

Germanic is a relatively simple case, as the number of innovations, and the massiveness of their structural effects, clearly define a coherent new IE subgroup, quite different-looking from the other ancient languages. The innovations are: (a) a set of major vowel mergers; (b) a nearly complete transformation of the obstruent system; (c) restructuring of the accent system; (d) some important consonant developments connected with the accent; and (e) a reorganization of the verb system on a new basis. We will consider only the phonological innovations in this chapter; the changes in the verb system will be taken up in chapter 7.

2.2 Formation of the PGmc vowel system

On a conservative view,² the parent IE language had a vowel system of this general type:

(2.1)	i	u	i:	u:
	e	o	e:	o:
	α		α:	
		ei	oi	ai
		eu	ou	au

The PGmc system derives from a set of mergers, extensively reducing the original:

(2.2)	(a)	o	ou	oi
		α	αu	ai
		i	ii	iii
	(b)	α:		
		o:		
	(c)	ei		
		i:		

Mergers (a.i-iii) are of course all functions of $*/o/ > */\alpha/$. Illustrations of the vowel mergers:

² The sense of 'conservative' will be clearer in §5.3, where we consider proposals for larger systems (including $*/\partial/$) and smaller ones – even a system with only one vowel, $*/e/$. But this is relevant only for very early PIE; the variety that concerns us here is 'Later Western PIE' (Dolgopolsky 1989), which is the input to PGmc.

- (a.i) L *octō* 'eight', *ager* 'field' = Go *ahtau*, *akkr̥s*.
- (a.ii) L *rūfus* 'red' < $*/roudh-o-s/$, *augeō* 'increase' = Go *rauþs*, *aukan*.
- (a.iii) OLat *oinos* (later *ūnus*) 'one', *aes* /ais/ 'brass' = Go *ains*, *aiz*.
- (b) L *māter* 'mother', Gr (Doric) *pōs* 'foot' = OE *mōdor*, Go *fōtus*.
- (c) Gr *steikhō* 'go', L *su-īnus* 'belonging to a pig' = OE *stīgan* 'ascend', *swīn* 'swine'.

The result is an asymmetrical and reduced PGmc system:

(2.3)	i	u	i:	u:
	e	□	e:	o:
	α		□	
		ai	au	eu

We will see later how the short /o/ and long /α:/ slots were refilled, and what happened to the diphthongs.

2.3 The IE consonants: Grimm's Law

The conventional reconstruction of the IE consonant system is:

(2.4)	p	t	k	k ^w
	b	d	g	g ^w
	bh	dh	gh	g ^w h
			s	
	m			
		n		
		r,l	j	w

$*/bh/$ etc. are traditionally called 'voiced aspirates'; they were probably ✓ breathy-voiced stops as in modern Hindi and other Indic languages. There was also a set of 'laryngeals', rather mysterious consonants of uncertain ✓ type but with profound effects on phonological development. It is however unlikely that they survived into PGmc, and I will not treat them here.³

³ On the laryngeals see §§5.3-4 and references. There are more serious challenges to this reconstruction, involving a complete recasting of the articulatory characterization of the obstruents. These challenges come under the heading of 'glottalic theory', and involve *inter alia* the claim that rather than the traditional voiced vs. voiceless vs. breathy-voiced opposition claimed here, the original voiced aspirated stops were in fact glottalic egressive (ejective). The arguments are complex and to my mind not convincing; for the original proposals see e.g. Gamkrelidze & Ivanov (1973), Hopper (1973); for critical (and I think devastating) counterargument, Szemerényi (1985, 1989a: §VI.9). The problems are well discussed (with some interesting additional proposals) in Joseph (1985), Bomhard (1986), and Hock (1991: ch. 19).

There was also a set of syllabic 'resonants', i.e. syllabic versions of the nasals and liquids, *[m̥, n̥, l̥]; their phonological status is uncertain, but their historical independence is clear, as we will see later.

Perhaps the major defining feature of PGmc is a massive transformation of the obstruent system, generally called the **First Sound Shift** (G *erste Lautverschiebung*) or **Grimm's Law**.⁴ It consisted of three articulatory shifts (*[kʷ]/ etc. omitted for simplicity, but see below):

(2.5) <i>Grimm's Law</i>									
A.	p,	t,	k	>	f,	θ,	x		
B.	b,	d,	g	>	p,	t,	k		
C.	bh,	dh,	gh	>	β,	ð,	ɣ	(later b, d, g)	

The order of these changes is unclear, except that A must precede B – otherwise *[b, d, g] would emerge as [f, θ, x] just like original *[p, t, k]. *[s], the only fricative, is unaffected. Note that the number of contrasts remains the same: only the manner of articulation changes. (In other IE groups *[bh]/ etc. fell together with *[b], leaving a two-series system.) Illustrations of Grimm's Law:

- A. *[p]: L *pater*, Gr *patēr* 'father' = Go *fader* OE *fæder*;
 *[t]: L *trēs*, Gr *treis* 'three' = OE *þrēo*, Oic *þrír*;
 *[k]: L *cord-*, Gr *kardiā* 'heart' = Go *hairtō*, OE *heorte*;
 B. *[b]: Li *dubūs* 'deep' = Go *diups*, OE *dēop*;
 *[d]: L *edō*, Gr *édō* 'eat' = Go *itan*, OE *etan*;
 *[g]: L *ego*, Gr *egó* 'I' = Go *ik*, OE *ic*;
 C. *[bh]: Skr *bhrātar-* 'brother' = Go *brōpar*, OE *brōþor*;
 *[dh]: Gr *thugatēr-* (Gr /th/ < *[dh]) 'daughter' = Go *daúhtar*, OE *dohtor*;
 *[gh]: Skr *hamsa* < *[ghans-/ 'goose' = OHG *gans*, OE *gōs*.

The 'labiovelars' (better labial-velars) *[kʷ]/, etc. more or less followed Grimm's Law, but their developments are complicated by a tendency for the complex articulation to 'disintegrate', giving rise either to labials or velars. For this reason the cognate forms in the other IE languages are not as obvious as for the simple stops. Some illustrations:

- A. *[kʷ] > /xw/ as predicted: L *quod* 'what' (neuter nom/acc sg) = Oic *hwat*, OE *hwæt*.

⁴ The literature on Grimm's Law is enormous; for some idea of the issues involved, see Prokosch (1938: §§15–24), Moulton (1972).

- B. *[gʷ] > /kw/ as predicted: Skr *gám-*, Gr *baínō* 'come' < *[gʷem-/ = Go *qiman* /kwimɑn/, OHG *queman*, OE *cuman* (but cf. alternative OE preterite *cwōm*, retaining the labial element).
 C. *[gʷh] > /ɣw/ after nasals: Gr *omphē* 'voice' < *[songʷhɑ], cf. Go *siggwan*, Oic *syngva* 'sing'; > /ɣ/ before back vowels and consonants: IE *[gʷhnt-/ 'battle', cf. OCS *gonŭ* 'hunting', Skr *hánti* 'he strikes' = OHG *gund* 'battle', Oic *gunnr*; > /w/ otherwise: Skr *gharmáh* 'heat, glow' = Oic *varmr*, OE *wearm* 'warm, hot'.

The results of Grimm's Law were more complex than (2.5) and the subsequent discussion suggests; in particular, *[bh, dh, gh] first became fricatives except after nasals and possibly liquids; here they became stops. So the PGmc results were at first [β, ð, ɣ], with [b, d, g] as post-nasal allophones. By the time OE had emerged as an independent dialect (if not earlier), they had become stops in nearly all positions. The only exception is the ancestors of Dutch, where the reflexes of *[gh] never became stops except after nasals and liquids, and the old allophony remains: so Afr *berg* /bɛrx/ 'mountain' is phonetically [bɛrx], the pl *berge* is /bɛrxə/, but phonetic [bɛrgə]. (See §3.9 for details.)

2.4 The Accent Shift and Verner's Law

Another great defining change is the **Accent Shift**, leading to the development of what may be called the **Germanic Stress Rule** (GSR). In Indo-European, accent was by and large 'free'; it could occur on any syllable of the word, depending on morphological and other conditions. For instance there were initial-accented stems like *[gómbh-o-/ 'peg' (Skr *jámbha-*, Gr *gómph^h-os*), and suffix-accented ones like *[som-ó-/ 'same' (Skr *samá-*, Gr *hom-ós*). And there were accent-alterations within paradigms: e.g. nominative and accusative often had root-accent while other case forms of the noun had suffix accent. So Sanskrit 'light':

(2.6)	NOM SG	rúk	DAT SG	ruk-é
	NOM/ACC PL	rúc-aḥ	DAT PL	rug-bhyáḥ

There were also contrasts within the verb, and in derivational morphology: Sanskrit fourth-class verbs with unaccented *-ya-* suffix (*kúp-ya-ti* 'he is angry') vs. derived verbs with accented *-yá-* (*vadhar* 'weapon', *vadhar-yá-ti* 'he hurls a weapon').

Germanic substituted for this a system in which (with certain exceptions to be discussed in chapter 4) the word-accent always fell on the first syllable of the lexical root, ignoring prefixes – regardless of word-length,

syllable-structure, part of speech, etc. The accent rule will be discussed in detail in chapter 4; for now we will simply assume the informal prose description above.

We do not know when the accent shift took place, but we do know – for quite interesting reasons – that it must have occurred after the Grimm's Law change $*/p, t, k/ > /f, \theta, x/$. The story behind this is methodologically interesting and historically of great importance, as its elucidation is one of the foundation-stones of modern historical method. It all hinges on the explication of 'irregular' developments: in this case apparent 'exceptions' to Grimm's Law.

A simple example: Grimm's Law A says that IE voiceless stops become Gmc voiceless fricatives (L *piscis*: OE *fisc* 'fish', L *trēs*: OE *þrēo* 'three', etc.). But there are cases where Grimm's Law apparently 'fails', i.e. where instead of the expected voiceless fricatives we get something different. We find this in simplex words like OE *mōdor* 'mother'; given L *māter* we would expect $*mōþor$. But – more significantly, because this is the source of the solution – we also find the 'wrong' reflexes within morphological paradigms. For instance the OE strong verb *weorþan* 'become':

(2.7)	PRES 1 SG	PRET 1 SG	PRET PL	PAST PART
	weorþe	weorþ	wurdon	-worden

This verb has an IE root in $*/t-/$: Skr *várt-a-mi* 'I turn', L *uert-ō*, OCS *vrūt-ě-ti* 'he turns', etc. All the Germanic forms therefore ought to have root-final $/-θ/$, like the OE present and preterite singular. If sound changes are regular (as in essence they must be, or we wouldn't have the sets of correspondences we do), where does the OE $/d/$ come from? The answer was supplied in a paper by the Danish linguist Karl Verner (1875),⁵ who (to simplify) pointed out that the 'odd' developments could in fact be predicted from the position of the IE accent (and hence were not 'irregular'). If we compare the OE forms above with their closest Sanskrit equivalents (Sanskrit largely keeps the original IE accentuation, and indicates it in some texts), we find:

(2.8)	OE	Skr
PRES 1 SG	weorþ-e	várt-a-mi
PRET 1 SG	weorþ	va-várt-a
PRET PL	wurd-on	va-vrt-i-má
PAST PART	-word-en	va-vrt-a-ná

The expected $/θ/ < p>$ occurs except where the IE accent did not immediately precede the $*/t/$. So Verner's discovery is: the fricatives from Grimm's Law A come down as voiced stops in Germanic if and only if the accent in IE did not immediately precede them. (Actually they came down as voiced fricatives in the first instance, and only later became stops: see §3.9 below.) Essentially, the fricatives $/f, \theta, x/ < IE */p, t, k/$ by Grimm's Law A, as well as original $*/s/$ (see below) voice where there is an accented suffix in the ancestral form: this is shown clearly in the Sanskrit items above.

Post-voicing changes alter the original output in various ways. When the accent shift occurs, the conditions for voicing are of course lost, and the distinctions are no longer predictable but phonemic. This voicing is known as **Verner's Law**. To outline the history of two contrasting parts of this verb (exact vowel qualities in suffixes left unspecified):

(2.9)	PRET SG	PAST PART
Pre-Gmc IE	wárt-	wrt-Ųn-
Grimm's Law A	wárθ-	wrtθ-Ųn-
$r > ur$	–	wurθ-Ųn-
Verner's Law	–	wurð-Ųn-
Accent Shift	–	wúrð-Vn-
$ð > d$	–	wúrd-Vn-

These changes form a neat and crucially ordered sequence in the history of Germanic; each one feeds the next (though the last could come before the Accent Shift), and the final results are inexplicable except as the result of the sequence.

Other common Verner's law cases involve the velars: so OE *slēan* 'slay', pret sg *slōh* pp *-slegen*, *wrēon* 'cover', pret sg *wrāh*, pp *-wrigen*. Verner's Law plus a later change takes care of another troublesome anomaly: the appearance of what ought to be unchanged IE $*/s/$ as $/r/$. This is a striking property of a number of strong verbs: *cēosan* 'choose', pret sg *cēas*, pret pl *curon*, pp *-coren*, or the pret sg/pl of *wesan* 'be', *wæs* vs. *wæron*. Here $*/s/ > [z]$ by Verner's Law, and a later change, **Rhotacism**, turns $[z]$ to $[r]$. Rhotacism occurs in other IE dialects as well: cf. L *flōs* 'flower' (nom sg), gen sg *flōris* $< */flo:zis/ < */flo:sis/$. It is now usual to conflate the

⁵ Verner's paper is available in an English translation in Lehman (1967). It is elegant and tightly argued, and the general methodology is now standard for issues of this sort. Nobody with an interest in historical linguistics ought to be allowed not to have read it. For a quite different account of the Germanic accent, Grimm's Law, and the VL allophony, see Bennett (1972).

voicing, the change of fricatives to stops, and rhotacism under 'Verner's Law'; the /r/ in *wæron* is simply said to be an instance of Verner's Law, and we will stick to this loose but traditional way of speaking.

Verner's Law has largely retreated under analogical pressure to regularize paradigms; but aside from *was*, *were*, relics survive in *birth/burden*, *sodden* (originally the past participle of *seethe*), and (*for*)*lorn*, originally from *forlēosan* 'abandon'.

2.5 Recapitulation: PGmc phonological systems

After the vowel mergers and Grimm's Law, PGmc would have had the following phonological systems, which served as the basis for the individual developments in the later dialects:

(2.10)	p	t	k	i	u	i:	u:
	f	θ	x	e		e:	o:
	β	ð	ɣ	α			
		s				ai	au eu
	m	n					
	r	l	j	w			

Some of the consonants showed a long/short contrast as well, but this was sporadic: see below.

2.6 Further remarks on PGmc phonology

A number of changes of early date show up in the later Gmc dialects; their status however (living processes or fossils?) in the protolanguage is hard to define. But they are important for explaining aspects of word-shape and phoneme distributions in later times.

(i) Pre-nasal raising. IE **eNC/* > */iNC/*: **bhendh-* 'bind' > Gmc */βinð-/*: L (*of*)*fendimentum* 'fetter' (**bh/* > L */f/*), OE *bindan*, OHG *bintan* 'bind'. This means in effect that any later Gmc sequence */eNC/* (as in OE *menn* 'men') must (if not a loan) derive from some other vowel (in this case < **/mann-i-/*: see §3.8 below).

(ii) Early umlaut. Umlaut⁶ is regressive or leftward vowel-harmony: a vowel is influenced by another vowel or vowel-like segment to its right. For PGmc we assume a general raising of **e/* before high vowels and **j/*: PGmc **/mið-jα-z/* 'middle' < IE **/medh-jo-s/*, L *medius*, OIc *miðr*. This

⁶ Umlaut is from G *um* 'around' + *Laut* 'sound', i.e., 'turning about' of sounds. The term was coined, like so many standard Germanist ones, by Jacob Grimm.

leads to later alternations in the verb, e.g. OE *beran* 'bear', pres 3 sg *bir(e)ð* < **/βer-αn-, βer-iθ-/*. In the following section and chapter 3 we will consider later umlauts, including the most important of all, *i*-umlaut (as in *menn* above).

(iii) Nasal loss and compensatory lengthening. In certain cases [ŋ], the allophone of /n/ before velars, dropped before **/x/*, and the preceding vowel lengthened: **[-Vŋx-]* > **[-V:x-]*. This accounts for the odd preterites of certain weak verbs like *bring*, *think*. So *think*, infinitive **[θαŋk-jα-n]*, pret 1 sg **[θαŋx-to:]* > **[θα:x-to:]*: OE *þencan*, *þōhte*. (The vowel changes are due to other processes.) This lengthening of **/α/* and loss of **/x/* are of considerable systemic importance: they are a major source of phonemic */α:/* in the later dialects.

(iv) Developments in weak syllables. There is a tendency in Germanic for contrasts to be obscured in weak (unaccented) position, even to the extent of segment loss. For example, the earliest runic inscriptions show forms like acc sg *horna* 'horn' < **/xorn-αn/*, which in turn derives from neutralization of the word-final */m:/n/* contrast (cf. L acc *-um*). Weak **/α, e/* were also lost finally: IE **woid-α*, *woid-e/* 'I have seen' > PGmc */wait/* (Gr *oid-a*, Go *wait* 'I know'). Vowels were also generally deleted in third syllables: Go *batrīp* 'he bears' < **/bher-e-ti/* (on this and related processes see chapter 4).

(v) Assimilation and geminates. Clusters of non-identical consonants often assimilated, giving rise to geminates (long consonants, identical clusters: cf. L *gemini* 'twins'). Compare Li *pīlnas* 'full' with Go *fulls*, OIc *full-r*, OE *full*; the same phenomenon occurs in other IE dialects, and also shows up in Germanic in e.g. L *stella* 'star' < **/ste:rlα/*, OE *steorra*. This leads to a fairly large stock of geminates, beyond what we'd expect as the IE heritage; in West Germanic this was added to even more, to the extent that there was a system-wide length contrast for most consonants (cf. §3.2 below).⁷

2.7 Features of Northwest Germanic

If PGmc is (partly) defined as a separate daughter of PIE by Grimm's Law, etc., NWGmc is defined by its own series of innovations. The most important are:

(i) PGmc **e:/* > */α:/*. PGmc **e:/* lowered and retracted to */α:/* in NWGmc, as illustrated by EGmc (Gothic) *lētan* 'let' vs. NGmc (OIc) *lāta*,

⁷ There is also a stock of what are sometimes called 'expressive' geminates: nicknames (OHG *Otto* < *Odoberht*), deformations of animal names (OHG *snecco* 'snail', cf. OE *snægel*), and 'intensive' changes, e.g. OIc *gjalla*, OE *giellan* 'yell' vs. OIc *gala*, OE *galan* 'sing': so *yell* < *giellan*, (*nightin*)*gale* < (*nihte*)*gala*.

WGmc (OHG) *lāzzan*. (OE *lātan* reflects a later development: see §3.4.) This produces a large number of items with /α:/, thus firmly establishing a new phoneme in the long low back vowel slot (see (2.3) above). The nature of this change (among other things) has led some authorities to argue that what I have been representing as PGmc */e:/ was in fact a much opener vowel, say */ɛ:/ or */æ:/. This would be the result of lowering of IE */e:/, and would be a more natural precursor of /α:/ than a higher vowel. Under this interpretation, there were two nonhigh long front vowels in PGmc: */æ:/, sometimes called 'ē¹', which comes down as NWGmc */α:/, and a rather sparsely distributed closer vowel 'ē²', which occurs mainly in strong verb past plurals, and is /e:/. The arguments pro and con are extremely complex, but on balance there is probably not enough evidence to support a PGmc */æ:/ – though this is a likely transition value on the way to /α:/.⁸

(ii) *a*-Umlaut. This, like the earlier /e/ > [i] (§2.5) is harmonization of a root vowel to a following (usually suffixal) one. PGmc */u/, and sporadically */i/, lower to [o, e] before */o, α/ (hence 'nonhigh umlaut' would be a better name). Thus IE */wir-o-s/ 'man' > PGmc */wir-α-z/ > NWGmc */[wer-α-z]: L *uir* vs. OE *wer*, OIc *ver-r*. This is the only item in which all the dialects agree in /e/ for earlier */i/. The real importance of this change is the uniform lowering of */u/ to [o], which first adds short [o] to the system as an allophone of */u/. Later, when the suffixes that triggered the change were lost or changed to higher vowels, the new quality became phonemic, adding /o/ to the inventory. So IE */jug-o-m/ 'joke' > PGmc */juk-α-m/ > NWGmc */[jok-α-n]: L *jugum*, Go *juk* vs. OE *geoc*, OIc *ok*. After */e:/ is lost by lowering and retraction, its slot is filled – at first somewhat marginally – by special developments in the strong verb preterite, described above as 'ē²'. A new type in /e:/ replaces the older reduplicating one (see §7.1.3): OIc *heita* 'be called', pret sg *hét*, OE *hatan*, pret sg *hēt* vs. Go *haitan*, pret sg *hai-hait*. (In OE, the incidence of /e:/ is later increased, in most dialects, by the unrounding of /ø(:)/ < /o(:)/ by *i*-umlaut, as in *fēt* 'feet': < */fø:t-iz/ < */fo:t-iz/: see §3.8.2.) At this stage then a symmetrical long/short system, like that of IE (see (2.1)) is again produced.

The phonologization of *a*-umlaut had consequences not only for the phonemic system itself, but for aspects of morphology: for instance both the preterite plural and past participle of class II strong verbs had historical */u/ in the root, but this differentiated into /u/ vs. /o/ in NWGmc, through changes to the suffixes. Consider the verb 'offer' (Go *-biudan*, OE *bēodan*):

⁸ See Steponavičius (1987: 101–7) for details. His account is different in a number of details from mine, especially with regard not only to PGmc */e:/, but also the question of whether there was an */e:/ */i/ contrast.

(2.11)		PRET PL	PAST PART
Gothic		bud-um	bud-a-ns
OE		bud-on	bod-en

Gothic retains the original height contrast in the suffix vowels, with no effect on the root; OE lowers the original high suffix vowel and raises the low one, but has a lowered root vowel where the suffix had */α/.

(iii) Rhotacism. This is the change whereby */z/ < */s/ by Verner's Law (§2.4) became [r], and fell in with original */r/. The verb 'choose' is a good illustration of the process and its morphophonemic effects:

(2.12)	INF	PRET SG	PRET PL	PP
pre-Verner	*kéus-αn-	*kαus	*kus-ún-	*kus-án-
Gothic	kíus-an	kaus	kus-um	kus-αn-s
OIc	kjós-a	kaus	{ kør-um	{ kør-inn }
OE	cēos-an	cēas	{ cur-on	{ cor-en }

Verner's Law (the voicing rule) survives marginally in some IE */s/ instances in Gothic: e.g. *maíza* 'more' (OE *māra*, OIc *meire*).

(iv) NWGmc is also distinguished by a number of minor changes at various linguistic levels, such as:

- A new demonstrative formation with /-se/ added to an existing stem: OIc *pes-se* 'this', OE *pēo-s*, OHG *des-se*.
- Loss of the old mediopassive conjugation (< IE middle voice), relatively intact only in Gothic.
- Loss of the third-person imperative, again attested only in Gothic.
- A sporadic change of PGmc */x/ > /f/ in certain environments: Go *auhns* 'oven' vs. OHG *ofan*, OIc *ofn*, OE *ofen*. The original IE velar can be seen in Skr *úkhas* 'cooking pot'; and a trace of it remains in the OIc alternative form *ogn*.

2.8 West Germanic

NWGmc is (oversimply) 'PGmc + /e:/-lowering + Rhotacism . . .'; * keeping this style, WGmc is (equally oversimply) 'NWGmc + . . .'. To a certain extent WGmc is rather conservative; NGmc underwent many more early changes, so that the medieval Scandinavian languages are in some ways much less like NWGmc than OE, OHG, etc. So assuming the idealized but useful image of language-genesis as tree-branching, abstracting away from communities, grammars, etc. for the sake of a clean story,

we can characterize WGmc in terms of structural innovations defining a new branch:

(i) West Germanic gemination. In general, any consonant except /r/ lengthened or doubled (see §3.3 for discussion on this concept) when preceded by a short accented vowel and followed by a liquid or nasal: OE *settan* 'set', OS *settian* vs. Go *satjan*, OIc *satja* < */sat-jα-n/ (recall that /j/ is treated here as a liquid). Important as this is from a WGmc perspective, I will postpone discussion until the next chapter, as it had profound effects on OE phonology and morphology, and interacts with other changes in a complex and interesting way.

(ii) Loss of final *[z]. This simple phonological change has major grammatical effects, chiefly the loss of the nom sg ending in many noun classes. (The commonest IE nom sg suffix was */-s/, which > *[z] by Verner's Law, later /r/ by Rhotacism in NWGmc.) So Go *dag-s* 'day', OIc *dag-r* vs. OE *dæg*, OHG *tag*, etc. After this change the nom/acc distinction is lost in nouns of this type: OIc nom sg *dag-r* vs. acc sg *dag*, but OE *dæg* for both. (For morphological details, see §6.1.)

(iii) The split of */eu/. A new diphthong */iu/ arose in WGmc in a number of environments, e.g. when some final */-o:/ raised to */u:/ after */-e:/, as in early OE *hīo* 'she' < earlier */xi-u:/ < */xe:-u/ (where /-u:/ is a feminine ending added to certain stems (see Campbell 1959: §§120, 331.5 for discussion).

By the time WGmc is established as a distinct dialect type, its phonological system is:

WGmc →

(2.13)	i: i	u u:	p p:	t t:	kk:
	e: e	o o:	f f:	θ θ: s s:	xx:
		α α:	β β:	ð ð:	γγ:
			m m:	n n:	
	αi αu iu eu	w w:	r r:	l l:	j

This was the basis for the later evolution of Ingvaenic and Anglo-Frisian, and thus the foundation for OE phonology. The following general points are worth noting:

(a) The vowel system:

(i) No low front vowels.⁹

(ii) Rounding is nondistinctive. Front and low back vowels are unround, and only nonlow back vowels are rounded.

(iii) All diphthongs end in /-i/ or /-u/.

⁹ At least phonemically. It is of course possible that the low back vowels already had front allophones before following */i, j/ (as was later clearly the case after i-umlaut: §3.8). But there are problems in dating this change so early (Lass 1992b).

(b) The consonant system:

(i) No voiced stops (phonemically), but only fricatives: though with stop allophones after nasals.

(ii) No palato-alveolar consonants like /ʃ/ or /tʃ/.

(iii) No phonemic velar nasal /ŋ/.

(iv) No phonemic glottal fricative /h/.

Most of this changes during the run-up to Old English proper, or by the earliest attested OE. Only the lack of a phonemic velar nasal and /h/ remain firm as properties of English until much later (seventeenth century). We will explore most of the changes in the following chapter.