

Mechanisms of Doublet Formation with a Focus on Sound Changes

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Abstract

In this research I was focusing on two issues, how does sound change contribute to doublet formation, and what kind of sound changes brought about doublets in English. For my analysis, I collected data from etymological dictionaries that I analysed in the light of sound changes that took place in English. In my analysis I found out that sound change is the main process that facilitates doublet formation, with palatalization being the most important process. I also found out that there are sound changes that do not contribute to doublet formation in themselves, but in combination with other changes they can lead to the emergence of doublets. Concerning the languages that supplied doublets, Latin, French, and Old Norse were the only contributors.

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1. Introduction

The mechanisms of doublet forming in the English language is a fascinating topic, but for my surprise the notion of doublet formation is rarely discussed in English linguistics. This may be a result of the fact that the relevance of doublets does not feel present in modern English. “Such doublets far diverged in form and meaning, and their comparison is carried out only when studying the language in historical terms.” says Yusupov in his study (2020 p.418). The English language is an amazing candidate for studying doublets due to the size of its lexicon, which is among the largest of all known and recorded languages (Schmitt and Marsden 2006). This is the result of the long history of the English language, particularly its contact with other linguistic groups, predominantly Latinate and Germanic peoples, and has been facilitated by English’s willingness to accept loanwords from various languages (Watkins 2011). In this paper I want to shed light on the factors that induced doublet formation, with a focus on the roles of different sound changes that occurred during the history of the English language as well as in other Indo-European languages that has been in contact with the English language. „The complexity of the issue is due to the fact that the process of duplication is conditioned not only by the operation of sound changes active before and after the time of borrowing a foreign element but also by intricate semantic developments that are embedded in the cultural history of English as well as in that of the donor language(s)” (Hegedűs 2017, p. 2). Etymological duplication is a process that is not only productive with words, it can also operate on bound morphemes as well, therefore it is important to talk about affix doublets as well. There are many different types of doublets and we can classify them in different ways, which I will survey in this paper, by analysing some doublet pairs.

2. Research Questions and Data collection

1. How does sound change contribute to doublet formation?
2. What kind of sound changes brought about doublets in English?

I strictly relied on data from different etymological dictionaries, especially Proto-Indo-European, and Proto-Germanic etymological dictionaries. I also used secondary literatures, the main work I based my research on was Irén Hegedűs’s works on etymological doublets and affix doublets, and also the Cambridge History of the English Language series, but I also used a variety of secondary literatures from different fields of linguistics to be able to provide accurate definitions and explanations.

3. Definition of Doublets and Categorization

3.1 Earlier Definitions

Because of the lack of sources and research on the topic of doublets, providing a precise definition is a bit challenging. An early definition says “doublets are words which, though apparently differing in form, are nevertheless, from an etymological point of view, one and the same, or only differ in some unimportant suffix.” (Skeat 1967 [1882], p. 648). According to this statement we can have two words, which does not look alike, and yet they came from the same root, for example shrine/screen or wheel/cycle. Doublets can also be cognates meaning

they have descended from the same ancestor. Unfortunately, Skeat's formulation is rather loose and it neglects the importance of suffixes in the mechanism of doublet forming. "By declaring the role of the suffix "unimportant", Skeat severely underestimated a most relevant point in the mechanism of doublet formation, namely that etymological duplication is realized without derivation." (Hegedűs 2017, p. 24). This definition was later modified by Allen (1908 p.184) "English doublets are pairs of words in the English language, derived by different courses from the same base, Romanic, Teutonic, Arabic, etc." He also noted that the same base can have two or more offshoots (Allen 1908), and this is a relevant aspect in doublet formation. Due to this notion, he was able to classify English doublets into five main groups according to their sources. These five categories are Latin and French origin, different dialects of French, earlier and later French, different dialects of Middle English, and Italian and French. Let's take a look on a more recent definition for etymological doublets and triplets "... one of two or more words in a language derived at different times or by different routes from the same source." (Asher 1994, vol.10 p. 5115). This definition contradicts Skeat's definition, and also lacks relevant information about the sources. Bloomer (1998) established 3 main categories of doublets, one of them can be split up to two subcategories. So according to Bloomer we can distinguish etymological doublets, morphological doublets, and lexical doublets. Etymological doublets can be split up into two subcategories, pure and mixed etymological doublets. However, he specifies that lexical doublets do not necessarily can be considered doublets, a better terminology would be alternatives. As we can see all of these definitions are in some way incorrect or they are not specific enough.

3.2 More Recent Definitions

If we have a look at some more recent studies on the topic of doublets we can find some more accurate definitions. For example, "we may define "doublets" as instances of two or more varying forms from the same original source found in a single language at the same time." (Sesterhenn. 2011 p. 3). Another definition states that "words derived from the same source by different paths." (Millward 1989. p. 359). This definition implies that although, historically these words share the same origin, in modern day English, the connection between them may not be recognizable. This is the result of phonological changes that occurred either in the English language, or in the language, from which English borrowed words from. For this paper the definition that I will stick to provides a distinction of true etymological doublets, and quasi-doublets, by providing five criteria. "These criteria are as follows: (i) doublets descend from the same etymon and contain the same derivational suffixes; (ii) they represent the same part of speech; (iii) if their formal differentiation is a result of ablaut, they cannot be true etymological doublets because ablaut itself is a type of derivation; (iv) they belong to the same semantic field and their meanings ultimately go back to a common semantic core; and (v) they do not occur in complementary paradigmatic distribution." (Hegedűs 2010. p. 133-134). Etymological doublets have two main types, the first being "doublets resulting from borrowing a foreign element that descends from the same ancient (Proto-Germanic or Proto-Indo-European) etymon which survives in English as a genetically inherited element of the vocabulary" (Hegedűs 2014. p. 312). For example, Cow-beef Germanic via Old English, Latin via French; both ultimately Proto-Indo-European *gʷōws*. (cf. Watkins 2000: 35, *gwou-*) The second type is "doublets that result from the borrowing of two (or more) foreign elements that can ultimately be traced back to the same ancient etymon" (Hegedűs 2014. p. 313). For example, Wheel-cycle-chakra Germanic, Greek via Latin, Sanskrit, all from Proto-Indo-European **kʷékʷlo-* "wheel" (cf. Watkins 2000. p. 45, *kwel-*).

3.3 Quasi-Doublets vs. Affix Doublets

Although, my main focus in this paper is etymological doublets, I think it is important to have a look at quasi-doublets and affix-doublets as well, so we can get the whole image. Quasi-doublets are word forms that are coming from the same stem, the same way as etymological doublets do, but the processes that led to the emergence of quasi-doublets are different. According to Hegedűs (2010) there are three types of quasi-doublets, one being the case of having the same base, but then the different derivational processes produced synonymous lexemes derived by different affixes. The second type being spelling variations, and then the third type is analogical restorations, which led to the levelling of allomorphic alterations. On the other hand, we have affix doublets, which opposed to quasi-doublets can be discussed as a form of true etymological duplication, and it operated on both prefixes and suffixes. These doublets are either the results of internal phonological processes or they come from repeated borrowing, or the combination of both. The rivalry between affix doublets were resolved by favouring one form, which then became productive. (Hegedűs 2014)

4. A Brief History of the English Language

4.1 The Place of English in the Indo-European Language Family

We know that languages are not static, they are constantly changing, they are shaped by technological advances, other languages that the language came into contact with, even by the individuals who speak the language contribute to the changes. The vocabulary, grammar, pronunciation etc. is constantly changing. These changes play a huge role in the appearance of doublets, so for us to be able to understand the mechanisms of doublet forming we need to familiarize ourselves with the history of the English language. Historical events help us determine when and how loanwords entered the language. It is widely accepted by scholars that English is part of the Indo-European language family and it stems from Proto-Indo-European. This idea stems from the nineteenth century and the term Indo-European was introduced by Thomas Young. If we are looking at the tree model of the Indo-European language family, which is a widely accepted model, we can see that Proto-Indo-European split into four branches, Anatolian, Celto-Italo-Tocharian, Balto-Slavo-Germanic, and Aryano-Greco-Armenic. (Although this classification may differ according to other views) For us the most interesting branch is the Proto-Germanic, and then the West-Germanic, because this is where we can find English. However, for our purpose of understanding doublet formation, it is also important to look into the Celtic, and Italic branch as well, because they play a huge role in the history of the English language, and in doublet formation. The branch of linguistics, which is interested in this topic is historical linguistics, and for better understanding, we have to look into the methodology of it. Historical linguistics is strongly relying on available texts, but also linguistic reconstruction of words, which hardly ever can be proven correct, so there is a huge variety of reconstruction systems available, but it has to be emphasized that the underlying methodology is universally agreed upon. The main concepts of historical linguistics are the regularity of sound change, or the systematic nature of diachronic change in general. According to this methodological classification, we can say that “two or more languages are genetically related if they stem from a common ancestor; the fact and the degree of the relationship are established on the basis of deepcutting structural agreements which cannot be due to chance. Sanskrit, Greek, Latin, Germanic, Celtic and a few other languages stem from a common proto-language, which is usually termed 'Indo-European'.” (Bammesberger 1992. p. 51). It is interesting to look into how we got from Proto-Indo-European to Proto-Germanic. We have seven major changes that happened when Proto-Indo-European became Proto-Germanic. First of all, there were some vocalic changes like Proto-Indo-European ‘o’ become ‘a’ in Proto-Germanic. The two-tense

verbal system got introduced, which was much simpler than it was in Proto-Indo-European, because it does not involve tenses such as future, perfect, pluperfect and future perfect, which can be seen in other Indo-European languages, such as Latin. Also Germanic developed a dental preterit, which acted on weak verbs, and nowadays most verbs add the dental suffix, therefore it became the norm, as we can see most English words form their past tense by adding the –ed suffix. All the older forms of Germanic languages have a distinction between strong and weak adjectives, which wasn't present in Proto-Indo-European. Another important change was the loss of free accent, that means in Germanic the only the first syllable was stressed. Germanic languages also share a common distinctive vocabulary, which is present only in Germanic languages but is different in other Indo-European branches. And the last change is the First Consonant Shift, also known as Erste Lautverschiebung, Germanic Sound Shift, or as most commonly called Grimm's Law. It was first noted by the Danish Linguist, Rasmus Rask, and described in detail by Jakob Grimm in the beginning of the nineteenth century. And we also have Verner's law, which is essentially a supplement of Grimm's law, but I won't go into detail about these two sound changes, because I will be mentioning them in a later part of this paper under Sound changes and the doublets that arise from them (Algeo 2010).

4.2 The Very Beginning

As I mentioned earlier, English is part of the Germanic branch, meaning it is closely related to languages which were spoken in southern Scandinavia and northern Germany, thousand years before Christ (Bammesberger 1992). This era was characterized by major migrations, which led to the widespread of Germanic languages. English is a West Germanic language, and its history can be broken into four periods, prehistoric English, Old English, Middle English, and Modern English (Denning et al. 2007) These eras are not perfectly defined, but we can give an estimate to the centuries where they took place, and significant linguistic changes, due to contact with other nations, groups or languages support this classification. Therefore, we can say that the prehistoric English is before 700 AC., Old English is 700-1100 AC, Middle English is 1100-1500 AC, and Modern English is after 1500 AC. The British Isles were first populated by the Celts, and then later the Roman Empire Occupied it. Hardly anything is left of the Celtic language or culture, except for the names of some rivers for example Thames, Mersey, Severn and Avon, and some place names such as London and Leeds. English originates from Ingvaeonic languages, which is a postulated grouping of northern West Germanic languages, and it was brought to Britain around 500-700 AC by the Angles, Saxons and Jutes which were three tribes from the north-sea coast, although the Jutes assimilated quickly into the other two tribes. In 449 AD these Germanic tribes settled at the British Isles and established a heptarchy, which later consolidated into four, and from this four dialects of Old English emerged. From the four dialects, West-Saxon become the basis of modern English. We owe our knowledge of this period mainly to an English monk named Bede, who wrote the Ecclesiastical History of the English People, which since then has been generally proven correct by archaeological evidences. Some linguistic remains of the Anglo-Saxon culture are that the days of the week are named after Germanic gods, such as Tuesday from Tiu, Wednesday from Wodan etc. Also place names like Reading or Birmingham comes from the Anglo-Saxon period. "By about the middle of the seventh century the major centres of political (and hence cultural) power had shifted northwards, to the Anglian kingdoms of Mercia and Northumbria, especially the latter. Since it was also at this time that texts began to be written in English rather than Latin, it is not surprising that most of the earliest English texts are of Northumbrian origin, as in the case of Caedmon's Hymn, Bede's Death Song and the runic inscription on the Ruthwell Cross." (Blake 1992. p. 5-6). So this is the period from which we start to have written evidence of Old English, Beowulf, which is one of the most well know Old English text, originates from this period. An

early contributor to the English vocabulary was Old Norse. “English has at least 900 words taken from Old Norse, most of them borrowed during” this time. The language of this group, brought to England by the Viking invaders from the northern lands, did more than just lend words.” (Schmitt and Marsden 2006. p.81). This Old English period ends with the Norman Conquest especially the battle of Hastings in 1066, after that French and Latin have a huge impact on the English language and we enter the Middle English period.

4.3 The Middle English Period

While the Anglo-Saxons coexisted with the Norman French, the Norman culture therefore the language that they spoke, become more and more prestigious over time. This led to “the established practice of borrowing from French” (Robertson 1954. p.152). “While North Germanic made significant changes to English’s grammar and lexicon in an older stage of the language, French and Latin have had an even longer history of contact with the speakers on the British Isles. In order to understand their influence, it is helpful to summarize their history as well.” (Sestrehenn 2011. p.7). French is a daughter language of Latin, but it underwent sound changes independent of it, and other Romance languages. The consequence of this is that we have a huge number of doublets which has a French-Latin origin. Also there are some difficulties of determining whether a borrowing is Latin or a French one. (Denning et al. 2007). Later in the middle English period French and Latin were still present in Britain, because Anglo-French was the administrative language, and Latin was the language of religion, but English also had its place in everyday use, only at a spoken level. (Blake 1992). Perhaps Latin was even more influential than French, because it had the longest history of being in contact with the English language, due to the fact that it was present since the Roman invasion. If we take a look at an Old English text and a Middle English text, we can clearly see that Middle English is much closer to Modern English than Old English is to Middle English. Old English resembles a foreign language, while Middle English is mostly understandable to the modern speaker. This is due to the fact of the new borrowed lexicon, as well as the standardization of Middle English, where the scribal tradition was based on the West-Saxon dialect of Old English. This Middle English period lasted till the end of the fifteenth century, and we consider the start of the Modern English period, the establishment of Caxton’s first press in England.

4.4 Modern English

With the introduction of printing, and the spreading of renaissance ideas, written culture, therefore written language and its standardization become more and more prioritised. We can split the Modern English period into two parts, Early Modern English and Late Modern English. The Early Modern English period lasted roughly from the introduction of printing in England to the American Declaration of Independence. An important sound change happened during this era, namely the Great Vowel shift, which affected long vowels. I will talk about this in detail in a later part of this paper. The language was further transformed by standardization, which was highly needed, due to the spread of literacy. By the time of William Shakespeare, the language was recognizable as Modern English. Due to renaissance ideas and increased literacy Latin and Greek borrowings entered the language. Early Modern English and Late Modern English mostly differ in vocabulary, because of the industrial revolution many new words entered the language. And due to the American Declaration of Independence and the birth of the United States of America, there was a major split between British English and American English, which led to more and more variation of the language. “The late Modern English period consolidates the foundation laid for Modern Standard English to be codified in the grammars and dictionaries of the eighteenth century.” (Romaine 1992. p. 7). But as I

mentioned earlier language is constantly changing and “Change that is on-going in present-day English is easiest to see in the vocabulary, although it certainly exists in all aspects of language” (Algeo 1992. p. 61). There are many ways of expanding the vocabulary, but we can categorize them into two main categories, its either we take the existing words of the language, and shape them by different processes such as blending, backformation, compound etc. or the other category is that we get new words from an outside source, this process is called borrowing. Borrowing is very important in the English language because of two thirds of the current vocabulary consist of borrowed words, mostly from Latin and French.

5. The Different Mechanisms of Doublet Formation

Although, our main concern is how the different sound changes that happened during the history of the English language led to the emergence of different doublets, triplets or even multiplets, it is also substantial to look at all the mechanisms of doublet forming to have a better and more comprehensive understanding of the nature of doublets. There are numerous factors that contribute to doublet forming such as analogical changes, borrowing, or the phenomena of ablaut. First of all, let us investigate the case of spelling doublets, “which are cases of orthographic bifurcation followed by later semantic dissociation.” (Hegedűs 2017. p. 33). Spelling variants are mostly the results of borrowing the same word from two different sources, especially Norman French and Central French, or French and Latin. These spelling variations may become differentiated both formally and semantically. We do not have a lot of spelling variations in modern English due to standardization, because with the emergence of written culture and then printing, there was a huge demand for a standard writing system, which wiped out some of these spelling doublets. Although they are not so common, we still have spelling doublets in modern English, for example we use ‘*colour*’ in British English and ‘*color*’ in American English. But spelling doublets such as *gaol~jail*, are not present in Modern English.

US.	GB.
check	cheque
color	colour

Table 1: Examples for spelling doublets

Analogical change can be a factor in the emergence of doublets. I-umlaut was a process, which was mostly productive before the first old English texts were written, and it acted on comparative and superlative forms of adjectives, and on the plural forms of nouns, such as *old-elder-eldest*, and *brother-brethren* (Hegedűs 2017). During the history of the English language the mutated forms got reanalysed, so forms like *old-older-oldest*, and *brother-brothers* started to appear. Some forms got fossilized, and others underwent a process called specialization, such as *brethren*, therefore in modern English it is only used in a religious sense. These word pairs can be called quasi-doublets, but not etymological doublets (Winters 1997).

old, older, oldest vs. old, elder, eldest

elder < OE *eldra* < Anglo-Frisian **eald-ira* < PGmc. **ald-iz*

eldest < OE *eldest(a)* < Anglo-Frisian **eald-ista* < PGmc. **ald-ista*

brother, brethren vs. brother, brothers (Hegedűs 2017)

brethren < OE *breþ(e)re-n* / *broþ(e)re-n* < Pre-OE **brōþor-i* (Hegedűs 2017)

English not only got doublets from outer sources, but from its own dialects as well. As I mentioned before English underwent a process called standardization, which was based on the

Mercian dialect (Wright 2000). There were an isogloss distinguishing the northern and southern dialects. A difference between the two dialects was the absence of the word initial *v* in the southern dialect. This difference led to doublets such as *fan~van*, or *fat~vat*. During the history, English came into contact with several other languages, which led to the process of borrowing, which plays an enormous rule in the mechanisms of doublet formation. Doublets such as *ratio* (Latin)~*reason*(French), entered the language through borrowing. These words can enter the English language through various trajectories. “Etymological duplication is a process that can operate at various time-depths of language history. It is possible to show that an etymological doublet in English ultimately goes back to two distinct Proto-Indo-European etyma, which themselves were etymological doublets on the protolinguistic level: one of them was a native word, the other a borrowing from Semitic.” (Hegedűs 2017. p. 47). To summarize the topic of borrowing, words can enter the language in many different routes, and they form different doublets. We can have native-native doublets, which is the result of dialect borrowing, we can also have native-foreign doublets, and foreign-foreign doublets that come from two different languages.

Native	Native
shadow	shade
scot	shot

Table 2: Examples for native-native doublets

Native	Foreign
cow	beef
otter	hydra

Table 3: Examples of native-foreign doublets

Foreign	Foreign
estate	status
cettle	capital

Table 4: examples of foreign-foreign doublets

6. Affix doublets

Affix doublets can be quasi-doublets, for example *ize*(Lat.)-*ise*(Fr.), but true etymological duplication can be also found among affix doublets. Affix doublets are not the main concern of this paper, with this section I just wanted to illustrate their existence, and that the mechanisms are the exact same as in word doublets. This section is not complete in any sense, because it could be its own paper, there is just so much material for it, so this section is just a quick glance at the word of Affix doublets. In the case of suffix doublets, we can observe different mechanisms of doublet forming. First as I mentioned quasi-doublets are present among affix doublets as well. We can observe a phenomena called rival forms, which is a synonym for morphological doublets. This is great describing name for the phenomena, because thee were competition among the different derivational forms during the history of the English language. This rivalry was most of the time resolved by favouring one of the forms, which ended up being the productive form. But there are some cases where both of the forms are still in use, this can happen when one of the forms undergo a process called specialization. “This can happen especially if the rival forms cease to be synonymous because they obtain specialized meanings, and thus enter a semantically complementary distribution enabling them to survive independently.” (Hegedűs, 2014. p. 314). Spelling variations are also present among affix doublets as presented with *-ise* and *-ize*.

True etymological duplication is also present among affix doublets, and the processes are the exact same as the ones presented for free morpheme doublets, this makes affix doublets amazing candidates for surveying the duplication process. Some suffix doublets come from parallel borrowing. Let me present it with the example of the *-y~ate* suffix doublets. They represent the case of parallel borrowing, in this particular case they are both borrowed from Old French, but from two very different dialects, and the trajectories of both of them are analysed based on the work of Sihler (1995). The *-ate* suffix originates from Latin, its original form was *-atus*, and it got borrowed into Old French and through that it entered the English Language. So the route is Latin suffix *-atus* for example in *senatus*, > *Old French senat* > *English senate* where *-ate* is the suffix. The suffix *-y* also originates from Latin, but it entered English through Norman French, so the route is *Latin comitatus* > *Norman French countee* > *English county*.

Adjectival suffix doublets and triplets are also present in the English language, for example *-ish* and *-esque*, where the same process happened as with *-y~-ate*. They are both a result of borrowing, in the case of *-esque*, it was borrowed from French, and *-ish* is a native suffix to the English language. The difference between the two cases lies in the trajectory of *-esque*, because it was borrowed from Germanic, to Vulgar Latin. However, the case of *-ish* is also interesting to look at, as Hegedűs (2014, p. 317) stated in her work “the inherited morpheme *-ish* descends from the Germanic/Indo-European ancestral form via the regular sound change which unconditionally palatalized Pre-Old English [sk]-clusters to [ʃ] in all positions.”

Therefore, sound changes also play a role in the formation of affix doublets the same way they do with word doublets. These were all suffixes, but the duplication process is also present in the case of prefixes, for example in the case of *sam-* ~ *semi-* ~ *hemi-*. For the sake of presenting the second mechanism of affix doublet forming I will analyse the *sam-* ~ *semi-* ~ *hemi-* triplet. “The history of this group of prefixes illustrates a case in which a native prefix becomes obscured by the Modern English period, while its foreign doublets gain increased productivity.” (Hegedűs 2014. p. 321). The native prefix in this case is *sam-*, which lost its productivity because of the emergence of *half*, and later the prefix *semi-*, which originates from Latin, and *hemi-* which originates from Greek emerged, they become relatively productive.

sam-~~semi~~hemi-

sam- (dial.) < OE sam- < PGmc. *sāmi-

semi- ← Latin sēmi- PIE *sēmi- ‘half’

hemi- ← Greek hēmi (Hegedűs 2014)

To summarize this section, affix duplication is mainly the result of two mechanisms. The first being, having a native affix, and borrowing one which descends from the same Proto-Indo-European morpheme. The second mechanism is the parallel borrowing of affixes, such as in the case of *hemi-* and *semi-*. In the table below you can see some other examples of affix doublets.

-y	-ic
un-	in-
-th	-d

Table 5: more examples for affix doublets

To summarize what we know about affix doublets, the types and mechanisms of doublet formation that can be observed in the emergence of lexical doublets are also present in the historical development of bound morphemes. Affix doublets must also be distinguished from quasi-doublets from true etymological doublets. Quasi-doublets are formed by spelling variations (such as -ize and -ise) or free affix variations (such as economic and economical were interchangeable derivational variants until the early nineteenth century).

Doublets of affixes could exist in free alternation; however, the interchangeable affixes and doublets frequently became adversaries at various points in the history of English. Affix rivalry was typically resolved by one variant overpowering the other (for example, Latin smi- replacing Old English sam- "half") or by changing the free alternation into a complementary distribution (either semantically, as in economic, or morphologically, as in the combinability of in- with Latin-derived words versus un- with native English or French adjectives).

In this study I contended that etymological duplication of fastens in English - very much like on account of lexical doublets - most often happens as the aftereffect of two primary kinds of systems:

1 borrowing a foreign affix that originates from the same ancient (Proto-Germanic or Proto-Indo-European) morpheme and has a reflex, a native affix that is already present in English, such as the adjectival suffix doublet -ish -esque, the adjectival suffix triplet -y -ic -ac, or the adjectival prefix triplet un-in-a(n-);

2 parallel borrowing of ultimately cognate affixes from various languages, such as semi- and hemi-, both of which derive from PIE *smi-, which means "half."

7. Sound Changes and the Doublets that Arise from Them

7.1 Introduction

Phonological changes were always present in the history of the English language, and they played a huge role in the formation of etymological doublets. Therefore, it is convenient to approach doublets, and analyse them with the help of the different sound changes. This gives us a different approach to the categorization of etymological doublets, and a deeper understanding of phonology nowadays, and in a historical standpoint as well. As Hegedűs (2017. p. 68) said “The mechanism of the formal differentiation of doublets is governed by phonological changes, so a simple and natural approach to labelling various doublet types would be to distinguish them based on the sound changes that lead to the formal split in the historical evolution of an etymon.” Sound changes operated in different times in the prehistory

and history of the English language, and they were relevant in the development of different borrowed words. The phonological properties of a word are determined by the time of borrowing, and we can determine when a loanword entered the language by looking at these phonological properties. If a word entered the language before a major sound change, then it participated in that sound change with the other native elements, therefore, its phonological properties changed, and it got neutralized. Neutralization in this context means that they adapted to the native elements of the language. If the same element got borrowed twice, or even three or four times during the history of the English language than it could happen, that there are multiple sound changes that happened between the different borrowings. This means the loanwords can be phonologically different from each other, because at the time of the second or third borrowing the sound change that operated in the time when the word was first borrowed, that sound change may not be productive anymore. With the analysis of doublet forms that are going back to the same etymon, the time of the borrowings can be predicted. The most frequent sound changes that resulted in doublet formation are the palatalization processes of Old English, Verner's Law and Grimm's Law.

7.2 Palatalization

Palatalization is an important factor in doublet forming, because it facilitates the reborrowing of a foreign word. To understand this process, first we should survey the definition of palatalization. According to Bateman (2011. p. 549) there are two types of palatalization, full and secondary with the definitions of "Full palatalization: A consonant changes its primary place of articulation and often its manner of articulation, while moving in the direction of the palatal region of the vocal tract when bordering a high and/or front vocoid. Secondary palatalization: A consonant acquires a secondary palatal articulation when adjacent to a high and/or front vocoid." There were multiple palatalizations during the history of the English language, but for our case of study there is two that we are particularly interested in. One being the conditioned palatalization of the pre-OE velar stops in a position before original front vowels: /g/ > /j/ and /k/ > /tʃ/ (Kastovsky 1992.), and the other one is the unconditioned shift of PGmc. */sk/ to /ʃ/ in the early period of Old English (Hogg 1992.). Both of these processes were productive during the early Old English period, and some doublets that came out of it are for example *yard*~*garth*. It is the result of the palatalization process of /g/ > /j/. As Hegedüs (2017. p. 70) says "The palatalization in *yard* was induced by the fronting of PGmc." If we look at the etymology of both words we can see that the Proto-Indo-European etymon was *g h or-to- 'to enclose', that became the Proto-Germanic *garð-az this split into the Old Norse *garð-r*, which became *garth* which is present in the eastern and northern dialects of English, and to the Old English *Ʒeard* which become *yard*. (Mallroy & Adams 1997. p.199). However, if we look at the case of *kettle* ~ *†chetel*, it is also an example of a palatalization process, namely the process of /k/ > /tʃ/. The other palatalization process that we have to look into is the *sk > ʃ. If we look at the doublet *shirt* ~ *skirt* we can see that they are extremely similar, not just in form but in meaning as well. It originates from the Proto-Indo-European etymon *skr-d-o, which became the Proto-Germanic *skurta, this became in Old English *scyrt* [ʃ-] which became the Modern English *shirt*. However, the Proto-Germanic word also became the Old-Icelandic *skyrta*, which was borrowed into Modern English. Therefore, the Proto-Germanic *sk was changed to Old English [ʃ-] in all positions, but with the borrowing of the Old-Icelandic word the *sk cluster got reintroduced into the language, forming an etymological doublet. This is also the case with the doublets *scot*~*shot*, *scabby*~*shabby*, *scatter*~*shatter* and *scale*~*shale* as well. To summarize the process and effect of the palatalization, it was productive in the early Old English period. According to this English should not have sound clusters like -sk, but the linguistic contact of English and Scandinavian languages, which did not have the palatalized velars, had the effect

of the reintroduction of the original velar pronunciation. This way we have multiple pairs of doublets with palatalized and not-palatalized velars in them.

borough	-bury
wich	wick
chester	caster
catch	chase
chrism	cream
shit	science
pocket	pouch
score	shore

Table 6: examples for doublets coming from palatalization

7.3 Verner's Law

The next sound change that we will survey is Verner's law. The original law was formulated by Verner in 1887, and it was argued and modified since then, "Conventional formulations of Verner's Law though variously phrased and differing in amount of detail, agree that Germanic /f p x x^w s/ became voiced respectively to /b ð g g^w z/ if the nearest preceding vowel or other syllabic had not borne primary accent in pre-Germanic time." (Bennett 1968. p. 219) This law is no longer productive in any Germanic language, but its verbal paradigms remain visible in multiple Germanic languages. (Olander 2009. p. 80) There are multiple doublets resulting from Verner's Law. Contrary of popular beliefs Verner's Law do have traces in Present-day English. As Collinge (1985) emphasizes there are some misconceptions and troublesome questions related to Verner's Law. The problems can be summarized in four points "i. what is the correct formulation and exact scope of Verner's Law: is this law to be treated as a rule explaining exceptions to the First Consonant Shift or is it an accelerator of the shift? Did Verner's Law operate in medial position only? ii. how does Verner's Law chronologically relate to the fixation of the free IE accent on the first (root) syllable? iii. what are the phonetic parameters involved: the nature of stress and syllable division? iv. how can we fit Gothic in the picture: why are the results of Verner's Law missing in many cases?" (Collinge 1985. p. 206-210). Although Verner's Law is a bit troublesome, we cannot deny its relevance in doublet forming. "The traces of Verner's Law in Modern English are better preserved in derivational morphology..." (Hegedűs 2017. p. 86) Verner's Law effected five voiceless fricatives, this tend to be overlooked because later phonological changes covered it, or even it got erased by analogical levelling. There were three other phonological changes that covered or even eliminated the traces of Verner's Law. The first being West Germanic Rhotacism, as its name suggests it as shared feature of English with other West Germanic languages, which is dated to prehistoric times, and it was a process of the sound *z changing to r, and it is not preserved in Modern English anywhere. However, this change is significant and it can be broken down into smaller phases, but it can be contracted into only two, namely z>ř, and ř>r. (Smirnitiskij 1990) The second one is Fricative Hardening, and it has three subtypes, namely West Germanic *ð > d, β > b initially and after nasals, and γ > g initially, and after nasals. This process resulted in the reappearance of a voiced stop system. (Lass 1994) And our last process or rather group of processes is Old English changes, there are five of them that we are interested in. The Old English Medial Voicing Rule, which means that the voiceless fricatives become voiced in an intervocalic position. Than we have the Old English word final devoicing of fricatives. The Old English palatalization of g next to primary front vowels. The palatalization of geminated g, and lastly contraction, which means the loss of intervocalic velar fricatives. (Hegedűs 2017) There is another important factor in the submersion of Verner's law, namely analogical levelling. It

had the rule of eliminating irregularities. Some examples of etymological doublets that were produced because of Verner's law is *last~lore~learn*, *glass~glare*, *rear~raise*. They all come from the same Proto-Indo-European root, and then Proto-Germanic, and one of the forms is the preserved Proto-Indo European form, and the other one is where Verner's Law was productive. This was an example for the Proto-Germanic alteration *-s- ~ *-z- (> -s- ~ -r-) and how it is reflected in Modern English. But not only this is represented in Modern English, we can see examples for the Proto-Germanic alteration *-f- ~ *-β- (> -f-/-v- ~ -b-/Ø) with the doublet *bereave~bereft*, or for the *ð > d alteration with the doublet *broth~bread*, or *firth ~ fiord/fjord ~ ford*. There are also examples for the *-χ- (> Ø) ~ *-γ- alteration *slay~slew~slain* triplet, and for the *-χw- ~ *-γw- (> OE -h- ~ -w/y-) alteration with the example *saw~saga*. To summarize it, Verner's Law, though it was overshadowed by other sound changes and its traces are almost completely erased from Modern English, had its part in doublet production, and its relevance cannot be overlooked. (Hegedüs 2017)

birth	burden
was	were
seath	shide
rear	raise
fourth (-th)	third (-d)
-teen	-ty
worth	ward
wear	vest

Table 7: examples for doublets coming from Verner's law

7.4 The First Consonant Shift

The First Consonant Shift or it is also called Grimm's Law is not directly affected the formation of doublets, but it participated in it, when combined with other sound changes, so it is important for us to have some knowledge about it. This law got its name from Jacob Grimm, because he was the one who formulated this law systematically, upon Rasmus Rask's work. Contradictory to its name it is not a singular Law, it is actually a set of sound laws. This law was productive between the Proto-Indo-European and Proto-Germanic stages. It describes the process when the Proto-Indo-European stop consonants developed into their Proto-Germanic forms. This phonological split of the sounds *s, *p, *t, *k resulted in two series of fricatives in Proto-Germanic. This rule operated together with Verner's Law and with the Old English Medial voicing rule, and it formulated the Old English Consonant system in three different stages. The interesting thing about them is how co-dependent they are when we look at the system of English from a historical perspective. The shift was initially thought to be associated with migrations of people during the Neolithic period; however, it is now generally accepted that it occurred much earlier in prehistory. This means that most modern languages have undergone consonant shifts at some point in their evolution and can trace their roots back to PIE. For example, English words like 'dog' and 'cat', which both start with a voiced stop (the 'd' and 'c', respectively) trace their origins back to PIE words starting with voiceless stops (**kwón*

7.5 Old English Medial Voicing Rule

Old English Medial Voicing Rule is not necessarily a sound change rather a phonological rule. According to this phonological rule the voiceless fricatives in an intervocalic position become voiced. This rule accounts for Modern English irregularities such as wife-wives, or glass-to glaze. It does not contribute to doublet forming directly, but it is important for us in the analyses

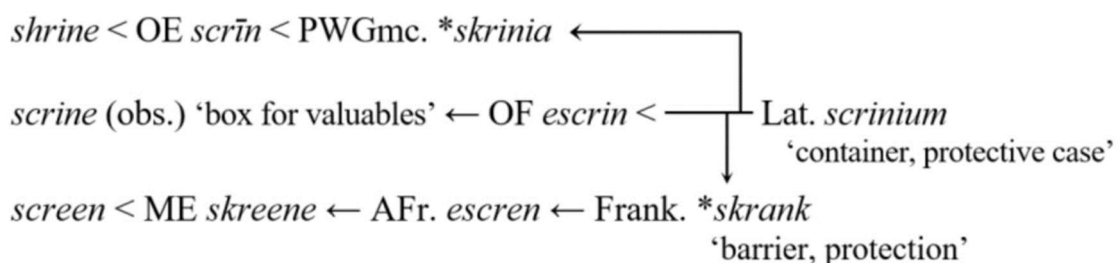
of doublets. The Old English medial voicing rule is an important element of the English language. It describes how a consonant changes its sound depending on its position relative to other consonants in a word. This rule states that when two voiced consonants are found between two voiceless consonants, one of the voiced consonants changes to a voiceless sound. For example, in the word "coughing", the "gh" becomes voiceless because it is sandwiched between two voiceless consonants - "c" and "f". Similarly, in the word "edge", the "d" becomes voiceless due to the presence of two other voiceless consonants - "e" and "g". The Old English medial voicing rule is a helpful tool for understanding how English words are pronounced and how spellings can change depending on their pronunciation.

7.6 The Great Vowel Shift

The Great Vowel Shift also known as the Tudor vowel shift was a phonological change which operated between the 15th and 18th century and its peak was at the 16th century. It consists of the raising of the long vowels, and the high long vowels such as /i:/ and /u:/ become diphthongized. During this period, the pronunciation of long vowels shifted from a single sound to two separate sounds, which was known as diphthongization. For example, the word "bite" used to be pronounced "beet" and eventually shifted to its current pronunciation "bait". This shift also applied to other words such as "right" which used to be pronounced "reet" and is now pronounced "rite". The cause of this shift is still unclear but it is believed that there was a change in spelling conventions during this period that caused Mass Reading which could have been responsible for the change in pronunciation. It is also possible that dialect mixing played a role as well. The Great Vowel Shift had far-reaching effects on the English language, making it easier for speakers to distinguish between words with similar spellings but different pronunciations. As a result, modern English has fewer homophones than Middle English did, allowing for more precise communication. The Great vowel shift is one of the main reasons of why the spelling deviates from the pronunciation that they represent. German had a quite similar shift but it did not cause irregularities, because in German the spelling was changed according to the pronunciation. This shift is a push-pull chain meaning one change appeared in the history of the English language and it either "pushed" or "pulled" the other changes to happen. Push and pull chains in historical linguistics refer to the changes in the structure and meaning of a language over time. In other words, these chains represent a process of constant change and adaptation of linguistic features. This process is known as language evolution and has been studied extensively by linguists for centuries. For example, the English language has been greatly influenced by French, Latin, and Germanic languages throughout its history. Through push and pull chains, we can trace how these languages have shaped English into what it is today. However, it is not only foreign languages that can cause push and pull chains in a language. The environment in which a language is spoken can also affect its evolution significantly. Factors such as social context, geographical location, culture, politics etc. all come into play in creating unique linguistic patterns that are specific to certain areas or societies. For example, the dialects of England vary greatly from those spoken in Scotland or Wales due to their distinct cultural influences over time. Finally, push and pull chains can also be observed at an individual level within a language community. It is possible for changes to occur within a short space of time if several influential individuals introduce new words or expressions into the general lexicon that become widely accepted by others within their own. The Great Vowel shift did not caused doublet formation in itself, but it "cooperated" with other sound changes to form doublets. It is also a great tool for us to identify the time of borrowing in doublet pairs, by looking at the vowels and its pronunciations, and by that we can see whether the borrowing happened before or after the great vowel shift.

7.7 The Case of Multiple Sound Change Resulting in Doublet Formation

One of the main factors behind doublet formation is multiple sound change, which can be thought of as a chain reaction of phonological processes occurring over time. For example, when two languages come into contact, they may influence each other's pronunciations and form new words through a variety of processes such as sound change, borrowing, or blending. This results in multiple sound changes that can explain why some words have been replaced by others in certain languages. Apart from language contact, multiple sound changes can also occur as a result of internal language dynamics such as morphophonological processes or analogical changes. In these cases, sounds may shift due to the influence of neighboring sounds or because they become more frequent over time and eventually become more prominent in spoken language. All these processes can cause a single word to undergo different transformations in two languages resulting in the formation of doublets. It can happen that a doublet or triplet is the result of "repeated borrowing from various sources with no genetically inherited parallel in English." (Hegedűs 2017. p. 78) In this case it may happen that several sound changes may have been involved in the production of doublets. In this case the chronology of the borrowings can be established by looking at the sound changes that happened and when they were productive. We can illustrate this with the triplet of *shrine* ~ *scrine* ~ *screen*. All three of them comes from the Latin word *scrinium*, meaning container, protective case. *Shrine* entered Modern English through Proto-West-Germanic, and then this was borrowed into Old English. *Scrine* entered Modern English through Old French, and *screen* came from Anglo-French. (Watkins 2000. p. 77-78 (s)ker-1). We know that in this triplet *shrine* is the first borrowing. We know that because the two sound changes that were productive. The first sound change is the Great Vowel Shift, which was productive in the 15th-18th century, so we can be sure that the borrowing happened before this period. The other sound change is the reintroduction of the –sk cluster, which happened in the 11th century, so this borrowing happened before that, in the early Old English period. (Luick 1921. p. 912) *Scrine* is a loanword from French, and it was first attested in the 14th century. The most difficult word in an etymological sense for us is *screen*. But a particular sound change can help us identify the time of the borrowing. The Great Vowel Shift which was productive between the 15th-18th century, as Hegedűs (2017. p. 79) says "But even if the source of ME *skreene* cannot be established with certainty, the word shows the impact of the the Great Vowel Shift change [e:] > [i:], there can be no doubt about its adoption antedating the 17th century."



Shrine, scrine, and screen (Wahrig 1978:3273, s.v. Schrein; Watkins 2000:77-78, (s)ker-)

shale	scale	skoal
catch	chase	capture
right	rich	rex
wheel	cycle	chakra
price	prise	prize
corn	kernel	grain
equip	ship	skiff
desk	dish	disk

Table 8: more examples for doublets resulting from multiple sound changes

The interesting phenomena that we can survey is that if we have multiple sound changes, then that almost exclusively results in triplets.

7.8 Sound Changes in Latin, French and Old Norse and its effect on English Doublet formation

	English	French	Latin	Old Norse
Verner's Law	Yes	No	No	Yes
Grimm's Law	Yes	No	No	Yes
The Great Vowel shift	Yes	No	No	No
The First Consonant shift	Yes	No	No	Yes

Table 9: Sound changes in English, French, Latin, and Old Norse

As we can see the sound changes that I listed earlier not only operated in English, but for example in Old Norse as well. These sound changes did not operate in Latin or French, only in the Germanic branch in the Indo-European Language Family, the Latinate branch was not affected. As we could see in earlier examples the duplication process can happen in multiple ways that include sound change. We have examples for doublets where only one of the words were affected by the sound change, but it can happen that both words or multiple words are affected by sound change that makes the doublet or multiplet.

English	Sound Change	Latin
wear	Verner's Law	vest
-teen	Verner's Law	deci-
short	Palatalization	curt

Table 10: Sound changes in English and Latin illustrated by doublets

English	Sound Change	French
capital	palatalization	chattle
shrine	palatalization	screen
cester	palatalization	chester

Table 11: sound changes in English and French illustrated by doublets

English	Sound Change	Old Norse
kettle	palatalization	chattle
shell	palatalization	scale
ford	Verner's Law	fjord

Table 12: Sound changes in English and Old Norse illustrated by doublets

What we can see in these tables is that when we have English and Latin doublet pairs, then Verner's law and Palatalization are both present, but Verner's law is more dominant. In the case of English and French only palatalization is present, and in the case of English and Old Norse doublets again both palatalization and Verner's law are present but here palatalization is more dominant. This is an interesting phenomena, and it is the result of the phonetical characteristics of the donor languages, namely Latin, French and Old Norse. The differences of the sound system of these languages can give us an explanation of this phenomena. These three languages were extremely influential in English doublet formation. We have cases when the sound change happened in the English language, and we have cases where the sound change happened in the donor language. But what about other languages. I found that other languages did not really influence English doublet formation, we may have some occurrences of Greek, but not at the same rate as Latin, French, and Old Norse. So these three languages are not only the main facilitators of doublet formation, but they are almost exclusively the ones present.

7.8.1 Latin Influence

The history of English is closely intertwined with Latin and French. For example, the word "anger" can trace its roots back to the Latin word "ango" while its doublet "irate" comes from the French "iratus". Similarly, the Latin word "cantare" (meaning to sing) transformed into its French doublet "chanter" before both eventually evolved into their modern English forms: "chant" and "sing" respectively. The development of the Romance languages from the vulgar Latin in the Middle Ages is an excellent example of how dramatic sound changes can lead to the creation of doublets, or words that are nearly identical in form but have different meanings. One of the most famous examples of such a doublet is "knight" and "night", which derive from the Anglo-Norman knight and nicht, respectively. The original Latin for both words had been miles and nox. In Latin, for example, certain sounds became simplified over time, resulting in similar sounding words being used for different meanings. This is seen in the Latin doublets "saltus" and "sultus" which were used to mean "leap" and "taste" respectively. Similarly, French loanwords also played a part in creating doublets. This can be seen with the English words "beef" and "veal" which both come from the French word "bœuf" meaning "cattle" but were later split into two distinct meanings following different pronunciation patterns. An example of a Latin-based doublet is 'affect' and 'effect'. These two words are derived from the Latin verb 'facere', meaning 'to do' or 'to make', with minor differences in spelling due to two separate Latin dialects. One of the most important sound changes that occurred in Latin was the vocalization of intervocalic voiceless stops. This process resulted in the interchange of consonants, such as p and b or k and g. Consequently, this created pairs of words with similar meanings but different pronunciations, such as 'king' vs 'kin' or 'pin' vs 'bin'. This process of consonant interchange became known as Grimm's law and has had a profound impact on English doublet formation.

7.8.2 French Influence

French-based doublets can be seen in words such as ‘debt’ and ‘dette’ which were derived from two different French dialects. For example, ‘gage’ and ‘guarantee’ are doublets derived from the same French word ‘garantir’ despite having different spellings in English. This effect can also be seen in noun-verb pairs such as ‘realm’ and ‘realize’ which are derived from the Old French word ‘realiser’; or pairs such as ‘flower’ and ‘flourish’ which come from the Latin verb ‘florere’. One major change has been palatalization, or when consonants change due to influence from adjacent high front vowels like [i] and [y]. In Old French, this process caused consonants like [k] and [g] to turn into [tʃ] and [ʒ], respectively. This change was then imported into English as part of a doublet formation process where one word kept its original spelling while the other adopted the palatalized pronunciation. An example of this occurs with words like check and cheque – “check” kept its original spelling while “cheque” adopted the palatalized pronunciation. For example, the spelling of the English word “mutton” is derived from the French word “mouton”, which was changed through sound shifts in Middle French into the modern “mouton”. As a result, the sound of “mouton” became “mutton” in English. Similarly, Middle French words such as “serpent” and “sarpent” both evolved into modern French words with different spellings and pronunciations: “serpent” became “serpent” and “sarpent” became “serpente”. The resulting word doublets are seen in many English words derived from Middle French, including those ending in -son/-soun (e.g., person/persoun) and -ment/-ment (e.g., content/contement). Other examples include the verb pairings of Modern English attend/attendance and Modern English descent/descendence, all of which were originally one form in Middle French.

7.8.3 Old Norse Influence

Lastly, Old Norse-based doublets such as 'craft' and 'croft' are also present due to the influence of Old Norse on the English language during its development. In each case, differences in spelling or sounds between the original language forms have been carried down into modern English as a result of these cultural influences. In Latin, the consonant sounds /p/ and /b/ were generally interchangeable when followed by a vowel sound. As a result, when this language was adopted into English after the Norman Conquest of 1066 CE, many borrowings from Latin followed this sound change pattern. For example, the two words 'prince' and 'brunswick' are derived from the same root 'principium' due to this sound change. Another change was vowel splitting, or vowel length alternation, whereby short vowels were lengthened and vice versa. For example, Old Norse's long "a" sound became both short "a" and long "e" sounds in English. This gave rise to doublets like "catch" and "ketch", where both come from Old Norse's pronunciation of kattar. The process of "umlaut" or "i-mutation" has had a widespread effect, with many English words having cognates in Old Norse that differ only by one letter due to the umlaut. For example, the English word "fool" is derived from Old Norse "fōlkr", while its doublet "foul" is derived from Old Norse "fūlr". This change in letters is due to the “umlaut” process, in which vowels are shifted to create new words from pre-existing ones. This process is also responsible for other common doublets such as “high/height” and “gut/guts”. The influence of Old Norse on English doublet formation does not stop with umlaut. The process of vowel-length alternation has also been responsible for many doublets. This process involves altering vowels between long and short forms to create new words from pre-existing ones. Many well-known doublets are due to this phenomenon, such as “meat/meet” and “sew/”. Another example of this is seen with the English words “foul” and “filth” which both come

from Old Norse but were later assigned different meanings due to altered pronunciation patterns over time.

8. Summary and Conclusion

To summarize what I stated in this paper, I started with stating the definition of doublets, which said that we can define etymological doublets by providing five criteria, namely that they descend from the same etymon and contain the same derivational suffixes, they represent the same part of speech, if their formal differentiation is a result of ablaut, they cannot be true etymological doublets because ablaut itself is a type of derivation, they belong to the same semantic field and their meanings ultimately go back to a common semantic core, and they do not occur in complementary paradigmatic distribution. After we established a definition which completely covers every aspect of doublet formation, we had a look on the place of English in the Indo-European Language Family. English stems from Proto-Indo-European and it is part of the Germanic branch, to be specific the west Germanic branch, together with German, Danish or Dutch. We can establish that the Old-English period was crucial for doublet formation. Other than sound changes analogical changes, borrowing and ablaut are also factors in doublet forming. Doublets are not only whole words; the duplication process is also present in affixes. To answer our research questions first of all sound change is the main process that facilitates doublet formation. It had a huge part in the duplication process, the most important sound change was palatalization, it brought about the biggest number of doublets. Also Verner's law is responsible for a huge amount of doublets as well. There were three other sound changes that in themselves did not participate in doublet forming, but cooperated with Verner's Law, Palatalization or with each other, facilitated the formation of a considerable amount of doublets. These three sound changes were The First Consonant Shift, Old English Medial Voicing Rule and the Great Vowel Shift. Concerning the languages that supplied doublets, Latin, French, and Old Norse were almost the only contributors. In the case of English and French doublet pairs only palatalization was present. In the case of English and Latin and English and Old Norse doublets both palatalization and Verner's law were present, but in the case of Latin Verner's law were dominant and in the case of Old Norse palatalization were dominant. In the case of multiple sound changes resulting in doublets we surveyed an interesting phenomenon, namely that when we have multiple sound changes present in the doublet formation process, it always ends up being a triplet or even a multiplet. Therefore, we can say that multiple sound change is the main facilitator of the emergence of triplets and multiplets.

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