Vowel change in English and German:
a comparative analysis

Miriam Calvo Fernández

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Abstract

English and German descend from the same parent language: West-Germanic, from which other languages, such as Dutch, Afrikaans, Flemish, or Frisian come as well. These would, therefore, be called "sister" languages, since they share a number of features in syntax, morphology or phonology, among others.

The history of English and German as sister languages dates back to the Late antiquity, when they were dialects of a Proto-West-Germanic language. After their split, more than 1,400 years ago, they developed their own language systems, which were almost identical at their earlier stages. However, this is not the case anymore, as can be seen in their current vowel systems: the German vowel system is composed of 23 monophthongs and 8 diphthongs, while that of English has only 12 monophthongs and 8 diphthongs.

The present paper analyses how the English and German vowels have gradually changed over time in an attempt to understand the differences and similarities found in their current vowel systems. In order to do so, I explain in detail the previous stages through which both English and German went, giving special attention to the vowel changes from a phonological perspective. Not only do I describe such processes, but I also contrast the paths both languages took, which is key to understand all the differences and similarities present in modern English and German.

The analysis shows that one of the main reasons for the differences between modern German and English is to be found in all the languages English has come into contact with in the course of its history, which have exerted a significant influence on its vowel system, making it simpler than that of German.

Key words: English, German, vowel change, comparative linguistics

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1. Introduction

As widely known, German and English are languages that differ in many aspects, such as syntax, morphology, or phonology. For instance, German is mostly synthetic with four cases for nouns, pronouns, and adjectives (nominative, accusative, genitive, dative), three genders (masculine, feminine, neuter), and strong and weak verbs; whereas English is predominantly analytic with little inflection and two genders (masculine and feminine). Furthermore, the German vowel system is composed of 23 monophthongs and 8 diphthongs, while that of English has only 12 monophthongs and 8 diphthongs. Nevertheless, words like *Fleisch* in German and 'flesh' in English, *Wasser* in German and 'water' in English, or *Milch* in German and 'milk' in English, although being pronounced differently, reveal some kind of kinship between them. The reason for these similarities is to be found in their origins, which date back to the 7th century AC.

In this paper I aim to explain the previous stages through which both English and German went, focusing on the vowel changes from a phonological perspective. Not only will I describe such processes, but I will also compare the paths both languages took, which is essential to understand all the differences and similarities found in current English and German.

As for English, I will focus on the changes found in British English, taking the Received Pronunciation (RP) accent as a reference. I will explain all the stages it underwent from 499 AD until the 20th century: Old English (OE), Middle English (ME), Early Modern English (eModE), and Modern English (ModE).

On the other hand, I will take Standard German (*Hochdeutsch*) into account when analysing the changes found in this language, without forgetting other dialects of German, such as Bavarian or Franconian, which underwent slightly different changes. The names of German across history have been: Old High German (OHG), Middle High German (MHG), Early New High German (ENHG), and New High German (NHG).

I will finally conclude by highlighting the most remarkable changes found both in English and German, while justifying why the vowel systems in each language differ so much today.

1.1. Language change

The history of human languages begins with a common start, a common language(s) which our primitive ancestors began to use for pure communicative need.

This proto-language(s)[1] they used, just as the human race did, took different paths over the years, giving rise later on to the gradual appearance of more than 6,000 languages that are spoken throughout the Globe currently (Crystal 2002). Many of them, either due to geographically proximity, or because of different events by which they came into contact, share a number of features, or have influenced each other in one way or another. Contact among people is inevitable, and so is among languages.

Whether we are aware of it or not, languages are constantly changing. The major basis for language change is variation, which makes a language be in constant evolution. As Kohnen points out, "since variation is a constitutive feature of language, there will be language change as long as language exists" (2014: 5). Language change affects spelling, grammar, and pronunciation, among other things. (Kohnen 2014)

Mechanisms of linguistic change are influenced by both internal and external factors. On the one hand, the internal factors fall into two groups: the systemic factors (i.e. those within the abstract system of a language) and psychological factors. The former groups together factors such as: redundancy, which stands for the unnecessary repetition of words or morphemes, leading a language to reductions and final loss; functional load, that is to say, the importance of a linguistic element in the functioning of the language (e.g. contrast between two sounds); or asymmetries or gaps in the language, which inevitably make a language follow a tendency towards symmetry. (Kohnen 2014; Wischer 2016)

Within the psychological factors, the following mechanisms of linguistic change are distinguished: principle of ease, or minimisation of effort when speaking (e.g. assimilation, which occurs when one sound becomes more like a neighbouring sound); principle of clarity, which compensates for too much reduction or ease (e.g. borrowing or formation of new words); and analogy, a process of inventing a new element in

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[1] Proto-languages are reconstructed languages, from which other languages are believed to descend. These are called "daughter languages".

conformity with some part of the language system already known (e.g. adding the plural ending –s in English to a word whose plural was not originally formed with it: 'child – *childs'). (Kohnen 2014; Wischer 2016)

On the other hand, external factors include socio-political changes, such as a war; and fashion or prestige (e.g. the rise of a spoken standard). (Kohnen 2014; Wischer 2016)

1.2. Language families: Indo-European

There are different ways of classifying the languages in the world. This can be done according to two criteria: the typological criterion, which gathers languages with common characteristics; and the genetic criterion, which groups the languages by their genetic relationship. The most common one is the latter. (Casado C. & Edita Gutiérrez 2009)
As previously remarked, more than 6,000 languages are spoken throughout the Globe today (Crystal 2002).
Following the genetic classification of languages of the World, 90 % of them have been classified in one language family or another. The remaining 10 %, however, could not have clearly been classified because of the remote location of their speakers. (Casado C. & Edita Gutiérrez 2009)

Some of the biggest families include Afro-Asiatic, Sino-Tibetan or Indo-European. It is the latter the one that the majority of languages spoken nowadays in Europe –and part of Asia– belong to (with the exception of Hungarian, Finnish, Estonian, Basque, Turkish, and Maltese). According to some archaeological and ethnological studies, a proto-language of Indo-European was probably first spoken somewhere between Northern Europe and Southern Russia 5,000−3,500 years BC (Baugh & Cable 2002). Indo-European (IE) consists of a large number of individual languages that are grouped into twelve major branches, being Hittite (now extinct but once spoken in Asia Minor) the oldest one:

1. Anatolian languages (Hittite, 17th century BC)
2. Hellenic languages (Mycenaean, 14th century BC)
3. Indo-Aryan languages (Vedic Sanskrit, 10th century BC)

4. Iranian languages (Avestan, 8th century BC)

5. Celtic languages (Lepontic, 7th century BC)

6. Italic languages (Latin, 6th century BC)

7. Germanic languages (Gothic, 4th century AD)

8. Armenian (5th century AD)

9. Tocharian (8th century AD)

10. Slavic languages (Old Church Slavonic, 9th century AD)

11. Albanian (15th century AD)

12. Baltic languages (Old Prussian, 16th century AD)

Both English and German belong to the Germanic branch. That is to say, Germanic is their earliest common source, their parent language, from which they both descend, and after which they diverged and became different languages. Therefore we could say that English and German are "sister" languages.

1.3. Germanic languages: English and German

The languages which descend from Germanic fall into three groups: East Germanic, North Germanic and West Germanic (Baugh & Cable 2002). More specifically, German and English belong to the latter, as further explained below:

- **East Germanic** gave rise to a number of already extinct languages. The most remarkable one among them is Gothic, due to the fact that the earliest remnants of the Germanic branch are found in it. These remnants are translations of the New Testament made by Ulfilas (311-382 A.C.), bishop of the Goths. Vandalic and Burgundian are other East Germanic tongues but, as Baugh & Cable assert, "our knowledge of these languages is confined to a small number of proper names" (2002: 28). (Beekes 2011)

- **North Germanic** is found in Scandinavia, that is to say, Denmark, Sweden, Norway, Iceland, and the Faroe Islands. Old Norse is the earliest form of this branch. North Germanic can also be subdivided into West Nordic, which stands

for Icelandic, Faroese and Norwegian; and East Nordic, within which Danish and Swedish are found. (Baugh & Cable 2002)

- **West Germanic** consists of Anglo-Saxon (or Old English), Old Frisian, Old Low Franconian, Old Saxon and Old High German, which are the basis of current English, High German (*Hochdeutsch*), Low German (*Plattdeutsch*), Frisian, Flemish, Dutch, and Afrikaans (Wischer 2016). The continental West Germanic dialects −with the exception of Frisian− can be divided into High German and Low German (Baugh & Cable 2002; Beekes 2011). High German dialects underwent a sound shift in their consonants, referred to as the High German Sound Shift (*Hochdeutsche Lautverschiebung* in German). However, this change "did not take place in the lowlands to the north" of the Germanic area in central Europe, where Low German varieties were spoken around 600 AD (Baugh & Cable 2002: 29). This sound shift is key to identify a continental West-Germanic dialect as either Low or High German.

  Old Saxon and Old Low Franconian are classified as **Low German**; whereas Old Frisian and Anglo-Saxon (also referred to as Old English) constitute the Anglo-Frisian subgroup, since they are closely related.

  "Old Saxon has become the essential constituent of modern Low German" (Baugh & Cable 2002: 29), that is to say, *Plattdeutsch*, which is currently spoken in the north of Germany; Old Low Franconian, gave rise to modern Dutch and Flemish; and Frisian "survives in the Netherland province of Friesland, […] in the islands along the coast, and other places" (Baugh & Cable 2002: 29; Wischer 2016).

  Within **High German** a number of dialects, such as Middle, Rhenish, and East Franconian, Bavarian, or Alemannic, are identified. "High German was popularized by Luther's translation of the Bible (1522–1532)" and has gradually become the literary language of Germany ever since (Baugh & Cable 2002: 29; Wischer 2016).

2. Vowel changes from Indo-European to Germanic

As already discussed in the first section of this paper, languages are and have always been in constant change, but how do we know how they sounded hundreds of years ago if there are not any records? Some possible evidence includes the spelling of old texts, descriptions of the pronunciation in secondary sources (that is, grammars), rhyme patterns in poetry, or private letters. (Salmons 2012; Wischer 2016)

Most linguists agree that the vowel system of Proto-Indo-European (PIE) was –or could have been– the following: it had the most basic five vowels, both short and long[2]: *a, e, i, o, u / ā, ē, ī, ō, ū*. Moreover, a "schwa" *ə* monophthong is also to be reconstructed for the IE vowel system. (Sonderegger 1979; Szemerényi 1996)
With regard to diphthongs, a wide range of them can also be identified, being again both short and long[3]: *āi/ai, ēi/ei, āu/au, ōi/oi, ēu/eu, ōu/ou*. (Beekes 2011; Lehmann 1969; Salmons 2012; Schmid 2009)

Indo-European soon began to split up into different sub-families or branches, giving rise to new proto-languages, such as Germanic (Gmc) or Proto-Germanic (PGmc).

One of the first remarkable vowel changes from Indo-European to Germanic was an unconditioned change, that is, a change that happened "regardless of the surrounding sounds" (Salmons 2012: 57). This first change was a **vowel merger**, which occurs when speakers of a language cease to distinguishing two sounds. In this case, the speakers of Germanic started pronouncing PIE **o* as *a*, and PIE **ā* as *ō*. That is, PIE short **o* and long **ā* merged with neighbouring sounds, which left a gap in the Germanic vowel system, as there was neither a short *o*, nor a long *ā*, so that words like **orbhio* ('inheritance') and **bhrātēr* ('brother') in IE resulted in Gmc **arbi* and **brōþēr*, respectively. (Algeo 1993; Salmons 2012)

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[2] Long vowels will be represented by a macron on top of the letter in the oldest forms of IE languages.
[3] Opinions on this matter vary from one linguist to another. Szemerényi for instance points out that, although IE did have long diphthongs, they "are found almost exclusively in case endings" (1996: 44). Others assert that they just did not exist.

Another change involving short vowels is **prenasal raising**, which made PIE *e raise and become *i in Germanic before any nasal consonant (i.e. <m> or <n>, phonetically transcribed as [m] [n] [ŋ]), but only if the nasal is in coda position, as in PIE *bhendh > PGmc *bind ('to tie'). If this is not the case, raising does not occur: PIE *tenu > PGmc *þenu ('to stretch'). (Salmons 2012)

Other short vowel changes include: PIE *ə, when vocalised, yielded PGmc *a (*pəter > *fader- 'father'); PIE *u remained the same in Germanic, turning later on into short *o before a, e and o. (Bammesberger 1992; Schmid 2009; Sonderegger 1979)

The next change, the *Nasalschwund mit Ersatzdehnung*, also –not so often– called "nasal loss with compensatory lengthening", as the name implies, consists in the loss of a nasal before the velar sound [x], which results in the lengthening of the preceding vowel so that the gap left by the nasal lost is filled, keeping the word the same length. This change is of great importance, since "if the vowel in the word happens to be /a/, the lengthening creates a long /aː/" (Salmons 2012: 58-59), which filled the gap created by the already mentioned merger of PIE *ā with *ō, as in PIE *bhroŋk-tō > Pre-Gmc *braŋx-tō > Late-PGmc *brāxtō (*brachte* in German, 'brought' in English). This last change, however, did not happen until a later stage in Germanic, so linguists still consider the Gmc vowel system not to have long ā. (Salmons 2012; Sonderegger 1979)

Other changes concerning **long vowels** include: PIE *ō remained the same in Germanic; PIE *ī and *ei turned both into PGmc *ī; and PIE *ū remained long ū in Germanic. (Schmid 2009; Sonderegger 1979)

As previously remarked, IE had 12 **diphthongs**[4]. Some of them (i.e. *ai*, *au* and *eu*) remained the same in Germanic: PIE *ghaidis > PGmc *gaitiz ('goat'); PIE *aug- > PGmc *auk-an ('to increase'); PIE *teutā >PGmc *þeuðō ('totality').
However, the remaining diphthongs underwent slightly different changes. For instance, PIE short *ei resulted in Gmc long ī (PIE *steigh- > PGmc *stīg 'climb'); PIE *oi and *ou merged with *ai and *au, since PIE *o merged with *a in Gmc, as previously explained. This change –that is, the fact that there was no short *o* in Germanic– also

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[4] All the IE long diphthongs disappeared before undergoing any change in Germanic. (Sonderegger 1979)

affected all diphthongs containing short *o* in Indo-European, as in PIE **oinos* > PGmc **ainaz* ('one'), and PIE **rowdh-* > PGmc **rawd-* ('red'). Moreover, PIE **ēi* gave rise to the appearance of a new Gmc monophthong, what linguists call $\bar{e}_2$, which is found in "some isolated lexical items like the adverb Gmc **hē₂r* 'here'" (Bammesberger 1992: 46). (Algeo 1993; Salmons 2012; Sonderegger 1979)

The last change concerns the IE syllabic consonants[5] (i.e. [ḷ] [ṛ] [m̩] and [n̩]), which affected the Germanic vowel system as well, since they became sequences of "u + consonant" in early Germanic, as in PIE **wḷkʷos* > PGmc *wulfaz* ('wolf'). This change is called "**anaptyxis**" or "epenthesis", which stand for "vowel insertion". (Bammesberger 1992; Salmons 2012)

3. From Old High German to New High German

3.1. Old High German

Old High German (OHG) is the name given to the earliest form of current German, which covers the period from around 700 to 1050 AD, and is where the earliest texts written in "what appear to be the direct ancestors of Modern German dialects" are found. (Salmons 2012: 101). As previously explained, High German is the term given to those Germanic dialects which underwent the High German Sound Shift. It also refers to the mountainous regions of southern Germany, being the line of divisions "from Maastricht in the Netherlands across Germany to the south of Berlin" (Beekes 2011: 29).

The most important vowel change from Germanic to Old High German (OHG) is umlaut (or mutation), which is "a change in the quality of a vowel resulting from its assimilation to a neighbouring sound" (Algeo 1993: 124). In OHG three different kinds of mutation can be identified:

i) ***u*-umlaut** → raising of /e/ to /i/ before /u/, as in: PGmc **helpu* > OHG *hilfu* ('I help'). (Salmons 2012)

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[5] Syllabic consonants replace a vowel in a syllable and form syllables on their own.

ii) ***a*-umlaut** → The gap left in the Gmc vowel system after PIE *o and *a merged into *a*, was later on "fixed" in OHG by the ***a*-umlaut**, through which "high vowels (*i, u*) were lowered before non-high vowels" (Salmons 2012: 121). That is to say, PGmc *i and *u became *e* and *o*, respectively, before *a, as in: PGmc *juka > OHG *joh* ('yoke'), and PGmc *wiraz > OHG *wer* ('man'). (Salmons 2012)

The most remarkable type of mutation, the so-called ***i*-umlaut**, which affected all North and West Germanic languages, is an "assimilatory effect of an *i* or *j* on preceding vowels" (Salmons 2012: 121). Different kinds of *i*-umlaut can also be distinguished:

i. **Primary umlaut** → *a* > *e* (before *i* or *j*), as in: <*gast – gestis*> ('guest – guests') and <*lamb – lembir*> ('lamb – lambs'). This change is present in all West-Germanic languages. (Salmons 2012)

ii. **Blocking**, in which primary umlaut fails when *h* (/x/) *r* and *l* are followed by a consonant, as in: <*maht – mahti*> ('power – powers'), <*haltan – haltis*> ('to hold – you hold'), and <*starch – starchiro*> ('strong – stronger'). (Salmons 2012)
    It is worth mentioning that some dialects of German did not undergo this change, such as Franconian, in which we find <*mehti*>, instead of <*mahti*> in OHG, as already shown above. (Salmons 2012)

iii. **'Secondary' umlaut** → *ā* > *ǣ* before *i* or *j*, as in: OHG <*kǣse*> ('cheese'). This change did not occur in all West-Germanic languages, as reflected in western Dutch (<*kaas*> for 'cheese'). (Salmons 2012)

iv. **General umlaut of all back vowels**, including long and short *u* and *o* and blocking environments before *i* or *j* (Salmons 2012), as in:

> OHG *skōni* > *schön*
> OHG *stucki* > *stück*

This type of umlaut is not found in Upper German (<*Stuck*>), and Dutch (<*horen*>) though. (Salmons 2012)

Other vowel changes include:

    v.   **Lowering of *ē* to *ā*** in all West Germanic languages, giving rise to the appearance of a new *ē*: *ē₂*. This new vowel, which was slightly higher in the vowel chart (being closer to the [i] sound), turned later in into *ia*, a new diphthong in OHG, as in <*hiar*> ('here'). (Salmons 2012)

    vi.   **Partial assimilation in diphthongs**, through which the initial element of the diphthong raises and becomes closer to the second element (Salmons 2012), which happened in words, such as: PGmc *augo > OHG *ougo* ('eye'), and PGmc *maist > OHG *meist* ('most'). (Salmons 2012)

    vii.   **Conditioned monophthongisation** before:

        ➤ ***r, h, w***, causing *ie* (from original PGmc *ai) become *ē* in words like <*mēr – meist*> (*mehr – meist* in current German, 'more – most' in English). (Salmons 2012)

        ➤ ***r, l, h*, and the alveolar sounds *t, d, s, z, n***, making *ou* (from original PGmc *au) become *ō* in words like <*ōra*> in OHG, 'ear' (<*auso*> in Gothic, where conditioned monophthongisation did not occur). (Salmons 2012)

    viii.   PGmc *ē₂ > OHG *ia*, as in: PGmc *hēr > OHG *hiar* ('here'). (Salmons 2012)

    ix.   PGmc *ō > OHG *uo*, as in: PGmc *brōder > OHG *bruoder* ('brother'). (Salmons 2012)

    x.   PGmc *eu > OHG *eo* > *io* before a low vowel in the following syllable, as in: PGmc *beuda > OHG *biotan* ('to offer'). This sound merged later on with <ie>: *biotan* > *bieten* (*bitten* in current German). However, if the following vowel happens to be high, <iu> would rise instead: *liogan* > *liugu* (*liegen* in current German, which stands for 'to lie'). (Salmons 2012)

3.2. Middle High German

Middle High German (MHG) corresponds to the second stage in the history of German (1050-1350 AD) (Salmons 2012) and experienced the following vowel changes:

The first vowel change is called ***Vokalreduktion im Auslaut***, which stands for 'vowel reduction in final position'. Through this process, "unstressed short vowels generally reduce to schwa [ə] (written as <e>) in the second syllable of disyllabic words" (Salmons 2012: 195). This meant that "many morphological distinctions were lost in nominal and verbal paradigms", as in: OHG *taga* (nom/acc pl) > MHG *tage* (nom/acc pl), where the final vowel <e> is presumed to be pronounced as schwa [ə], due to weakening. Unstressed initial syllables, such as *bi-* or *ga-* underwent this change as well. (Salmons 2012)

The long high vowels [iː] [uː] and [yː] (spelled as <î, û, iu>) all went through a process of **diphthongisation**, resulting in [aɪ], [aʊ] and [ɔɪ], as in current *Zeit* [tsaɪt], *Haus* [haʊs] and *heute* [ˈhɔɪtə], which were originally pronounced as [tsiːt] (*zît*), [huːs] (*hûs*) and [hyːtə] (*hiute*), respectively, in OHG. This process reached, first, East Franconian in the north (13th century), and then Alemannic in the south (16th century). In the north and south-west of the German-speaking areas where this process did not occur, however, the old pronunciation [huːs] remained. (Salmons 2012)

Another change involving diphthongs made the OHG **diphthongs** <*eo, io, eu, ia, ea, ie*> all become <*ie*>, pronounced as [iə], as in *biotan > bieten* 'to offer' or *hiar > hier* 'here'. (Salmons 2012)

As an inverse process to diphthongisation, the diphthongs *ie, üe* and *uo* underwent **monophthongisation** in the 11th century, becoming the modern long high vowels [iː] [yː] and [uː] (spelled <i, iu, u>, respectively), as in: *lieb* [liəb], *grüen* [gryən]*, bruoder* [bruodər] > *liep* [liːp]*, grün* [gryːn]*, Bruder* [bruːdər]. This change, however, is not present in all dialects of German (e.g. Bavarian, Alemannic and Low German). (Salmons 2012)

3.3. Early New High German

Early New High German (ENHG) is the name given to the German spoken between 1350 and 1650 AD. This is the time where a kind of standard German starts to arise little by little (though not fully standardised yet), which draws particularly on central German, where the majority of changes mentioned below occurred. (Salmons 2012)

One of the most characteristic vowel changes of this period is the **open syllable lengthening (OSL)**, a process through which, as the name suggests, MHG short vowels in open syllables[6] were generally lengthened. In ENHG, open syllables with short vowels undergo lengthening in words such as *sagen*, *leben* or *haben*, which are nowadays transcribed as: [ˈzaːgən] 'say', [ˈleːbən] 'live', and [ˈhaːbən] 'have', but were originally pronounced with a short vowel. (Salmons 2012)

In contrast to the OSL, vowels also shortened after the so-called **closed syllable shortening (CSS).** Shortening is especially common when the syllable ends with a cluster (i.e. more than one consonant), as in MHG *lieht* [liəçt] > (E)NHG *Licht* [lıçt] 'light'. Once again, this change is not present in all dialects of German (e.g. Bavarian and Alemannic), being found especially in the eastern central area. (Salmons 2012)

Apocope and **syncope** are also common changes at this stage in the history of German. The former refers to the loss of final unstressed vowels, as in MHG *herze* [ˈhɛrtsə] > ENHG *herz* [hɛrts] 'heart'; whereas the latter means that unstressed vowels within a word are dropped, as in MHG *schrîbest* [ˈʃraıbəst] > (E)NHG *schreibst* [ʃraıpst] '(you) write'. (Salmons 2012)

The next change goes by the name of **high vowel lowering**, another dialectal process particularly present in the central dialects of German, after which *i, u* and *ü* [y] became *e, o* and *ö* [ø], respectively (Salmons 2012), as in:

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[6] "An open syllable is one with no consonant at the end of it that is, lacking a coda" (Salmons 2012: 236). Types CV and CV: are thus open, as in the word *father* [ˈfɑːðə], in which [fɑː] would be in this case the open syllable.

MHG *sunne* [ˈzunə] > (E)NHG *Sonne*[7] [ˈzɔnə] 'sun'

MHG *mügen* [ˈmygən] > (E)NHG *mögen* [ˈmøːgən] 'to want'

Another important process which is not found in the modern standard language nowadays is the **unrounding** of front-rounded vowels, so that words like *schön* [ʃøːn] 'beautiful, nice' and *grün* [gryːn] 'green' started to be pronounced as [ʃeːn] and [griːn]. Today, this is, not only a distinctive feature of regional varieties, such as Bavarian, but it is also a common characteristic of the colloquial regional varieties of German as well (*regionale Umgangssprachen*). The north and the southwest, together with the central German varieties, did not undergo this process of unrounding, though. (Salmons 2012)

Lastly, a contrary process to the one just mentioned above is the so-called **'secondary rounding'**, which is present in some central and southern dialects only. Through this process, some original front-unrounded vowels become rounded, especially around labials (m, p, b, f, v) and liquids (l, r), as in: OHG *helle* > *Hölle* 'hell', OHG *zwelef* > *zwölf* 'twelve', or OHG *sweren* > *schwören* 'to swear'. (Salmons 2012)

3.4. New High German

New High German (NHG) is the latest stage in the history of German. Even though this is considered the standard German spoken nowadays, there are still some possible ongoing changes in the current pronunciation. One of the most remarkable ones is that involving the pronunciation of [ɪ], which is often pronounced as a front-rounded [ʏ] by younger speakers of German in words like *nicht* ('no'), pronounced as [nʏçt] (or even [nʏʃt], depending on the area) instead of standard [nɪçt]. (Salmons 2012)

Despite all the hypothetical ongoing sound changes in the language, such as the one just explained, the vowel system of current standard German, also called *Hochdeutsch*, is thought to be formed by the following sounds[8]:

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[7] The germination of <m> in the spelling indicates that the preceding vowel is short. (Salmons 2012)
[8] This table shows the phonetic realisation, some of which are allophones of one phoneme; that is to say, the number of phonemes is more reduced.

Short vowels: [a] [ɐ] [e] [ɛ] [ə] [i] [ɪ] [o] [ɔ] [ø] [œ] [u] [ʊ] [y] [ʏ]

Long vowels: [aː] [ɛː] [eː] [oː] [øː] [iː] [yː] [uː]

Diphthongs: [iɛ] [iɑ] [io] [uɛ] [uɑ] [ai] [au] [ɔi]

(Duden 2009; Wiese 2006)

Besides these ones, German also has some nasalised vowels in words borrowed from French, such as *Restaurant* [rɛstoˈrãː], *Parfum* [parˈfœ̃ː], *Fasson* [faˈsõ], or *Teint* [tɛ̃]. These are not present in all pronouncing dictionaries, since they do not count them as part of the vowel system of German. Others, such as Duden, however, do list nasalised vowel phonemes, due the fact that most speakers of German will include them in their speech. (Wiese 2006)

4. From Old English to Modern English

4.1. Old English

Old English (OE) is the earliest stage in the history of the English language, which lasted for almost 7 centuries (449-1150 AD). The Anglo-Saxon invasion is what marks the beginning of this period in 499 AD, when Britain was invaded by three different Germanic tribes from central Europe: the Angles, the Saxons and the Jutes. They spoke closely related regional varieties of Germanic, so they found it easy to communicate among them and, later on, developed a new language: Anglo-Saxon (or Old English). (Baugh & Cable 2002; Hogg 2002; Pyles & Algeo 1993)

Although Old English is considered to be a unified language, there were actually different dialects or versions of it, since each Germanic tribe settled in different parts of Britain. **Northumbrian** and **Mercian** are found in the regions where the Angles settled (north of England and the Midlands, respectively); **Kentish** was spoken in the southwest, where the Jutes established themselves; while the Saxons, who spoke **West Saxon**, occupied the southeast. It is this latter dialect I will take as a reference when analysing the vowel

changes in OE, since it is the dialect in which most texts are written, and the one that eventually became the standard speech of England. (Baugh & Cable 2002)

Changes in Old English are found since the very beginning of its existence. The so-called ***i*-mutation** (*i*-umlaut) is the first and perhaps the most important one. It occurred in prehistoric Old English, and made all OE stressed back vowels (i.e. *a*, *o* and *u*) become front when either [i] or [j] stood in the following syllable. (Smith 2007)

Other remarkable vowel changes (some of them as a consequence of *i*-umlaut) from Germanic to Old English include:

PGmc *a gave rise to three different vowels in Old English:

i) PGmc *a (from original PIE *ə) was fronted to *æ* [æ] in Old English (*fæder* 'father') as a consequence of *i*-umlaut. This change is known as "first fronting" as well as "Anglo-Frisian Brightening", since it is also present in Frisian. (Algeo 1993; Smith 2007)

ii) PGmc *a (from original PIE *a) remained the same when followed by a nasal sound, as in *mann* 'man' ([ɑ]). (Algeo 1993; Smith 2007)

iii) PGmc *a (from original PIE *o) became *ea* [æə] in Old English, as in *eahta* 'eight'. (Algeo 1993)

PGmc *e remained the same in certain words, such as *etan* 'eat' ([ɛ]), but also became a diphthong ([ɛə] *eorðe* 'earth') as a consequence of another type of mutation, **back umlaut**, through which short front vowels diphthongise. (Algeo 1993; Smith 2007)

PGmc *u remained [ʊ] in some words (e.g. *hund* 'dog') but also gave rise to a new sound [y], as a consequence of *i*-mutation (e.g. *hyp* 'hip'). (Algeo 1993; Smith 2007)

PGmc *i did not undergo any change in OE, and neither did the **Gmc long vowels** (except for *ū*, which remained *ū* in some cases, but also turned into *ȳ* [yː] due to *i*-mutation, as in *fȳr* 'fire'):

PGmc *ī > OE *ī* [iː] (*swīn* 'swine') (Algeo 1993)

PGmc *ē > OE ē [eː] (*hēr* 'here') (Algeo 1993)

PGmc *ǣ > OE ǣ [æː] (*dǣd* 'deed') (Algeo 1993)

PGmc *ō (from original PIE *ā) > OE ō [oː] (*mōdor)* (Algeo 1993)

PGmc *ō > OE ō [oː] (*fōt* 'foot') (Algeo 1993)

On the other hand, changes regarding the Germanic diphthongs include:

PGmc *ai > OE ā [ɑː] (*ān* 'one') (Algeo 1993; Smith 2007)

PGmc *eu > OE ēo [eːə] (*cēosan* 'to choose') (Algeo 1993)

PGmc *au > OE ēa [æːə] (*ēacan* 'to eke') (Algeo 1993)

PGmc *au (from original PIE *ou) > OE ē [eː] (*rēad* 'red') (Algeo 1993)

4.2. Middle English

The second stage in the history of the English language is called Middle English (ME), which began with the arrival of an army of Norman, Breton and French soldiers at the British coasts in 1066 AD, and ended around the 16th century. (Baugh & Cable 2002) This event, which gave rise to a new chapter in the history of English, is called 'the Norman Conquest' and is considered one of the most important events in the history of Britain, since the introduction of Norman (a French dialect) as the language of the elites, displaced Old English, giving rise to several changes in the new 'Anglo-Norman' language. However, as already explained, languages go through both external (as in this case) and internal changes, and some of the changes found at this period of time would have probably arisen even if the Norman Conquest had never happened. (Baugh & Cable 2002; Pyles & Algeo 1993)

Almost all OE vowels underwent both **quality and quantity changes**. On the one hand, the first **quality change** found is the unrounding of [y] and [yː] to [ɪ] and [iː], respectively (e.g. [hyll] > [hɪl] 'hill'; [myːs] > [miːs] 'mice'). This change is thought to have occurred by the early to mid-twelfth century in the north and west of Britain, but not in the South West, West Midlands, and Central Midlands, where the rounded sounds remained. In the Kentish dialect, however, the sounds [e] and [eː] emerged instead. (Pyles & Algeo 1993)

Through the next change, called **the æ/ɑ Merger**, OE [æ] and [ɑ] merged both into [a] at around the 11ᵗʰ century in words like *bæc* ('back') or *sacc* ('sack'): [bæk] > [bak]; [sɑk:] > [sak]. (Pyles & Algeo 1993)

Raising of OE [æː] and [ɑː] to [ɛː] and [ɔː], respectively, occurred sometime between the 11ᵗʰ and 12ᵗʰ centuries, as in: [ˈklæːnɛ] > [ˈklɛːnə] 'clean', and [hɑːm] > [hɔːm] 'home'. (Pyles & Algeo 1993)

Smoothing of the OE diphthongs is also found, where final schwa was lost in words like:

[ɛə] > [ɛ] → [ˈhɛərtɛ] > [ˈhɛrtə] 'heart' (Pyles & Algeo 1993)
[eːə] > [eː] → [kneːə] > [kneː] 'knee' (Pyles & Algeo 1993)
[æə] > [æ], which later raised to [a] → [ʃæəl:] > [ʃæl:] > [ʃal] 'shall' (Pyles & Algeo 1993)
[æːə] > [æː], which later raised to [ɛː] → [læːəf] > [læːf] > [lɛːf] 'leaf (Pyles & Algeo 1993)

Moreover, **quality changes** also affected OE **unstressed vowels.** Sounds [ɛ], [ɑ], [ɔ] and [ʊ] weakened to schwa [ə] in unstressed positions (Pyles & Algeo 1993), as in:

[ˈfrɔgːɑ] > [ˈfrɔgə] 'frog'
[ˈklæːnɛ] > [ˈklɛːnə] 'clean'

New diphthongs arose in Middle English by 1250 as a result of several vocalisations (i.e. a consonant is replaced by a vowel) and breakings (i.e. insertion of a new sound) in the environments of:

[j] > [ɪ] / FV ____ → [dæj] > [daɪ] > [dæɪ][9] 'day'
ø → [ɪ] / FV ____ [ç] → [ˈæəçtɑ] > [ˈæçtə] > [ˈaɪçtə] > [ˈæɪçtə] 'eight'
[ɣ] > [ʊ] / BV ___ → [ˈbɔɣɑ] > [ˈbɔʊə] 'bow'
ø → ME [ʊ] / BV ___ [x] → [ˈbrɔxtɛ] > [ˈbrɔʊxtə] 'brought'

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[9] The new resulting diphthongs [aɪ] and [eɪ] became both [æɪ].

17

[w] > ME [ʊ] / V ___ → [ˈniːwɛ] > [nɪʊə] 'new'

(Pyles & Algeo 1993)

Furthermore, the diphthongs [ɔɪ] and [ʊɪ] (spelled <oi> and <oy>) were also introduced into the ME vowel system, borrowed from French (e.g. 'joy'). (Pyles & Algeo 1993)

On the other hand, **quantity changes** affecting OE vowels include:

i) **Pre-cluster Lengthening:** vowels were lengthened before consonant sequences, especially before <mb>, <nd> and <ld> (e.g. [grʊnd] > [gruːnd] 'ground'). (Algeo 1993)

ii) **Open Syllable Lengthening:** vowels were lengthened in open syllables (e.g. [ˈnɑmɑ] > [ˈnaːmə] 'name'). (Algeo 1993)

iii) **Pre-Cluster Shortening:** vowels were shortened in closed syllables before two or more consonants (other than <mb>, <nd> and <ld>), as in [ˈkeːptɛ] > [ˈkɛptə] 'kept'. (Algeo 1993)

iv) **Shortening of unstressed syllables:** vowels were shortened in unstressed syllables (e.g. [uːs] > [ʊs] 'us'). (Algeo 1993)

v) **Trisyllabic Shortening:** vowels were shortened in a syllable followed by two unaccented syllables (e.g. [suːðɛrnɛ] > [sʊðɛrnə] 'southern'). (Algeo 1993)

4.3. Early Modern English

The fourth stage in the history of English goes by the name of Early Modern English (1500-1800). It coincides with the Renaissance period and the Tudor and Stuart dynasties. Early Modern English (eModE) was also a period of standardisation, due to "the need of the central government for regular procedures by which to conduct its business, to keep its records, and to communicate with the citizens of the land" (Pyles & Algeo 1993: 182). (Baugh 2002)

At this stage, the English vowels experienced several internal changes. The most remarkable one is the so-called **Great Vowel Shift** (GVS), "a series of important changes in quality" through which all ME long vowels raised one place in the vowel chart, making those that were at the top of it (i.e. [i:] and [u:]) become diphthongs ([aɪ] and [aʊ], respectively) (Wells 1982: 184). This change, which began around the 15th century and was completed by the 17th century (Wells 1982), is summarised by the following diagram:

Figure 1: The Great Vowel Shift (Wells 1982)
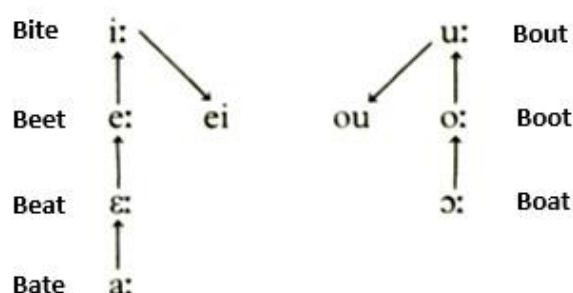
Other changes involving eModE vowels following the Great Vowel Shift include:

i. **The FLEECE Merger** (17th century) → [i:] and [e:] fell together into [i:], so that words like 'meet' [mi:t] and 'meat' [me:t] were both pronounced [mi:t] after the merger. (Wells 1982)

ii. **The Long Mid Mergers** (17th century) → [æɪ] and [ɛ:] fell together into [ɛ:], and [ɔʊ] and [o:] fell together into [o:], as in: 'pain' [pæɪn] and 'pane' [pɛ:n], which became [pɛ:n]; and 'toe' [to:] and 'tow' [tɔʊ], which became [to:]. (Wells 1982)

iii. **The FOOT-STRUT Split** (17th century) → [ʊ] splits into [ɤ] (which lowered later on to [ʌ]) and [ʊ]: ME 'foot' [fʊt] and 'strut' [strʊt] became [fʊt] and [strʌt], respectively, as it is nowadays. Moreover, some words, such as 'good' [gʊd] or 'foot' [fʊt], which were pronounced with [o:] and later on with [u:] after the GVS, joined this split as well (after undergoing a later shortening). This change, however, did not take place in the north of England. (Wells 1982)

iv. **The NURSE Merger** (17th century) → [ɪ] [ɛ] [ɤ] become schwa before an [r] sound, followed by a final consonant, as in 'bird' [bɪrd] > [bərd]. This change, did

not take occur in Ireland and Scotland, which are both rhotic accents (i.e. the <r> is pronounced in every environment). (Wells 1982)

v. **Pre-R Lengthening** (17th century) → Any vowel becomes long before the [r] sound followed by a final consonant. This change happened just after the NURSE Merger, so that 'bird' would no longer be pronounced [bərd], but [bəːrd] and later on [bɜːrd] (due to a later quality change). (Wells 1982)

vi. **Pre-Fricative Lengthening** (17th century) → Low short vowels (i.e. [æ] and [ɒ]) become long before a voiceless fricative (/f, θ, s/), as in 'bath' and 'cloth': [bæθ] > [bæːθ]; [klɒθ] > [klɒːθ] (Wells 1982). This change triggered other classes of changes afterwards in the British Standard:

START Backing → The vowels [æː] and [ɒː] resulting from Pre-Fricative Lengthening later underwent backing and raising, respectively, to [ɑː] and [ɔː], as in 'pass' [pæːs] > [pɑːs], and 'loss' [lɒːs] > [lɔːs]. (Wells 1982)
TRAP-BATH Split → [æ] splits into [æ] and [ɑː], as in 'trap' before a plosive, and 'bath': [træp] [bɑːθ]. (Wells 1982)
LOT-CLOTH Split → [ɒ] splits into [ɒ] before a plosive, and [ɔː] before a voiceless fricative, as in 'lot' and 'cloth': [lɒt] [klɔːθ]. (Wells 1982)

vii. **THOUGHT Monophthonging** (17th century) → Diphthongs [aʊ] and [ɔʊ] merged into [ɔʊ] and then monophthongised to [ɔː] before the sequence [xt]: [ˈdaʊxtər] > [ˈdɔʊxtər] > [ˈdɔːxtər] 'daughter', and [θɔʊxt] > [θɔːxt] 'thought'. (Wells 1982)

4.4. Modern English

Modern English (ModE) is the name given to the English spoken currently, which began in the 18th century. As remarked at the beginning of this paper, I will take as a reference the sounds of the RP accent, given the wide range of varieties and accents of English that exist nowadays. At this stage, several changes affecting the vowels can still be found, such as:

i. **Eighteenth-century Raising** (18th century) → [ɛː] raised to [eː]: [dɛːz] > [deːz] 'daze'. (Wells 1982)

ii. **Long Mid Diphthonging** (1700-1900) → [eː] and [oː] became [eɪ] and [oʊ], respectively, as in [deːz] 'daze' > [deɪz], and [toː] 'toe' > [toʊ]. (Wells 1982)

iii. **Pre-R Breaking** (18th century) → Insertion of a schwa [ə] between a long high vowel (i.e. [iː] [eː] [oː] [uː]) or diphthongs [aɪ] [aʊ], and an <r>: [biːr] > [biːər][10] 'beer'. (Wells 1982)

iv. **Pre-Schwa Laxing** (18th century) → A vowel becomes short and lax (i.e. [ʊ] [ɪ] [ɛ] [ɔ]) before a schwa [ə]: [ˈbiːər] > [bɪər] 'beer'. (Wells 1982)

v. **The FORCE Merger** (20th century) → [ɔə] and [ɔː] fell together into [ɔː] in words such as 'force' (previously pronounced [fɔərs]) and 'north' (previously pronounced [nɔːrθ]). (Wells 1982)

vi. **GOAT Fronting or Advancement** (20th century) → [oʊ] became [əʊ] in British English (not in American English): [toʊ] > [təʊ] 'toe'. (Wells 1982)

According to Wells (1982), the vowel system of Modern English (RP) is thus is the following:

Short vowels: [ə][11] [æ] [ʌ] [e] [ɪ] [ɒ] [ʊ]
Long vowels: [ɑː] [ɜː] [iː] [ɔː] [uː]
Diphthongs: [eɪ] [aɪ] [ɔɪ] [əʊ] [aʊ] [ɪə] [ɛə] [ʊə]

5. A comparative vowel change analysis: English and German

I-umlaut is one of the features concerning vowel change in German and English that needs to be highlighted first. As already explained, *i*-umlaut (also called *i*-mutation) is a type of mutation which affected all North and West Germanic languages, whereby back vowels are fronted when followed by either [i] or [j], due to assimilation. It is, however,

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[10] The deletion of final [r] in the British Standard (R Dropping) follows this change. (Wells 1982)
[11] The schwa is "restricted to weak unstressed syllables", as in 'comma': [ˈkɒmə] (Wells 1982: 119-120).

not found in the same period of time, since *i*-mutation occurred in pre-historic Old English (first stage in the history of English), whereas German experienced it at a later stage, in Middle High German (second stage in the history of German), more precisely.

For instance, PGmc *kukinǭ − *kukinōniz* 'kitchen − kitchens' yielded *chuhhina* in OHG and *cycene* in OE. As can be seen, the *u* in *kukinō* remained *u* in Old High German, whereas it was already fronted in Old English ([ˈkyʧɛnɛ]). The fronting in German is not visible until the MHG period, where *chuhhina* finally turns into *küche* [ˈkyçə], as in modern German.

Ablaut (from German *Abstufung der Laute*) is a morphological phenomenon present in both German and English[12] that should also be highlighted, since it affects phonology as well. It is a type of stem vowel alternation, which indicates a change in grammatical function. (Beekes 2011: 174; Katamba 1993: 101)

Ablaut in English and German is perfectly visible in the formation of the so-called 'strong' verbs, a distinctive feature of the Germanic languages, by which some verbs change their stem vowel, forming the past tense, as in:

PGmc *sehwō* - *sahw* > OHG *sihu – sah* > current *ich sehe – ich sah*
> OE *sēo – seah* > current 'I see – I saw'

The other type of verbs in Germanic, the 'weak' verbs, form the past tense by adding a dental suffix, as in English 'I say – I sai<u>d</u>', and German *ich sage – ich sag<u>te</u>*.

The third vowel change to be remarked concerns diphthongs. Through this process, English and German **[iː] and [uː] diphthongised to [aɪ] and [aʊ]**, respectively, so that words such as *hūsan* 'house' and *bītan* 'bite' in PGmc turned into:

OE *bītan* > current English 'bite' [baɪt]
    hūs > current English 'house' [haʊs]

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[12] Ablaut is also present in many other languages spoken in Europe, since it is a feature inherited from Indo-European (Katamba 1993: 101). For instance: Spanish *hago - hice*; or French *je fais* [fɛ] – *je fis* [fi] (both of them from Latin *facio – fēcī*, in which ablaut is visible as well).

OHG *bīzan* > current German *beißen* [ˈbaɪsən]

hūs > current German *Haus* [haʊs]

On the one hand, English underwent this change, due to the so-called Great Vowel Shift (GVS), which, as previously explained, was a shift in all long vowels. These changed their pronunciation and shifted upwards in the vowel chart, making those at the top of it (i.e. [iː] and [uː]) become diphthongs in the early Modern English period (from the 15th century onwards). German, on the other hand, underwent a similar process of diphthongisation throughout the MHG and ENHG periods.

Nevertheless, not all words underwent this process, as English 'light' and German *Licht*. MHG *lieht* [liəçt] shortened, due to the closed syllable shortening (CSS), yielding ENHG and current German *Licht* [lɪçt]. Whereas, OE *lēoht* [leːəxt] turned into ME [liːxt], due to palatal umlaut[13], and finally diphthongised in eModE after the GVS, giving rise to modern [laɪt].

However, it is also worth mentioning that English did undergo a process similar to the one found in MHG: the Pre-Cluster Shortening, which occurred in Middle English (e.g. [ˈkeːptɛ] > [ˈkɛptə] 'kept').

Other West-Germanic languages, such as Dutch or Afrikaans, experienced a similarly complex vowel change as well (Salmons 2012):

Old Dutch *hūs* > current Dutch and Afrikaans *huis* [ɦœy̑s] 'house'

bītan > current Dutch *bijten* [ˈbɛitən] and Afrikaans *byt* [bɛit] 'bite'

This change, however, is not present in any of the North-Germanic languages (Salmons 2012):

Old Norse *hús* > Swedish [hʉːs], and Icelandic *hus* [huːs]

bíta > Danish *bita* [ˈbiːdə], and Icelandic *bíta* [ˈpiːta]

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[13] Palatal umlaut is a process found in OE, whereby "the short diphthongs *<io, eo>* were monophthongised and raised to /i/ when directly followed by /x/ plus dental consonant" (Hogg 2011: 163). However, as *lēoht* contains a long diphthong, it might be the case that the monophthongisation and raising of *<ēo>* were also due to analogy with the OE verb *līhtan* [ˈliːçtɑn] 'to light'.

Open Syllable Lengthening is another process present in both languages, by which vowels were lengthened in open syllables, as the name implies. Again, this change did not happen in German and English at the same time, since ME experienced it, whereas it was in the ENHG period that this type of vowel lengthening occurred. Words like 'name' in English (OE [ˈnɑmɑ] > ME [ˈnaːmə]), and *Name* in German (OHG [ˈnɑmɔː] > (E)NHG [ˈnaːmə]) are good examples of this change.

Finally, ***Vokalreduktion im Auslaut*** ('vowel reduction in final position') first in MHG and **apocope** later on in ENHG are similar processes to the ones found in English: the so-called **weakening** of final unstressed vowels and subsequent **loss of unstressed final schwa** in Middle English, which can be seen in the evolution of words, such as 'heart':

MHG *herze* [ˈhɛrtsə] > ENHG [hɛrts]
OE *heorte* [ˈhɛərtɛ] > ME [ˈhɛrtə] > [ˈhɛrt]

The fact that many phonological phenomena are found in both languages at different periods in history reveals a possible inherent pattern of change for Germanic languages. As Salmons points out, many West Germanic dialects (and even some Nordic languages) show similar patterns (2012). For instance, "most of the changes with short vowels involve lowering, while almost all of the long monophthongs rise" (Salmons 2012: 234).

6. Conclusion

The only way of noticing the relationship between modern English and German is mainly through a number of cognates (i.e. words that share a common etymological origin and thus have similar forms), such as *Milch* and 'milk'. However, more than 1,400 years ago English and German used to be dialects of Germanic (West-Germanic, more specifically), their parent language, from which both descend. After their split both dialects took different paths, developing their own language systems.

Then why do the current vowel systems in modern English and German differ so much if they have the same origin? Other languages that come from the same parent language, such as Italian and Spanish, do exhibit similarities in their vowel inventories. If compared to German, English has undergone quite dramatic changes in the course of its history during which their native speakers have come into contact with other communities who spoke different languages, such as Old Norse or Norman French. All these contacts have made English become gradually simpler for efficient communication to occur between English speakers and non-English speakers. For instance, while the OE grammatical structure was predominantly synthetic, that of ModE is predominantly analytic (Wischer 2016); and while OE used mainly inflections to mark grammatical relations, ModE instead makes use of many more function words (Wischer 2016). German, on the contrary, has kept these features, which are distinctive of the Germanic branch of languages.

However, not only did language contact exert a significant influence on the English syntax or morphology, but also on its vowel system, making it simpler than that of German, which has twice as many vowel phonemes as the English vowel system does.

Language contact is, therefore, a crucial factor in the evolution and shaping of languages. It is for this reason that German does not exhibit as many changes −in relation to its origins− as English does. German, in fact, shares more similarities with the French vowel system than with the English one, which is quite ironic, since French[14] is not even a Germanic language.

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[14] French is part of the so-called Italic languages (see page 4), from which Spanish, Portuguese, or Italian descend as well.

Bibliography:

Algeo. J. (1993). *Problems in the Origins and Development of the English Language*. 4th
      Edition. Orlando: Harcourt Brace Jovanovich, Inc. 124.

Bammesberger, A. (1992). "Historical Phonology" in Richard M. Hogg (ed.). *The
      Cambridge History of the English Language Volume 1: the Beginning to 1066*.
      Cambridge: Cambridge UP. 46.

Baugh, A.C. and Thomas Cable. (2002). *A History of the English Language*.
      London: Routledge. 28-29.

Beekes, R. S. P. (2011). *Comparative Indo-European Linguistics: An Introduction*.
      Amsterdam/Philadelphia: John Benjamins Publishing Company. 29, 171.

Casado C. and Edita Gutiérrez. (2009). "Capítulo 12: las lenguas del mundo", in V.
      Escandell et al. *El lenguaje humano*. Madrid: Ramón Areces.

Crystal, D. (2002). *Language Death*. Cambridge: Cambridge UP.

Duden: die Grammatik. (2009). 8th Edition. Mannheim: Dudenverlag.

Hogg, R. M. (2002). *An Introduction to Old English*. Oxford: Oxford UP.

      ---. (2011). *An Old English Grammar, Volume 1: Phonology*. UK: Wiley-
      Blackwell. 163

Katamba, F. (1993). *Morphology*. New York: St. Martin's Press. 101.

Kohnen, T. (2014). *Introduction to the History of English*. Frankfurt am Main: Peter
      Lang. 5.

Lehmann, W. P. (1969). *Proto-Indo European Phonology*. USA: The University of Texas Press.

Pyles, T. & John Algeo. (1993). *The Origins and Development of the English Language*. 4th Edition. USA: Harcourt Brace Jovanovich. 182.

Salmons, J. (2012). *A History of German: what the past reveals about today's language*. Oxford: Oxford UP. 57-59, 101, 121, 195, 234, 236.

Schmid, H. U. (2009). *Einführung in die deutsche Sprachgeschichte*. Stuttgart: J.B. Metzler.

Smith, J. J. (2007). *Sound Change and the History of English*. New York: Oxford UP.

Sonderegger, S. (1979). *Grundzüge deutscher Sprachgeschichte: Diachronie des Sprachsystems*. Berlin: Walter de Gruyter.

Szemerényi, O. (1996). *Introduction to Indo-European Linguistics*. New York: Oxford UP. 44.

Wells, J. C. (1982). *Accents of English 1: An Introduction*. Vol 1. Cambridge: Cambridge UP. 184.

Wiese, R. (2006). *The Phonology of German*. New York: Oxford UP. 11-12.

Wischer, I. (2016). Course in "An Introduction to the History of English" at the University of Potsdam.