʌn/ <

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116 A pronunciation of *here* along the lines of [hjɪə] is a feature of conservative RP. Australian English also has this phenomenon in the same word. These words now have /iː/ but had /eː/ or /ɛː/ in ME. Yod-insertion must predate this shift, which Minkova (2014a: 252-57) argues had reached its target vowel c. 1550 for /eː/ and c. 1650 for /ɛː/.

117 Jespersen (1956 §21.61) reports Wallis stating that "for *can* you will hear Scots and Northern Englishmen say 'kan' an Southern Englishmen, 'kjan' ("pro *can*, possum, audies Scotos et Boreales Anglos, dicentes, *kan*; Meridionales, *kyan*.").

ModE /(w)uːn/ < ME /oːn/ (with "vulgar and dialectal raising of ME *ǭ*". Dobson 1968 §429n2). The earliest spelling with <w> found by Wyld (1956: 306) is *wone* from the Wiltshire text *Life of Saint Editha*, 1420.   Hart's transcription <ð'ǫn> [ðɔːn] for *th'one*, in 1569 (Lass 2000: 64), does not necessarily mean that /w/ was not present in *one* at the time – it could have been dropped like /w/ was in OE negative contractions (*ne wat > nat* 'does not know'). The clitic *'un* for *one* "evidenced in rhyme at least as early as the late 17th cent" (OEDo, "one") also suggests that /w/ could still be absent in some speakers; however, (1) here too, /w/ might have been dropped in the process, and (2) the clitic might have existed in unrecorded speech long before the OEDo documents it, and its use may have been fossilized after *one* without /w/ fell into disuse. Dobson reports that pronunciations without /w/ were ousted in the 18th century. *Once* followed the same development as *one* > /w-/, maybe by analogy.[118]

Early in the 15th century, <wh-> for /ˈhɔː-/ started appearing. The following examples come from OEDo ("wh, n."):

whom for *hǭm* (< OE *hām*)	*wholle* for *hǭle* 'whole' (< OE *hāl*)[119]
whote for *hǭt* (< OE *hāt*)	*whore* for *hǭre* 'hoar' (< OE *hār*)[120]
w*hole* for *hǭle* (< OE *hal*)	*whood* for *hood* (< OE *hōd*)

The spelling has reversed to the etymological <h> in most cases but the pronunciation with /w ~ ʍ/ remains dialectally for *whole, home* (as "/wɔm/, /wʊəm/, /wʌm/") and, marginally, for a few other items (OEDo). Here, again, the change occurred only before long /ɔː/ – the short vowel in OE *hal, hord* had developed into long vowels by ME. See Dobson 1968 §§430-31 for *orthoepic* evidence.

The insertion of /w/ in *banquet* must be a spelling pronunciation. When it was borrowed from French (first attested in OEDo in 1483), it was spelt with <c> or <k> and the first spelling to reveal a pronunciation /kw/ is *banquet* in Richard Huloet's *Abecedarium Anglo Latinum*, 1552 – unless this was due to the influence of the French spelling. Confusion may have arisen because /w/ could be deleted in some words with /kw/ at the time (§7.2). Similar in this respect is *language*, borrowed in ME as *langage* and in which /w/ was soon inserted due to Lat. *lingua*.

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118   But *only*, for example, did not. Dobson (ibid.) suggests that one reason why *one* should have so behaved is because *one* and *own* could be homophones for some ME or EModE speakers (Wyld 1956: 307-08). W-epenthesis in one of the two could avoid any ambiguity. The same incentive did not exist for *only*.

119   But rarely in the derivatives *wholly* and *wholesome,* in which the root vowel was not long in ME (Dobson 1968: 998-99).

120   OE /aː/ regularly developed into /ɔː/ in the southern dialects of OE (Minkova 2014a: 175-76). The notation 'ǭ' used in the OEDo and Dobson (1968) corresponds to IPA /ɔː/. Lass (2000: 63) has this development occur after 1100 – see Table 9.

"[T]he 16th-cent. orthoepists *Hart and Bullokar still record this pronunciation [i.e. without /w/] as the usual one, and it survives in Scots and Irish English"* (OEDo).

Insertion of /w/ after other consonants is evidenced roughly at the same period and is well represented before diphthongs whose first element is back and rounded (Wyld 1956: 310): *apwoyntyd* (*Cely Papers)*, *Charles Butler's transcription bwoë* for boy (*English Grammar*, 1634), *pwot*, *bwoil* (quoted by Nares in 1784. MacMahon 2000: 470). An early example with a preceding alveolar is *twoile* from *Life of Saint Editha* (1420) (see Jepersen 1965 §12.64 for a discussion of these forms). In 18th-century Cumbrian English, the poet Josiah *Re*lf (1712-43) and Robert *Anderson* (1770-1883) had *cwoach, cworn, bworn* and *fwokes* (Wales 2006: 111) but the phenomenon was then rarer in the main varieties of English.[121]

The changes discussed in this section are due to a single phenomenon whereby "the first part of the front vowels is over-palatalized, and that of the back vowels in over-labialized, so that in each case its first part ceases to be vocalic and becomes a consonantal on-glide" (Dobson 1968 §429). These changes can be generalised as the following formula, in a stressed environment:

$$
\varnothing \;\rightarrow\;
\begin{bmatrix}
-\text{syll} \\
-\text{cons} \\
+\text{high} \\
\alpha\,\text{back} \\
\beta\,\text{round}
\end{bmatrix}
\;/\;(\,[+\text{obs}]\,)\;\underline{\qquad}\;
\begin{bmatrix}
+\text{syll} \\
+\text{long} \\
-\text{high} \\
-\text{low} \\
\alpha\,\text{back} \\
\beta\,\text{round}
\end{bmatrix}.
$$

The conditioning environment allows only mid long vowels (or first elements of diphthongs) to trigger the epenthesis.

A similar development occurred in OF and Old Spanish: Fr *lierre* 'ivy' < Lat. *hedera*, OF *chief* 'head; leader' < Lat. *caput*; Spanish *puedo* 'I can' (alongside *podemos* 'we can' and *poder*, the infinitive). ON often inserted /j/ before initials: PG **erþō* > ON *jǫrð* 'earth'.

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121 If 18th-century Cumbrian English was anything like most present-day Scottish and Northern English varieties, the diagraph <oa> in *cwoach* represented a rounded mid back monophthong.

7.1.3 Other forms of insertions in Modern and present-day English

In her survey of South East London English in 1996, Tollfree (1999: 174) reports /j w/ being used to avoid hiatus: "*legal earnings* [ligɤwə:nɪŋz];[122] *he is* [hᵊi:jɪz]. In RP, a "junctural" [ʲ] or [ʷ] glide can be inserted between a vowel (or second element of a diphthong) of similar articulation and a following vowel, as in *seeing* ['si:ʲɪŋ], *doing* ['du:ʷɪŋ] (Cruttenden 2008: 227, 230). This is quite a natural phenomenon of glide excrescence.

7.2 Glide deletion before vowels

A tendency for /w/ to be *deleted* before back rounded vowels existed from the early 12th century but seems to have abated in the late 18th century (Dobson 1968 §§419-21; Lass 1992: 67; §§2.3.3.1 and 4.2 in this work). Examples from LOE and ME include:

suster 'sister' < *swuster, such < swuch, two < twā*;[123]

The same phenomenon applied to */j/ before /i/ but was short-lived. Examples are:*

icche 'itch (n.)' < *ġicce, if < ġif, inoch 'enough' < ġenoh* (cp. German *genug*), *i- < ġe-* 'past participle prefix' (later lost altogether; cp. German *ge-* /ɡə/).

One of the earliest attestation of the loss of /w/ in OEDo seems to be *suster* (1122, *Anglo-Saxon Chronicle* entry for the year 604).[124] For /j/, *itch* (n.) appears in Lanfranc*'s Science of Cirurgie*, dated to c. 1400.

Deletion in *sword* is barely reflected in the spelling: OEDo only has *sourd* in Robert Wedderburn's *The Complaynt of Scotlande* (c. 1550). WS *sweord*, with a front first element in /eo/, probably was not affected but the variant with /u/ (cf. Hogg 1992a §5.183) and the Northumbrian form *sword* < Nbr **swerd* (Hogg 1992a §5.30) may have been.

An early example of the loss of /w/ in a word which now always has /w/ in standard English is *oman* for *woman* in Alice *Crane's letter (part of the P*aston collection) in 1455 (Wyld

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122 /ɤ/ is a close-mid back unrounded vowel and it results from *l*-vocalisation in Cockney (Wells 1982: 313).

123 On *two < twā*, see also §4.2. WS 'two' had the nom.sg. forms *twēġen* (masc.), *twā* (fem.) an *tū* (neuter). The source of PDE *two* is the feminine form and not the masculine, which regularly developed into dialectal ME/EModE /toʊ/.

124 The WS forms yielded ME *suster, soster*; *sister* "appears to be from Scandinavian" (OEDo).

1956: 296). *Loss in sore* for *swore* (1451, Paston Letters) was less likely to survive due to the analogy with *swear*. *Soon* for *swoon* (*Sheridan, 1780) is a late example* and the tendency seems to have declined after this date. The glide may have been dropped at times in *swung* and *swum* but they were then reintroduced by analogy (Jespersen 1956 §7.31). *Ooman, ool, east* for *woman, wool, yeast* were reported in 20th-century Wales and in the West of England (Wells 1982: 390).

Examples of the deletion in *kw*V- are many and exist before front vowels. *Chorister* was consistently spelt with <qu-> in ME but spellings with <c(h)-> appear in the 15th century and the older pronunciation fell into disuse in the 19th (OEDo). For *quoth*, OEDo mentions ME spellings <cod, kod> and Dr. *Jones* (*Practical Phonographer*, 1701) also has no /w/. This is more surprising than in *chorister*, since /w/ was apparently never lost in the (then) fully functional verb *queath* (which "had become obsolete by the end of the 16th cent." – OEDo. Cf. *be-queath*).

Liquid and *quint* pose a problem. Jones does not have /w/ in those words but the fact that he mentions them does not mean that some of his contemporaries did. He may simply have insisted on the fact that despite their spelling they had simple /k/ (see *banquet* in §7.1.2). The words were borrowed from Fr in the 14th and 15th centuries, respectively, and OF simplified /kw/ to /k/ in all environments at least a century before (OEDo, "Q, n."); however, Norman French did not. Furthermore, the words were consistently written with <qu-> (cp. *banquet*), which may be proof that the non-reduced form was used. The diagraph <qu> in words recently borrowed from Fr "*critique, quarte, coquette, burlesque,* etc.*"* (all four borrowed after 1600) never was pronounced /kw/ (Jespersen 1965 §2.327).

The late 18th-century orthoepists still describe pronunciations without /w/ for *quadrille, quint, quota, quotation, quote* and *quoth* (MacMahon 2000: 485).[125] The pronunciations of *quart(er)* without /w/ in RP and GA (LPD) and possibly in Australian English (Wells 1982: 604) must be inherited from this period.

The tendency for /w/ to be lost seems more pronounced after /k/, even possibly before front vowels if *quint* and *liquid* dropped /w/. It may be that /w/ *l*abialised the preceding /k/, giving [ˈkʷw-] at first before the segment /w/ itself was deleted.

In unstressed syllables, /w/ was frequently lost in EModE: *answer* lost /w/ in the 17th century according to the orthoepists' evidence (Jespersen 1965 §7.32); *conquer* had no /w/ for Jones in 1701 – compare *conquest*, in which /w/ was retained, "perhaps because no /r/ followed"

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125 *Quint* can still be /kɪnt/ (LPD , OEDo).

(Jespersen, ibid.), or maybe because the latter syllable in this word had a full vowel. The alternation in *forward* and *towards* arose before the 18ᵗʰ century (*backward* also alternated at the time but LPD records no pronunciation without /w/). The place-name element *-wick / -wich* had lost /w/ by the late 18ᵗʰ too. Contraction of unstressed *will* was possible in Shakespeare already (dialectal *ich will* 'I will' > *chill*, in *King Lear* IV) and the spelling *summut* for *somewhat* shows that pronunciations like British English /ˈsʌmət/ could be heard in the 19ᵗʰ century.

7.3 Alternations between /w/, /v/, /ʊ/ and /r/

Alternation between /w/ and /v/ is not very surprising and is attested both ways in the history of English, i.e. /w/ for /v/ and /v/ for /w/. Sometimes, this is characteristic of a specific variety at a certain time but it also a common idiosyncratic trait in individuals (in which case it is often referred to as a speech defect). Even the letters' names suggest a close association between the two, and German, for example, writes <w> for /v/.

The articulatory difference between the two is not great: lenition of /v/ to an approximant would yield [ʊ], a phoneme that has never been part of the phonemic system of any of the major (in terms of the number of speakers) varieties of English; merger with /w/ requires only some lip-rounding and a simultaneous velar co-articulation. Conversely, a closer articulation of /w/ can lead to frication, whether bilabial or labiodental; in the first case, [β] results, but this is also foreign to English phonetics, and merger with /v/ is likely. Figure 13.1 in Laver (1994: 392), "auditory distances between segment-types representing the consonantal phonemes of English (Received Pronunciation)" invalidates my initial impression that the perceptual difference between /v/ and /w/ was minor: he ascribes an auditory distance of 55% to the two phones – compare this with the distance between /f/ and /θ/, which he estimates is 25% (and see Ladefoged & Disner 2012: 100). Alternation between /w/ and /r/, on the other hand, seems to be one-way: /w/ can be substituted for /r/ but not the other way around.

Wyld (1956: 292) finds early evidence of alternations between /v/ and /w/ throughout the 15ᵗʰ century, and many more afterwards, but says nothing about ME. He calls it a "London vulgarism" and this feature is, indeed, seen as a Cockney shibboleth: it was described as "the most striking and most offensive error in pronunciation among the Londoners" (Jespersen 1965

§13.8); but it was found in the South East in general, and also in East Anglia and New England (MacMahon 1999: 485).

Wyld's early examples include *wex*, *a<u>w</u>owe* (*Life of Saint Editha*, 1420), *<u>v</u>yves* (Palladius, *On Husbondry*, 1421) and *avayte* (Paston Letters, 1465). Elphinston and Walker comment this phenomenon in the late 18th century and disapprove of it (although Walker says it is not only used by "those … of the low order"), but it became increasingly discreet in the late 19th century (Wyld, ibid; Ihalainen 1994: 206, 227). By Wyld's childhood in the late 19th century, it was sometimes imitated but Wyld did not hear it used consistently and naturally by anyone.[126] Wells (1982) does not mention this alternation in his discussion of present-day London English. The substitution of /w/ for /v/ seems to have had some currency in Australia in the early 19th century, for example in *Wery fine* (Turner 1994: 283).

Substitution of /w/ for /r/ was reported by Sweet in the late 19th century, and he calls it an "affected" pronunciation – but no longer "swell" in *vewy* (Macmahon 1999: 491). This phenomenon is still current and Cruttenden explains, "[i]n some extreme cases, lip-rounding [in /r/] is accompanied by no articulation of the forward part of the tongue, so that /r/ is replaced by /w/ … Alternatively … [ʋ] may be heard as a realization of /r/ or even both /r/ and /w/" (2008: 221). If this were to become widespread, the question whether /r/ and /w/ could merge would become relevant and, it seems to me, quite unprecedented, since no merger involving /j/ or /w/ has happened in centuries (recall /ɣ/ > /j/ in OE, §3.2).

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126 Its use was "a reminiscence of Dickensian humour" (Jespersen, ibid.).

8 Conclusion

The goal of this study was to examine some of the most important changes which affected the English glides and, by doing so, to contribute to the understanding of the history of the English language. As we have seen throughout this chronology, the effects these glides have had on neighbouring segments is also responsible for the shape of English today. Had pOE */j/ in verbal endings not triggered *i*-mutation, we would have pairs of words such as *blood ~ to blood*, *full ~ to full*. We would have the adjective *whole* and a veb *to hole* with the meaning of PDE *heal* – would the connection between the two words have remained clearer than it now is? Would the semantic shift in the verb have happened? If it were not for the palatalisation of pOE /ɡ/ to /j/ in *dæġ*, the PDE form might have rhymed with *bag* (cp. German *Tag* /taːk/).

Of course, some of the changes related to /j/ and /w/ have had little effect on the English we know today, often because the alterations they caused or underwent were later undone or analogically restored: for example, the geminate /-dd/ caused by West Germanic Gemination in PG *midjaz* was simplified in OE and the PDE form is /mɪd/. Likewise, we saw in §§2.3.3.1 and 2.3.3.2 that /w/ was often analogical restored when not all the forms of the paradigm had lost it in the first place. If it had not been so in *clēa(w)*, we might not say *claw* /klɔː/ but /kliː/ (cp. OE *ēare* > PDE *ear*). If analogy had not operated in *ġeat* 'gate (nom.sg.)', the PDE form might be the same as dialectal *yate* (unless the Scandinavian influence was the main reason for the shift from /j/ to /ɡ/ in this word). What paradigmatic alternation have remained to this day are fossilised and plurals like *feet, geese, mice* are considered irregular.

The history of English /j/ and /w/ has not come to an end (we might not be able to say this of the history of /ʍ/ in a few decades). The history of palatalisation by /j/ and /i/ has kept progessing in the past decades and new consonants and clusters are now affected; here too, a comparison with present-day German is in order, and *student, stock, score* might be /ʃtuːdənt/, /ʃtɒk/, /ʃkɔː/ in the future. By then, a pronunciation of *assume* with /-sj-/ might sound archaic and comical.

Alternative pronunciations and changes restricted to particular communities or dialects have always existed but they have not often made their way into the standard language – consider the numerous cases of *j*-epenthesis in various communities in the second millenium CE, and also the informal pronunciation of *february* /ˈfebjəri/. This is all the more relevant

nowadays as dialectal variation seems to have been decreasing. How many speakers are there left in the North of England who speak what Wells (198: 2) calls "traditional-dialect" and for whom *the roads are dirty* could be [t rɪadz əz mʊkɪ]? Already in the 1980s Wells (ibid.: 7) said that forms such as [ˈwatə] and [wɒm] for *water, home,* in a Derbyshire village he knew, were "now nothing but a memory." Yet, Wells was also confident that one source of non-standard English, namely London English, was likely to influence the language spoken in the rest of the U.K., and possibly even global English (ibid.: 301).

As to /j/ and /w/ themselves, no major phonetic or articulatory change over the course of the past millennia is obvious. Phonologically, however, some changes have operated. The phonotactics of the two glides is much more restricted now that a few centuries ago: until the beginning of the Modern Era, /j/ could still stand in clusters such as /blj- plj- krj- dʒj-/ (*blue, plume, recruit, June*. MacMahon 1999: 471), and a few centuries earlier both /w/ and /j/ could stand word-finally, even sometimes after a liquid, as in *burġ* /burj/. Again, the recent cases of palatalisation could restrict the position of /j/ to fewer environments. Will /j/ be found word-initially before vowels only, as in *ewe, yet, yeast*?

This work is indebted to, and was inspired by, the works quoted throughout it, and I hope to have contributed to showing that historical phonetics and phonology, in addition to being an end in themselves, are also a means to better understand the present stage English is in.

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References are to page number. Non-latin characters (<æ>, <þ>) are sorted after <z>. All PG and PIE items can be found at "PG <item>" and "PIE <item>" respectively. When several spellings of a word, or of one word as it was spelt in different stages of the language, are used, only the most recent spelling will be found. E.g. PDE *wolf* and OE *wulf* will be found at "wolf." ME (post-vocalic) <j> and <w> may be substituted for by <i> and <u>.

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Works cited

Articles and books

Baugh, Albert C., and Thomas Cable (2002). *A History of the English Language*. 4th edition.

    Abingdon: Routledge. 1951.

Blair, John (2010). "Roman Britain." *The Oxford History of Britain*, edited by Kenneth O.

    Morgan, Oxford: Oxford University Press, 60-119.

Blake, Norman (1992). "1 – Introduction" in Hogg (1992-2001), vol. 2: 1066-1476, edited by

    Norman Blake. 1-22.

Bourcier, Georges (1978). *Histoire de la langue anglaise du Moyen Age à nos jours*. Bordas.

Campbell, Alistair (1959). *Old English Grammar*. London: Oxford University Press.

Carr, Philip (1993). *Phonology.* Houdmills: The Macmillan Press Ltd.

Clackson, James (2007). *Indo-European Linguistics – An Introduction*. Cambridge: Cambridge

    University Press.

Cruttenden, Alan (2008). *Gimson's Pronunciation of English*. 7th edition. London: Hodder

    Education.

Curzan, Anne and Kimberley Emmons, editors (2004). *Studies in the History of the English*

    Language II. Unfolding Conversations. Berlin/New York: Mouton de Gruyter.

Cyrstal, David (2003). *The Cambridge Encyclopedia of the English Language*. 2nd edition.

    Cambridge: Cambridge University Press. 1995.

– – – (2005). *Pronouncing Shakespeare: the Globe Experiment.* Cambridge: Cambridge

    University Press.

Denison, David and Richard Hogg (2006). "Overview" in Hogg & Denison (2006). 1-42.

Dobson, Eric J. (1968). *English Pronunciation 1500-1700.* 2 vols. 2nd ed. Oxford: Oxford

University Press.

"Garay Guwaala." *Yuwaalaraay gaay – Gamilaraay garay*, 2008,

www.yuwaalaraay.org/lessons/pron.html.

Gillingham, John (2010). "3. The Early Middle Ages (1066-1290)." *The Oxford History of*

Britain, edited by Kenneth O. Morgan, Oxford: Oxford University Press, 120-191.

Ginésy, Michel (2008). *Mémento de phonétique anglaise*. Paris: Armand Colin. 1995.

Glain, Olivier (2013). *Les Cas de Palatalisation Contemporaine (CPC) dans le monde*

anglophone. Dissertation, Université Jean Moulin (Lyon 3). Available at

www.theses.fr/2013LYO30053.

Görlach, Manfred (1991). *Introduction to Early Modern English*. Cambridge: Cambridge

University Press.

Harrison, Shelley (1999). "Summary: English /(s)tr/ clusters." *The Linguist List,* 10 February

1999, owl.english.purdue.edu/owl/resource/747/08/.

Hogg, Richard (1992a). *A Grammar of Old English. Volume I – Phonology.* Chichester: Wiley-

Blackwell.

– – – (1992b). "1 – Introduction" in Hogg (1992-2001), vol. 1: *The Beginnings to 1066,* edited

by Richard Hogg. 1-25.

– – – (1992c). "3 – Phonology and Morphology" in Hogg (1992-2001), vol. 1: *The Beginnings*

to 1066, edited by Richard Hogg. 67-167.

– – –, editor (1992-2001). *The Cambridge History of the English Language*. Cambridge:

Cambridge University Press, 6 vols. Print. Accessed online: www.cambridge.org/core.

Hogg, Richard and David Denison, editors (2006). *A History of the English Language*.

> Cambridge: Cambridge University Press.

Hogg, Richard and Robert D. Fulk (2011). *A Grammar of Old English. Volume II – Morphology*.

> Chichester: Wiley-Blackwell.

Hornsby, David (2014). *Linguistics – A Complete Introduction.* John Murray Learning.

Ihalainen, Ossi (1994). "5 – The Dialects of England since 1776," in Hogg (1992-2001), vol. 5:

> English in Britain and Overseas: Origins and Development, edited by Robert Burchfield.

> 197-274.

Jespersen, Otto (1965). *A Modern English Grammar on Historical Principles. Part I – Sounds*

> *and Spellings*. London: George Allen & Unwin LTD. 1909.

Kjederqvist, John (1904). "The Dialect of Pewsey (Wiltshire)." *Transactions of the Philological*

> *Society, 1903-1904.* Wiley, 1-115.

Ladefoged, Peter and Sandra F. Disner (2012). *Vowels and Consonants.* 3rd ed. Chichester:

> Wiley-Blackwell.

Ladefoged, Peter and Ian Maddieson (1996). *The Sounds of the World's Languages*. Malden

> (Mass.)/Oxford/Carlton (Vic, Australia): Blackwell Publishing.

Lass, Richard (1992). "2 – Phonology and Morphology" in Hogg (1992-2001), vol. 2: 1066-

> 1476, edited by Norman Blake. 23-155.

– – – (2000). "3 – Phonology and Morphology" in Hogg (1992-2001), vol. 3: 1476-1776, edited

> by Roger Lass. 56-186. DOI: dx.doi.org/10.1017/CHOL9780521264761.004.

– – – (2006). "Phonology and Morphology" in Hogg & Denison (2006a). 43-108.

Laver, John (1994). *Principles of Phonetics.* Cambridge: Cambridge University Press.

McGillivray, Murray (ed.). "Beowulf." *The Online Corpus of Old English Poetry*, 21 June 2007,

people.ucalgary.ca/~mmcgilli/ASPR/a4.1.html. Accessed 24 April 2018.

MacMahon, Michael K. C. (1999). "5 – Phonology" in Hogg (1992-2001), vol. 4: 1776-1997, edited by Suzanne Romaine. 373-535.

"The Merger of whale/wail." *The Atlas of North American English.* Mouton de Gruyter, www.atlas.mouton-content.com/secure/generalmodules/anae/maps/map_whale_wail.html.

Millar, Robert McColl (2015). *Trask's Historical Linguistics*. 3rd ed, Abindgon, UK: Routledge.

Milroy, Lesley (2004). "An essay in historical linguistics?" in Curzan and Emmons (2004). 47-53.

Minkova, Donka (2004). "Philology, Linguistics, and the history of [hw]~[w]" in Curzan and Emmons (2004). 7-46.

– – – (2014a). *A Historical Phonology of English.* Edinburgh: Edinburgh University Press.

– – – (2014b). "Companion to *A Historical Phonology of English*." *Edinburghuniversitypress.com*. edinburghuniversitypress.com/media/resources/Historical_Phonology_of_English_-_Online_Companion.pdf (accessed through edinburghuniversitypress.com/book-a-historical-phonology-of-english.html).

Morgan, Kenneth O., editor (2010). *The Oxford History of Britain*. Oxford: Oxford University Press. 1984.

Mossé, Fernand (1940). *Manuel de l'anglais du Moyen Âge : Des Origines au XIVe siècle.* Vol. 1: *Vieil-anglais*. 3rd edition. Paris: Aubier, Éditions Montaigne.

– – – (1942). *Manuel de la langue Gotique*. Paris: Aubier, Éditions Montaigne.

Navarro, Sylvain (2016). *Le /r/ en anglais. Histoire, phonologie et variation*. Dijon: Éditions

universitaires de Dijon.

Neijmann, Daisy L. (2001). *Colloquial Icelandic. The Complete Course for Beginners*. London: Routledge.

Nevalainen, Terttu and Ingrid Tieken-Boon van Ostade (2006). "Standardisation" in Denison and Hogg (2006). 271-311.

Owen, Corey (1999). "The Seafarer: A Hypertext Edition." University of Saskatchewan, www.usask.ca/english/seafarer/TOC.htm

Petrova, Olga (2004). "The role of perceptual constrast in Verner's Law" in Curzan and Emmons (2004). 371-408.

Petyt, K. M. (1980). *The Study of Dialect – An Introduction to Dialectology*. London: André Detusch Limited.

Ringe, Don (2006). *From Proto-Indo-European to Proto-Germanic*. Oxford: Oxford University Press.

de Saussure, Ferdinand (1995). *Cours de Linguistique Générale.* Annotated and commented by Tullio de Mauro [1967]. Paris: Éditions Payot et Rivage. 1916.

Stévanovitch, Colette (2008). *Manuel d'histoire de la langue anglaise : Des Origines à nos jours.* Paris: Ellipses Édition Marketing.

Tollfree, Laura (1999). "South East London English: discrete versus continuous modelling of consonantal reduction." *Urban Voices. Accent Studies in the British Isles*. Edited by Paul Foulkes & Gerard Docherty. London: Arnold. 163-84.

Turner, George W. (1994). "English in Australia" in Hogg (1992-2001), vol. 5: English in Britain and Overseas: Origins and Development, edited by Robert Burchfield. 275-327.

Wales, Katie (2006). *Northern English. A Social and Cultural History*. Cambridge: Cambridge

University Press.

Wells, John C. (1982). *Accents of English*. Cambridge: Cambridge University Press. 3 vols.

Wyld, Henry C. (1956). *A History of Modern Colloquial English*. 3rd edition. Oxford: Basil Blackwell. 1920.

Dictionaries and other data sources

Baker, Peter S. *The Old English Aerobics Glossary*. 2003, glossary.oldenglishaerobics.net/ [as "OEAG"].

CME: see *Corpus of Middle English Prose and Verse*.

Corpus of Middle English Prose and Verse. University of Michigan, quod.lib.umich.edu/c/cme [as "CME"].

Forvo. forvo.com.

Harper, Douglas. *Online Etymology Dictionary*. www.etymonline.com.

LPD: see Wells (2008).

MED: see *Middle English Dictionary*.

Middle English Dictionary. University of Michigan, 2001, quod.lib.umich.edu/m/med [as "MED"].

OEAG: see Baker, *Old English Aerobics Glossary*.

OEDo: see *OED online*.

OED online. Oxford University Press, oed.com [as "OEDo"].

Orel, Vladimir (2003). *A Handbook of Germanic Etymology*. Leiden: Brill.

Pokorny, Julius (1959). *Indogermanisches etymologisches Wörterbuch*. Bern: Franke Verlag.

Sweet, Henry (1897). *The Student's Dictionary of Anglo-Saxon*. Oxford.

TLFi : Trésor de la langue Française informatisé. ATILF - CNRS & Université de Lorraine, atilf.atilf.fr/.

Wells, John C. (2008). *Longman Pronunciation Dictionary*. 3rd edition. Harlow: Pearson Education. 1990 [as "LPD"].

Wikipedia. en.wikipedia.org/wiki/Main_Page.

Annex: IPA chart

    I reproduce part of the IPA chart (revised to 2018) here for the sake of convenience. The IPA chart can be found at www.internationalphoneticassociation.org/content/ipa-chart and is available under a Creative Commons Attribution-Sharealike 3.0 Unported License. Copyright © 2015 International Phonetic Association.

CONSONANTS (PULMONIC)   © 2018 IPA

|	Bilabial	Labiodental	Dental	Alveolar	Postalveolar	Retroflex	Palatal	Velar	Uvular	Pharyngeal	Glottal
Plosive	p b			t d		ʈ ɖ	c ɟ	k g	q ɢ		ʔ
Nasal	m	ɱ		n		ɳ	ɲ	ŋ	N		
Trill	ʙ			r					R		
Tap or Flap		ⱱ		ɾ		ɽ					
Fricative	ɸ β	f v	θ ð	s z	ʃ ʒ	ʂ ʐ	ç ʝ	x ɣ	χ ʁ	ħ ʕ	h ɦ
Lateral fricative				ɬ ɮ							
Approximant		ʋ		ɹ		ɻ	j	ɰ			
Lateral approximant				l		ɭ	ʎ	L			

Symbols to the right in a cell are voiced, to the left are voiceless. Shaded areas denote articulations judged impossible.

OTHER SYMBOLS

ʍ Voiceless labial-velar fricative or approximant

w Voiced labial-velar approximant

VOWELS
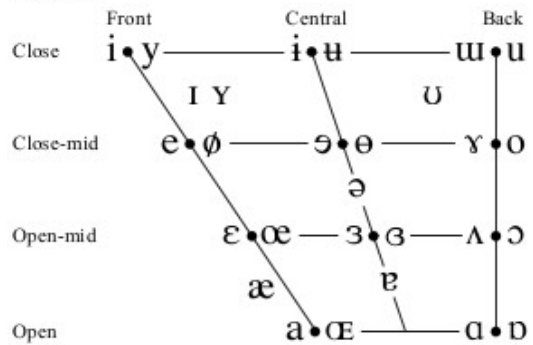
Where symbols appear in pairs, the one to the right represents a rounded vowel.

DIACRITICS Some diacritics may be placed above a symbol with a descender, e.g. ŋ̊

Voiceless	n̥ d̥	Breathy voiced	b̤ a̤	Dental	t̪ d̪
Voiced	s̬ t̬	Creaky voiced	b̰ a̰	Apical	t̺ d̺
Aspirated	tʰ dʰ	Linguolabial	t̼ d̼	Laminal	t̻ d̻
More rounded	ɔ̹	Labialized	tʷ dʷ	Nasalized	ẽ
Less rounded	ɔ̜	Palatalized	tʲ dʲ	Nasal release	dⁿ
Advanced	u̟	Velarized	tˠ dˠ	Lateral release	dˡ
Retracted	e̠	Pharyngealized	tˤ dˤ	No audible release	d̚
Centralized	ë	Velarized or pharyngealized	ɫ		
Mid-centralized	ě	Raised	e̝	(ɹ̝ = voiced alveolar fricative)
Syllabic	n̩	Lowered	e̞	(β̞ = voiced bilabial approximant)
Non-syllabic	e̯	Advanced Tongue Root	e̘		
Rhoticity	ɚ a˞	Retracted Tongue Root	e̙		