universität wien

MASTERARBEIT | MASTER'S THESIS

Titel | Title

Analogical Remodelling of English Strong Verbs

verfasst von | submitted by

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angestrebter akademischer Grad | in partial fulfilment of the requirements for the degree of

Master of Arts (MA)

Wien | Vienna, 2024

Studienkennzahl lt. Studienblatt | Degree programme code as it appears on the student record sheet:	UA 066 599
Studienrichtung lt. Studienblatt | Degree programme as it appears on the student record sheet:	Masterstudium Indogermanistik u. histor. Sprachwiss.
Betreut von | Supervisor:	Assoz. Prof. Mag. Dr. Stefan Schumacher Privatdoz.

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Abbreviations

C	Consonant
DS	Dental Suffix
DSL	Dictionary of the Scots Language
EModE	Early Modern English
GVS	Great Vowel Shift
ME	Middle English
MED	Middle English Dictionary
MHG	Middle High German
OE	Old English
OED	Oxford English Dictionary
OSL	Open Syllable Lenghtening
PCS	Pre-Cluster Shortening
PDE	Present Day English
PGmc.	Proto-Germanic
PIE	Proto-Indo-European
Pl.	Plural
Pres.	Present
Pret.	Preterite
PS	Phonological Similarity
Ptc.	Participle
Sg.	Singular
SV	Strong Verb
T	Obstruent
V	Vowel
VA	Vowel Alternation
VAP	Vowel Alternation Pattern

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Acknowledgements

I would like to thank my supervisor, Prof. Schumacher, for your support in writing this thesis. I received much helpful advice and constructive feedback, thanks to which I was able to express my argumentation more clearly. Many important parts of this thesis were only written following from this feedback.

I would also like to thank Prof. John Kirk, who supervised my Bachelor's thesis and has continued to encourage my development in the field of linguistics. Thanks a lot for introducing me to the field of linguistics, the stimulating conversations, the personal and professional advice and for your reliability.

Further, I would like to thank the countless people who have been my teachers. I am grateful that my teachers stem from various fields and are of various backgrounds, ages, social positions. May we continue to learn from the people around us!

Finally, thanks to Jeanne. This thesis was created in the countless hours of mutual work, each on our different projects. It was written in an atmosphere of shared concentration and love. May that spirit shine through this work and our life!

Abstract

In this thesis, analogical change in English strong verbs is analysed. Two types of analogical change are the focus of the study: Firstly, the analogical acquisition of new past root vowels (e.g. Middle English *speken, spake, speken* → Present-day English *speak, spoke, spoken*) and secondly, the analogical acquisition of a dental suffix to form the past (e.g. Middle English *helpen, halp, holpen* → Present-day English *help, helped*). The goal of the thesis is to provide reasons why analogical change occurs in English strong verbs.

In the first part, different theories that attempt to explain analogical change in English strong verbs are critically reviewed. These include theories centred on the frequency of individual strong verbs and their vulnerability to regularisation (Bybee 2007 etc.) as well as on language contact (Krygier 1994).

In the second part, another factor is argued to be the central cause of analogical change in English strong verbs. Analogical change can function to restore distinctions. In English strong verbs, analogical change occurs when present and past forms merge or become phonologically similar. In these cases, analogical change occurs to generate phonologically more distinct past forms. To illustrate this theory, instances of mergers or phonological similarity between present and past forms as well as the attested analogical changes will be studied across the history of English strong verbs.

(Deutsche Version)

In dieser Masterarbeit wird analogischer Wandel in englischen starken Verben untersucht. Zwei Arten von analogischem Wandel sind in dieser Analyse zentral: Einerseits ein Wandel, durch den in starken Verben die Ablautvokale durch Analogie geneuert werden (z. B. Mittelenglisch *speken, spake, speken* → Modernes Englisch *speak, spoke, spoken*). Andererseits ein Wandel, durch den starke Verben durch Analogie mit schwachen Verben ihre Vergangenheit mit einem Dentalsuffix bilden (z. B. Mittelenglisch *helpen, halp, holpen* → Modernes Englisch *help, helped*). Das Ziel dieser Arbeit ist, zu erklären, warum dieser analogische Wandel in englischen starken Verben stattfindet.

Im ersten Teil werden unterschiedliche Theorien vorgestellt, welche diesen analogischen Wandel in englischen starken Verben zu erklären versuchen. Ein Zugang fokussiert auf die Frequenz von starken Verben und die höhere Wahrscheinlichkeit der Regularisierung bei niedrigerer Frequenz (z. B. Bybee 2007). Eine zweite Theorie betont die Rolle von Sprachkontakt (Krygier 1994).

Im zweiten Teil wird zugunsten einer weiteren Erklärungsmöglichkeit als zentralen Faktor für analogischen Wandel in englischen starken Verben argumentiert. Analogischer Wandel kann Distinktionen wiederherstellen. In englischen starken Verben wird analogischer Wandel ausgelöst, wenn Präsens- und Vergangenheitsformen zusammenfallen oder sich phonologisch ähnlich werden. In diesen Fällen stellen analogische Neubildungen der Vergangenheitsformen die phonologische Distinktion mit Präsensformen wieder her. Um diese Erklärung zu untermauern, werden sowohl Fälle von Merger und phonologischer Ähnlichkeit zwischen Präsens- und Vergangenheitsformen identifiziert als auch die bezeugten analogischen Neubildungen analysiert.

1. Introduction

The verbal system of the Germanic languages is divided into two main inflection types: so-called strong and weak verbs. These two groups of verbs differ in how they form tense, or more specifically how they form present, preterite and past participle stems, which are the means of distinguishing tense in Germanic. Strong verbs form verbal stems through a change in the quality and/or quantity of the root vowel (e.g. *sing, sang, sung*; this process is called ablaut, apophony or gradation; in the following thesis I will use the term vowel alternation). Weak verbs form stems through affixation of a dental (plosive) suffix (*achieve, achieved*).

This thesis will explore analogical changes in English strong verbs, such as when a strong verb shifts into the weak class or adopts a new root-vowel alternation pattern. I will focus on the development from Old English (OE; around 400AD – 1066) through Middle English (ME; 1066–1476) and Early Modern English (EModE; 1476–1776) to Standard British English, as exemplified by the Oxford English Dictionary (OED), which I will call PDE for Present Day English (1776–now; these dates follow *The Cambridge History of the English Language* 1992-2001; Hogg 1992: xvi). As will be discussed in the definitions section below, while the terms strong and weak verbs are suitable to describe the OE verbal system, changes within English mean that these terms are not fully suitable to describe the PDE verbal system. Therefore, I will call the process of strong verb shifting to become a weak verb *the analogical acquisition of a dental suffix.*

It is quite common for English strong verbs to have analogically acquired a dental suffix. In OE and ME, the preterite (sg.) of *help* was *halp*, Shakespeare often used *holp*, while in PDE it is formed with a dental suffix, *helped*. Besides *helped*, examples of other former strong verbs that now have a dental suffix include *crept, lost, slept, laughed, washed* etc. To use some numbers as illustration: following the analysis of this thesis, there are 308 OE strong verbs. Of these 308 strong verbs, 156 have become obsolete by PDE. Of the remaining 152 OE strong verbs that continue in PDE, 83 have analogically acquired a dental suffix (55%), while 66 remain strong (43%; three have become unmarked weak verbs, e.g. *burst*, where the form does not change between present and past; see the Appendix for more numbers).

In view of the fact that so many strong verbs became weak, English strong verbs are often seen as a *disintegrating* verbal system. The concept of disintegration applies not only to the "loss" of strong verbs becoming weak verbs, but also to "irregularisation" within the

strong verb system. Strong verbs originally (in PGmc.) belonged to a system of seven classes, i.e. seven vowel alternation patterns. Within English, this seven-class system disintegrated, with many more "sub-classes" being created. The culprit for this second type of disintegration is sound change. As famously said by Hermann Paul (1886: 161)[1], sound change destroys the symmetry of languages' form system and disorganises language. Language can only rescue itself from sound change with analogy, by re-introducing new patterns of regularity. This seems to apply well to the English strong verbs, where out of seven regular classes, the situation in PDE has emerged where practically every strong verb is inflected in its own way. No wonder that analogy has caused regularisation in so many strong verbs becoming weak verbs.

However, if the goal of analogical change was to regularise the English strong verb system, then it can also be argued that analogy performed its task badly. For in English, according to Wełna (1996), there remain about 90 different PDE verb classes. Why did analogy not generate a more regular, simple English verbal system?

The approach of this thesis focuses on the potential effect of the opposite kind of sound change on analogy. While sound change can create new distinctions (such as the plural of *day* having been ME *dawes* until analogy generated the "regular" plural *days*), sound change can also reduce the phonemic distinctions of a language (such as the merger of the verb *bear* with the adjective *bare*, while they had been distinct in ME). This thesis argues that such mergers, and near-mergers, may also cause analogical change, not because the result of sound change is a messy and disorganised language state, but rather because an important morphological distinction has been lost after the merger and speakers regenerate the distinction through analogy.

Definitions

In the remaining part of this introduction, I will define two important concepts of this thesis and present my notation style. I will elaborate on the terms strong and weak verbs, and I will make some comments on the concept of analogy.

[1] The original text (emphasis in the original): "Der symmetrie des formensystems ist also im lautwandel ein unaufhaltsam arbeitender feind und zerstörer gegenüber gestellt. Man kann sich schwer eine vorstellung davon machen, bis zu welchem grade der zusammenhangslosigkeit, verworrenheit und unverständlichkeit die sprache allmählig gelangen würde, wenn sie alle verheerungen des lautwandels geduldig ertragen müsste, wenn keine *reaction* dagegen möglich wäre. Ein mittel zu solcher reaction ist nun aber in der *analogiebildung* gegeben. Mit hülfe derselben arbeitet sich die sprache allmählig immer wieder zu angemesseneren verhältnissen durch, zu festerem zusammenhalt und zweckmässigerer gruppierung in flexion und wortbildung. So sehen wir denn in der sprachgeschichte ein ewiges hin- und herwogen zweier entgegengesetzter strömungen. Auf jede *desorganisation* folgt eine *reorganisation*. Je stärker die gruppen durch den lautwandel angegriffen werden, um so lebendiger ist die tätigkeit der neuschöpfung."

Strong and weak verbs originate in different diachronic stages of the (pre-)history of Germanic languages. Strong verbs continue Proto-Indo-European (PIE) ablaut grades (which is why they were called "strong" verbs by Jacob Grimm, who uses the adjective *strong* to mean that these verbs have been more resistant to change). The weak inflection type is a Germanic innovation, thus belonging to a more recent diachronic stage. The strong and weak verb groups make up the majority of verbs in Germanic languages until today, though some verbs cannot be included into these two types. For example the verb *be*, which is suppletive in all Germanic languages, and "preterite-present" verbs, which have become modal verbs in English (*can, will, may* etc.; Hogg, 1992: 162).

However, in English in particular, phonological developments have caused the categories strong and weak to become somewhat mixed up and created new in-between classes. As this is a diachronic study, which analyses development patterns of individual and groups of verbs across stages of English, suitable definitions of the synchronic state of the OE and PDE verbal systems (which are defined as the beginning and "end" point) as well as defining the different development paths of verbs between OE and PDE are required.

The concepts "strong" and "weak" are suitable for describing verbs in OE, with the exception of a handful of preterite-present and suppletive verbs. Strong verbs are primarily defined as forming their tense stems through alternation of the root vowel. Different root vowel alternations are possible; the specific grammatical pattern of root vowels occurring in present and past forms is called the vowel alternation pattern (VAP: i – a – u in *sing, sang, sung*). By contrast, weak verbs form tense stems with a dental suffix and group into two weak verb classes in OE.

In PDE, the morphological features of vowel alternation (VA) and the dental suffix (DS) remain the central means of forming tense stems in verbs. However, the concepts strong and weak are less suitable as classifying categories for two principal reasons. Firstly, new "under"- and "over"marked categories have come about, such as *keep*, where the past stem *kept* is over-marked with both vowel alternation and a dental suffix, or *bet*, where the past stem *bet* is completely unmarked. This means there are now four different groups generated from these two bivalent morphological features (+/-VA and +/-DS; see Table 1 for an illustration).

I will use these four classes defined around two bivalent morphological features to classify the PDE verbal system.

Two PDE classes exactly correspond to the OE classes strong and weak. The PDE +VA -DS class corresponds to the OE strong verb class and the PDE -VA +DS class

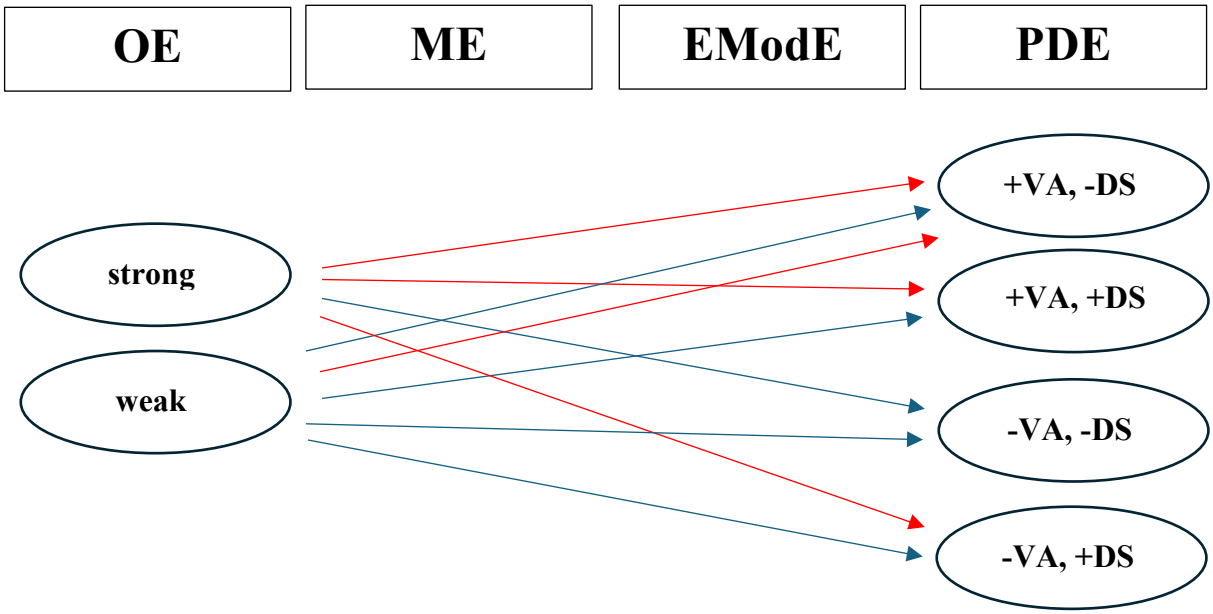
Table 1 PDE verb classes

	+dental suffix (+DS)	**-dental suffix (-DS)**
+vowel alternation (+VA)	+VA +DS *keep, kept, kept*	+VA -DS *sing, sang, sung*
-vowel alternation (-VA)	-VA +DS *hope, hoped, hoped*	-VA -DS *bet, bet, bet*

corresponds to the OE weak verb class. There remains a second reason why OE and PDE should remain distinct, at least within this thesis. There has been a considerable amount of transfer from the OE strong class into the PDE -VA +DS class, as well as from the OE weak class into the PDE +VA -DS class. This transfer has been caused by phonological and analogical change. The latter, analogical change, is the subject of this thesis. The former, phonological change, is *not* the subject of this thesis. Particularly, the phonological change that some OE weak verbs become PDE +VA, -DS is not to be studied in this thesis.

For this thesis, the three relevant factors of English verbs' development are the OE starting point (strong or weak?), the PDE "end" point (+/-VA?, +/-DS?) and whether the process included analogical change or merely followed phonological change. These development paths are illustrated in Figure 1 (blue arrows signify merely phonological change; red arrows signify a combination of phonological and analogical change.)

Figure 1 The development of English verbs



Naturally, Figure 1 simplifies the development of English verbs in several respects, for example the process may not be uni-directional with possible in-between-steps in ME and

EModE, and the figure does not include loan verbs and new verb formations. But it is sufficiently complex to capture the basic development paths of English verbs that will be discussed here.

Based on Figure 1, Table 2 lists different possible types of development paths attested in English, including a few further types not described in Figure 1. Clearer explanations of the developments will be given in the following chapters. The five categories that are highlighted yellow in Table 2 will be the object of this study.

After having defined how English verbs are categorised in this study, I will define how another term is used in this thesis: analogy. Analogy is an important concept in linguistics, but it is also important in other disciplines, describing a cognitive process. In linguistics, there are two different things that can be broadly meant with the concept analogy. Firstly, it can refer to the cognitive ability of a speaker to apply a part of the grammar to lexemes that are usually not formed with this type of grammar. For example, it is possible for English speakers to add a dental suffix to any verb to generate a past tense form. If one such speaker generates the form *taked*, it will be clear to any other English speaker that they are forming a past tense of the verb *take*, even if the past forms *took* and *taken* are common in the language. This first concept of analogy is primarily interested in the cognitive ability of speakers to produce these innovative forms. Hermann Paul calls forms like *taked* "analogische Neubildungen" (analogical innovations (Fertig, 2013: 4).

The second approach to analogy also focuses on analogical innovations, however it is primarily interested in those analogical innovations that spread to become common in the language. *Baked* (in its Middle English version) was formed with the same rules (add a dental suffix to the present stem to generate a past tense form) as *taked* and in Middle English it also competed with other past forms, *book* and *baken*. In the case of *baked,* but not in the case of *taked*, the analogical innovation spread and replaced the common preterite *book*. The second approach is primarily interested in those analogical innovations that spread and become instances of language change. This thesis follows the second approach to analogy.
The analogical innovations above, *taked* and *baked*, are examples of proportional analogies. Proportional analogies can be formulated with the equation A : B = C : X, where A, B and C are common items in the language, while X is the analogical innovation (Fertig, 2013: 10). For example, for the innovative past tense form *taked* the following proportional equation can be formed: *talk* : *talked* = *take* : *taked*. In other words, the formal and semantic relations between *talk* and *talked* and between *take* and *taked* are the same. If a speaker can

Table 2 Classifying patterns of diachronic change in English verbs

Classification	OE class membership	PDE features	Requires morphological change?	Example
PDE Strong Verbs	strong	+VA, -DS	In theory, no; in reality, yes	*drive*
Analogical and Phonological Neo-Strong[2] Verbs	strong	+VA, -DS	Yes	*shoot*
Regular weak verbs after analogical change	strong	-VA, +DS	Yes	*help*
Mixed weak verbs after analogical change	strong	+VA, +DS	Yes	*lose*
Unmarked weak verbs after analogical change	strong	-VA, -DS	No	*let*
Phonological "Neo-Strong" Verbs	weak	+VA, -DS	No	*meet*
Analogical "Neo-Strong" Verbs	weak	+VA, -DS	Yes	*ring*
"Mixed" Weak Verbs	weak	+VA, +DS	No	*keep*
Unmarked Weak Verbs	weak	-VA, -DS	No	*shut*
"Dental devoicing" Weak Verbs	weak	-VA, +DS	No	*send*
Regular Weak Verbs	weak	-VA, +DS	No	*live*

[2] I use the term "neo-strong" verb to cover all verbs that have acquired the PDE morphological feature of strong verbs – vowel alternation and lack of a dental suffix to form past tense – after OE. There are three different categories of neo-strong verbs in Table 2 above: *analogical and phonological neo-strong verbs*, *phonological neo-strong verbs* and *analogical neo-strong verbs*. To explain the latter two categories first: *Phonological neo-strong verbs* acquire the morphological features of strong verbs due to regular sound change (see chapter 3b for more details). *Analogical neo-strong verbs* acquire the morphological features of strong verbs through analogy (*ring, rang, rung* in analogy to *sing*). *Analogical and phonological neo-strong verbs*, the most complex category describing one verb (*shoot*), are former OE strong verbs, that acquire a dental suffix, but then lose the dental suffix and acquire vowel alternation, due to sound change. *Bite* and *slide* also possibly fit into this category, but I will discuss these two verbs in more detail in Chapter 4d.

form the past tense of *talk* (and many other verbs) by adding a dental suffix, they can also generate past-tense forms of other verbs proportionally.

Most analogical changes that occur in English strong verbs can be seen as proportional analogies. I have already discussed the analogical acquisition of the dental suffix. Some strong verbs also analogically acquire the form of mixed weak verbs (e.g. *sleep, slept*). Secondly, root vowels from one stem can spread into other past stems (e.g. the root vowel -o- in *chose* originally occurred only in the past ptc. *chosen* but later spread to the pret.) Thirdly, root vowels can spread from one group of strong verbs into another (e.g. the pret. *flew* of *fly* was analogically acquired from *knew* and *blew* etc.) These two types of analogical changes can also be seen as proportional analogies, as in both cases proportional equations can be formulated to explain these analogical changes.

Hermann Paul introduces a further distinction that is relevant to this thesis. Paul distinguishes between *production* and *reproduction* (Fertig, 2013: 9). On the word level, reproduced words are words speakers utter that they have heard before. We have heard most of the words we utter many times and we reproduce them. In contrast, produced words are words speakers have (presumably) never been heard nor uttered before. They are newly formed, such as the analogical innovations discussed above.

Paul links the concepts of analogical innovation and production, claiming that analogical innovations generally occur when the speaker is required to use a form that they have never heard before (Fertig, 2013: 9). For example, the past form *googled* must, at some point, have been uttered by a speaker who had never heard this form before, but required its use. This definition of analogical innovation, namely that it occurs in the absence of a suitable form in a speaker's lexicon, will become central in the discussion of analogical changes in strong verbs.

Notation

One of the difficulties in writing this analysis has been the problem of terminology. In PGmc. and OE, strong verbs are sorted into seven classes. From OE onwards, the phonological development is often different within strong verbs of the same class, with that development often being shared with only a handful of other strong verbs. In my terminology, the original PGmc./OE strong verb membership is always relevant. I will call class I strong verbs SVs I, class II strong verbs SVs II etc. In addition, I will add other relevant phonological features of strong verb sub-classes for naming. I will also use the concepts of *majority* and *minority* to distinguish larger and smaller groups within strong verbs classes (explained in more detail in Chapter 4).

The study will proceed as follows: I will begin in Chapter 2 with a survey of relevant literature on analogical changes in English strong verbs. In chapter 3, I will cover some relevant background knowledge, necessary to present my analysis. In Chapter 4, I will discuss my analysis, namely analogical change in all strong verb classes of English. In Chapter 5, I will discuss some aspects of the results of this analysis. Finally, in the Appendix, I will list all verbs included in this study.

2. Literature review

In this chapter I will review the literature on strong verbs analogically acquiring a dental suffix. After describing the various arguments, I will lay out how this thesis will relate to the previous work on the topic.

There is a lot of literature on strong verbs analogically acquiring a dental suffix, especially about English. There are three major works fully dedicated to arguing for different factors causing this process in English: Michelau 1910, Krygier 1994, Branchaw 2010. Their respective theories will be examined in the sub-chapters to come. Other views and theories published in shorter articles or covering other Germanic languages will also be discussed in this chapter.

I will structure this overview around examining three prominent theories in the literature, rather than around different works and authors. The three major explanations examined here are regularisation and frequency, language contact and phonological similarity.

a. Regularisation and frequency

The most common proposition in the recent literature on strong verbs acquiring a dental suffix are the strongly related concepts of regularisation and frequency. Regularisation contends that there is an active mechanism within languages that reduces irregularity and increases regularity. Regularisation is strongly tied up with the concept of frequency. This is because it can be seen cross-linguistically that frequent words tend to have irregular or suppletive morphology, while infrequent forms are more likely to have regular morphology. Therefore, regularisation targets words with low frequency, while words with high frequency can resist regularisation. According to this theory, strong and weak verbs (assuming we categorise strong verbs as irregular and weak verbs as regular) are exemplary. For example, Bittner (1996: 59) has shown for German that, while there are significantly fewer strong verbs as compared to weak verbs (around 170 vs. 4’000 and more; weak verbs are an open class), strong verbs occur as frequently as weak verbs in common speech. The comparatively few strong verbs are used significantly more frequently than the comparatively large group of weak verbs. Therefore, the theory of regularisation and frequency argues that frequent strong verbs can maintain their complex morphology, while less frequent strong verbs regularise and become weak.

The concept of frequency distinguishes two kinds of frequency: type frequency and token frequency. Token frequency refers to the frequency of a single lexeme, while type

frequency refers to the frequency of a specific pattern; in the case of strong verbs vowel alternation patterns (e.g. *sing, sang, sung* and *drink, drank, drunk* belong to the same type).

The combined concepts of regularisation and frequency have become central in the literature on the shift from strong to weak. The theory has been applied to different Germanic languages. In English, the major figure is Joan Bybee, who has studied the importance of frequency for different areas of language change, including phonology, morphology, grammaticalisation etc. Bybee's work on English strong verbs is usually synchronic, with the exception of brief discussions in Bybee 1985: 119-121 and Bybee 2007: 27-29. However, these analyses are very short, do not cover the full data of English (only three strong verb classes are partially analysed) nor are the concepts of strong and weak verbs defined or properly applied (for example *lose* and *flee* are listed as PDE strong verbs). A more thorough diachronic account of frequency and the shift from strong to weak for English is given by Branchaw (2010: 28-61), which I will discuss below. For German, major works include Bittner (1996) and Novak (2015), who use frequency and regularisation to discuss morphological change within the strong category in German, Dutch and Luxemburgish. For Swedish, Strik (2015), while trying to argue with analogical computer modelling, does accept the idea that frequency plays a major role (2015: 217). The regularisation/frequency theory has become so hegemonic that in a sub-chapter of *The Handbook of Historical Linguistics* (Joseph and Janda 2003), Dressler (2003: 464) uses strong verbs to illustrate the point that opaque (a more nuanced alternative form to irregular, explained below) forms are replaced by transparent forms: "in English and German, morphotactically opaque strong verbs have been increasingly replaced by transparent weak verbs."

One early proponent of regularisation as a motive for linguistic change is Kiparsky (1968). Kiparsky argues that there are two types of language change: phonological change, which has the effect of adding new rules to the grammar and simplification[3], which has the effect of reducing rules of the grammar (simplification is "a generalised and reinterpreted version of the traditional concept of analogy" Kiparsky, 1968: 176). Kiparsky links simplification to the language acquisition process of children, who as infants produce only the most linguistically simple forms and whose language grows increasingly complex while learning the "adult grammar". Linguistic simplification then happens when parts of "children's grammar" become integrated inside the "adult grammar". Similar argumentation

[3] The term simplification is not equal to the term regularisation as it encompases a broader spectrum of concerns including for example phonological simplification. According to Kiparsky, morphological regularisation is the "simplest form" of simplification (Kiparsky, 1968: 176).

also appears in Bybee (2007: 29) and in Michelau (1910: 81) with reference to English strong/irregular verbs.

While Kiparsky's 1968 article is more interested in different kinds of grammar simplification, a lot of literature has been built at least partially on this idea, for example the concept of natural morphology. Natural morphology seeks to find a theoretical underpinning for morphological changes that appear *natural*, which means they are cross-linguistically common or frequently appear in language change (Bittner, 1996: 8). Natural Morphology works with concepts such as *opaque* and *transparent*, where transparency refers to a clear compositional meaning of words (such as in weak verbs like *help-ed*, which consists of the lexeme *help* and a past tense morpheme) as opposed to opacity with an unclear compositional meaning (such as in the preterite plural of 'be' *were*, which not only contains no (synchronically) clear past or plural marking, but is also obscurely related to its corresponding lexeme *be*; Dressler, 2003: 464). As can be seen from the above quote by Dressler, the shift from strong to weak can be considered natural. The argumentation strongly resembles the regularisation/frequency hypothesis. However, natural morphology is a complex field and its approaches to strong and weak verbs can encompass different concerns as well (cf. Bittner 1996).

Despite the importance of the regularisation/frequency hypothesis, there remain some major shortcomings in applying this theory to the shift from strong to weak, including methodological difficulties, the lack of a systematic account and theoretical limitations. I will go through all of these concerns in turn.

The regularisation/frequency approach faces a major methodological difficulty, which is shared with many inquiries of historical linguistics, in that the attestation status of old languages is very different from the attestation of modern languages. Old languages are usually attested only in writing and that to a significantly smaller extent than the presently existing languages. There is no access to spoken old languages. Therefore, the ability to determine how frequently words occur is somewhat limited. A word may occur frequently in spoken language but infrequently in writing or vice-versa. This is naturally not an argument against the frequency theory itself, but merely that statements about how frequently a word occurred in any old language are difficult to be certain of. This is an obstacle for any empirical study investigating diachronic changes in the frequency of words.

A far greater issue to the regularisation/frequency theory itself is that despite the amount of literature on the topic, there has not been an analysis of any Germanic language using the regularisation/frequency theory that seeks to explain the shift from strong to weak

systematically. In other words, there has been no study that has been capable of (roughly) answering questions such as: how frequent do strong verbs need to be to remain strong? Or, how do the concepts of type and token frequency combine in determining the frequency of strong verbs? Instead, studies using the theories of regularisation and frequency mainly employ small-scale token frequency comparisons.

I present Branchaw 2010 as an example of a discussion of the shift from strong to weak in English. Branchaw analysed the frequency of every Old English strong verb that is still part of the PDE lexicon. The frequency results derive from two corpora, the LAEME (*Linguistic Atlas of Early Middle English*), which contains Middle English data, and CELEX (from the University of Pennsylvania), which contains PDE data. The frequency findings are listed in tables, organised according to the OE strong verb classes. An example of such a table, which lists SVs I, is given below (Branchaw, 2010: 32).

Table 3 SVs I ME and PDE frequency

PDE outcome	Verb	LAEME frequency	PDE outcome	Verb	CELEX frequency
S	rise	357	S	write	8412
S	write	242	S	rise	4574
W	bide	228	S	drive	3908
S	drive	185	S	strike	1999
S	ride	128	S	shine	1625
S	smite	127	S	ride	1072
S	shrive	84	W	slide	637
S	shine	61	W	bite	494
W	bite	50	S	stride	236
W	glide	48	W	writhe	130
W	gripe	34	W	glide	116
W	spew	26	W	whine	116
W	slide	22	W	bide	97
S	strike	13	S/W	cleave	75
S	stride	7	S	smite	58
W	writhe	7	W	shit	42
S/W	cleave	7	W	spew	41
S/W	shit	1	W	gripe	12
W	whine	0	S	shrive	6

Every verb is listed twice, once according to its comparative frequency in the LAEME and once according to CELEX. To the left side of the verb, Branchaw notes whether the verb remains strong in PDE or has become weak. In total, Branchaw compiles nine such lists: SVs I, SVs II, SVs IIIa, SVs IIIb, SVs IIIc, SVs IV and V together, SVs VI, SVs VIIa and SVs VIIb.

The results are mixed. In some cases, the frequency results reflect the regularisation/frequency theory well (SVs IIIc, VIIa) or reasonably well with some exceptions (SVs I, VIIb). In some cases, either the LAEME or the CELEX table reflects the

theory well, while the other does not (SVs II, IV/V, VI). In some tables, frequency does not seem to make a difference. For example, verbs belonging to SVs IIIa almost entirely remain strong, no matter how infrequent, while in SVs IIIb all verbs become weak, no matter how frequent (the most pertinent example being *help*, which is the 15th most frequent strong verb in PDE according to CELEX, but becomes weak nevertheless).

Besides the mixed results, there are several other issues: firstly, the analysis does not take into account at what time the strong verb shifted to become weak. Did it shift in ME or closer to PDE? For if the shift occurs during ME, only the ME frequency would be relevant and the PDE frequency irrelevant. Secondly, the verbs are sorted according to strong verb classes, comparing the frequency of the strong verbs (token frequency) according to their class (type frequency). However, strong verb classes are not homogenous types from OE onwards, many contain divergent types already in ME and the heterogeneity continues to increase in EModE and beyond. The divergence in types is largely not reflected in Branchaw's tables. Finally, there is no systematic comparison of the tables. The information contained in the tables is merely, for example, that SVs I with a frequency of around 1000 or more in CELEX tend to remain strong while other SVs I tend to become weak. Meanwhile, in SVs IV and V, verbs with a frequency of around 200 or more in CELEX remain strong, while in SVs VIIa, verbs with a frequency of around 1500 and less become weak. It may be possible to explain that in different classes, differing required token frequencies for analogical change can be explained through type frequency, but no such explanation is attempted. There is no attempt at a systematic explanation: what combination of type and token frequency classifies a verb as suitably frequent to remain strong, or suitably infrequent to become weak. Undoubtably, the answer to this question would be complex and likely only a rough estimate at best. Yet, the fact that no such estimate has been made shows that the regularisation/frequency theory has still failed to provide an analysis of the shift from strong to weak, that is as systematic of the data as the theory purports to be. This is not only true of Branchaw (2010), but of all the studies mentioned above.

Besides the lack of any systematic account of the data, there are also theoretical problems. The regularisation/frequency theory is based on the observation that highly frequent words tend to maintain complex, even suppletive morphology, while words of low frequency tend to have regular morphology. The regularisation/frequency theory argues that low-frequency words are cognitively less *accessible*, with weaker memory representation (Bybee, 2007: 10), which makes them prone to analogical change. This mirrors Paul's idea of production mentioned above, that speakers need to produce forms they have never heard nor

uttered. Applying these ideas to strong verbs, the idea is that for low-frequency strong verbs, the memory of the irregular preterites is increasingly weakened. A problem arises when looking at the kinds of verbs that shift from strong to weak, including for example, *bake* (CELEX frequency 423) *shove* (CELEX 215) or *brew* (CELEX 107). These are not highly frequent words, but they are words which describe relevant activities and have a limited frequency. It is hard to believe that the memory of these verbs' strong past forms was simply slowly weakened or, in other words, forgotten, especially given that memory in this case refers to the collective memory of a group of speakers and not simply the memory of one speaker, who happens to forget the strong preterite form of *bake*.

There seems to be, both from a theoretical and from a data perspective, a difficulty in conceptualising low-middle to middle frequency words in the regularisation/frequency theory. The data from Branchaw show that it is not clear whether strong verbs in this frequency category remain strong or become weak, the theory cannot predict the behaviour of the data. Simultaneously, the thereotical foundations are not fully convincing in explaining why the change happens. This point is echoed by Bybee (2007: 16f.), who states that it is very difficult to classify where high frequency ends and low frequency begins. Should there be a middle category in between? How many such in between categories need to be introduced? Any systematic account of the shift from strong to weak using the regularisation/frequency hypothesis must account for this gap, given that many strong verbs are in fact part of this "low-middle" to "middle" frequency category.

I am not arguing for dismissing the regularisation/frequency hypothesis entirely. In this thesis I will argue for a different theory because I believe it is more theoretically convincing and covers the data more comprehensively. It does not follow that the concept of frequency is irrelevant.

b. Language contact and dental stems

One major reason given for analogical from strong verbs to become weak verbs in English is the extensive superstratum language contact English speakers experienced due to overseas invasions/attacks since the Anglo-Saxons moved to England following the end of Roman control in Britain. The two most significant instances of other languages reaching Britain, combined with setting up some form of political control, are the Viking attacks beginning in the 8th century, who were Norse/Danish speakers, and the Norman invasion in the 11th century, who spoke a dialect of Old French (Einhorn, 1975: 135).

Language contact as a cause for the analogical acquisition of a dental suffix is particularly appealing, given that English is often regarded as the most innovative language compared to other Germanic languages in general and in particular in the shift of strong verbs to weak verbs. Simultaneously, English has been significantly more affected by direct superstratum language influence, in experiencing (parts of) its territory being ruled by a government consisting of speakers whose native language was not English.

There are two major works on the strong to weak verb shift that emphasise the importance of English-French language contact: Michelau (1910) and Krygier (1994). Michelau (1910: 72f.) points out that the dates match: the most extensive period of strong verbs shifting into the weak category are the 13th and 14th centuries, precisely the time when the Anglo-Norman elite in England was beginning to replace French with English as their language of government. Therefore, at the same time when Norman political elites were learning English, strong verbs began to be mistakenly inflected as weak verbs. Native English speakers would follow their political leaders and also form weak forms for strong verbs. Krygier continues Michelau's argumentation. In fact there is almost exactly the same sentence in both books: Michelau writes (1910: 72):

> "man hat demnach den vorgang so aufzufassen, dass die normannen die englische sprache allmählich erlernten, und es ist nicht verwunderlich, dass sie sich hierbei manche veränderung und vereinfachung der bestehenden formen erlaubten."

Krygier writes (1994: 250):

> "The existence of a politically superior language community dominating the English-speaking one must have led to simplifications and generalisations, and the increased shifting tendency can be safely attributed to this."

One of the difficulties of this type of argumentation is that, besides the parallel dates, the impact of French speakers on English is "difficult to pinpoint" (Krygier, 1994: 250) through observation of the data. Krygier suggests one particular mistake that French speakers are more likely to make then native speakers: "Normans probably tended to reanalyse English strong verbs with dental elements as weak" (1994: 252). This theory, that strong verbs ending on a dental consonant were mistaken as weak verbs, also goes back to Michelau, though Michelau does not link this to native Norman speakers in particular (1910: 75) "jedenfalls wird das der endung vorausgehende d ein grund gewesen sein, diese verba der schwachen gruppe zuzuweisen, denn es trat im praeteritum in den auslaut und konnte so leicht verwirrung hervorrufen."

There is no evidence that strong verbs ending on dentals were mistaken as weak verbs. According to Krygier's calculations, in the 12th century verbs ending on a single dental stop shifted to a greater degree than expected (i.e. 12 verbs shift, which is more than the expected 7.793) (Krygier, 1994: 115f.). In contrast, in the 13th century significantly less of these same strong verbs shifted (i.e. 10 verbs instead of the expected 16.826) (Krygier, 1994: 143f.). Consequently, this theory has been strongly criticised. Wełna (1991: 133) calls the impact of the final dentals "doubtful". Branchaw (2010: 164-166) provides multiple reasons against this hypothesis, pointing out that in the context where a small group politically dominates a larger group, while vocabulary is frequently borrowed from the dominant group into the dominated group, grammar usually moves the opposite direction, with grammatical structures infiltrating the grammar of the dominant group.

While the hypothesis of dental-final strong verbs becoming weak is unconvincing both from a theoretical perspective as well as due to a lack of evidence, the influence of language contact is more difficult to disprove. In this thesis however, I will not argue for language contact as a significant factor, as more tangible factors can be shown to play a major role from examination of the data.

c. Phonological similarity triggering analogical change

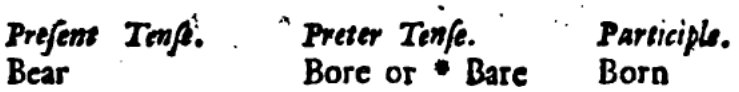
Having raised questions about common approaches to analogical change in English strong verbs, such as the frequency hypothesis and language contact, I will now present the approach that I will take in this thesis. This approach focuses on the effects of *phonological similarity* between two forms of the same strong verb paradigm.

The approach I am taking is both old and new. It is old because the literature on analogical changes in strong verbs discusses the effect of phonological similarity between different stems, and similar processes are also discussed in theoretical literature about analogical change. However, it is also new because the existing literature on strong verbs does not construct a comprehensive theory of analogical change caused by phonological similarity.

The following sub-chapter has two aims: firstly, I want to explain the theoretical approach of the thesis. Secondly, I will attempt to embed this approach within the existing literature, both the literature on analogical changes in strong verbs but also a broader literature on analogical change and phonological contrast.

The Central Claim

To explain the approach I am taking, I will present an example from an 18th century grammar book of English: James Greenwood's *An Essay Towards a Practical English Grammar…*[4] In the section on verbs, Greenwood (1729: 158-161) lists the present, preterite and past participle stems of "irregular verbs", including here strong verbs as defined above, which are prescribed as correct at the time of their speaking. I call attention to the way Greenwood lists the verb *bear* (159):



The stem formation of the verb *bear* in Greenwood's 1729 grammar largely corresponds to the PDE stem formation. The only difference is that Greenwood lists an additional preterite form *bare*, preceded by the mark *. They explain (Greenwood, 1729: 157), "(t)hose that have this Mark (*) before them, are not proper or usual." In other words, the mark * shows that preterite *bare* is an old form that has been replaced by the preterite *bore*. *Bare* indeed continues the OE pret. sg. form *bær* of the strong verb *bear*.

In PDE, *bare* cannot be understood as a verbal form but only as an adjective ('uncovered'). This adjective shows how **bare,* in the form of the preterite of *bear*, would have been pronounced in PDE: /bɛ̄/. This pronunciation is the same as the present stem of the verb *bear*. The merger also occurs between the present stem *bear* and the preterite stem *bare*. It is caused by the Great Vowel Shift and the loss of post-vocalic /r/. While /ā/ was raised to /ɛ̄/ before /r/ (as in *bare*), /ɛ̄/ was not raised and remained /ɛ̄/ before /r/. The ME phonological distinction between *bear* /bɛ̄r/ and *bare* /bār/ was lost as both merged in EModE /bɛ̄ə/.

The central claim of this thesis is that these two facts are related. It is the merger of the present stem *bear* and the preterite stem *bare* that causes speakers to generate analogical innovations for the preterite, i.e. to spread the form *bore* into the pret. sg. and generalise these innovations at the expense of *bare*.

The theoretical reason why the phonological merger of present and preterite forms causes analogical innovations to be generalised can be explained with an example sentence. I will take this example from a Shakespeare play, which was written in the early 17th century after the phonological processes that caused *bear* and *bare* to merge.

[4] The full title is: *An essay towards a practical English grammar, describing the genius and nature of the English tongue; giving likewise a rational and plain account of grammar in general, with a familiar explanation of its terms*.

Antony and Cleopatra (I, 3):

"Quarrel no more, but be prepared to know / the purposes I bear".

Transforming the sentence so that *bear* is in the preterite, with the old preterite *bare*:

"Quarrel no more, but be prepared to know / the purposes I bare".

The two sentences are phonologically the same, but have two different meanings. The present/past distinction on the verb *bear* has been lost in the utterance. If a speaker wants to re-introduce a present/past distinction, they must change something. In PDE, an analogical alternative of the pret. sg. form *bore* has been generalised and the present/past distinction is phonologically distinct again.

It is the relation between phonological merger of different stems and analogical change that I aim to investigate across the English strong verb system. To this end, I will expand and specify the central claim above. Before doing so, I will first review how the concept of analogical change due to phonological merger is discussed in the literature about analogical changes in strong verbs.

Phonological Similarity Literature Review Part 1: Germanic Strong Verbs

The connection between phonological merger and analogical change has been discussed in other literature on analogical changes in strong verbs, not just in English but also at least in German. I will now present how these connections are drawn in this literature.

The first to argue that a merger of different stems could cause strong verbs to shift to weak verbs was Kaluza (1907: §326). They identify that by the early Middle English period, the present and preterite vowel of a group of SVs VII had become only "minimally different" due to sound change (e.g. OE. *slǣpan, slēp* > ME. *slēpen, slēp*; Kaluza, 1907: §326). The present and preterite were therefore not adequately distinguishable through vowel alternation and a new means of identifying past tense was acquired by analogically shifting those verbs into the weak category. Note here that Kaluza does not argue that the root vowels had merged, but that they were merely minimally different.

Michelau (1910: 78-81) discusses general developments in the vowel alternation pattern of all strong verb classes in English. Broadly speaking, this discussion of vowel alternation patterns is a short version of the analysis I present in Chapter 4. They find a "(near-)uniform ablaut pattern" (78) in SVs IV and V, "vowel levelling (Vokalausgleich)" (79) in many subclasses of SVs III, "advanced phonological correspondence (Übereinstimmung)" (80) in SVs II and for SVs VI, vowel alternation is lost as it "only exhibits two grades" (80). However, Michelau concludes that the composition of the vowel alternation only has a secondary influence, while the analogical influence of the greater

number of weak verbs, which were easier and more practical ("grössere zweckmässigkeit" (81), was primary, given the language contact situation, as described above. Nevertheless, Michelau's account of the development of vowel alternation patterns, finds, similarly to this thesis, that in many classes different strong verb stems merged and that there may be some connection to analogical changes in strong verbs. Despite the vague, undefined terminology employed and the partially incorrect analysis, I will build on Michelau's argumentation in this thesis.

Krygier 1994 agrees with the general theory of Kaluza 1907 and Michelau 1910 (Krygier, 1994: 249): "(T)he primary reason for ablaut in strong verbs was to render tense distinction. When (…) this function could no longer be performed (…), the application of the weak tense marker, the only alternative that was already available in the language, was inevitable". This quote from Krygier broadly aligns with the theory proposed in this thesis, with the difference that I argue the dental suffix (i.e. "weak tense marker") is not the only alternative for analogical innovation. Note, however, that Krygier concludes that the influence of this factor (i.e. loss of ablaut) was "non-existent" (1994: 249) for analogical changes in English strong verbs. I will discuss later where I believe Krygier went wrong on this matter.

Another example where phonological merger is discussed in relation to English strong verbs is in the *Middle English Dictionary* (MED). The MED lists forms of English strong verbs in Middle English but usually does not provide any morphological analysis. Unusually, the ME verb *breiden* 'move quickly, twist, pull' (from which PDE *braid*) is commented as follows: "The merging of ei and ai (c1300) destroyed the distinction between the pres. and the past stem and encouraged the use of -de, -ed forms." (MED s.v. *breiden*). As context, the early ME present stem was *breid-*, while the pret. sg. stem was *braid-*. As the MED states, these two stems merge around 1300 in *braid-.* Following the central claim of this thesis, analogical innovation for the pret. sg. stem was "encouraged", leading to the PDE form *braided*.

An example from German is discussed in Nowak 2015. The Modern Standard German strong verb *schallen* 'resound' was MHG *schellen*. This verb was influenced by the denominative verb *schallen* from *Schall* "sound, noise". At the time, the pret. sg. stem of this verb was *schall-,* phonologically equal to the new present stem. This led to the spread of the past ptc. root vowel -o- into the preterite stem, generating the Modern Standard German preterite stem *(er)scholl*. Nowak (2015: 23) writes that changes in the present stem

accelerated the spread of root vowel -o- in the preterite, as otherwise the tense distinction would have been lost.

The above examples support the basic claim of this thesis in two substantive ways. First, they provide further empirical examples where phonological merger may have caused analogical change. Secondly, they support the basic theoretical explanation exemplified above using the *Antony and Cleopatra* quote that vowel alternation had the central function of marking tense, and, when this alternation had been lost, new analogical innovations were "understandable" (Nübling, 2016: 274), "encouraged" (MED) or (possibly) "inevitable" (Krygier, 1994: 249).

Specifiying the Central Claim

As was shown above, the central claim of this thesis that mergers between different forms of a strong verb trigger analogical remodelling is supported, both empirically and theoretically, in other literature on analogical changes in Germanic strong verbs. However, as already mentioned, these claims are marginal in the literature. Some discuss only a single strong verb. Michelau 1910 and Kaluza 1994 dismiss them as central factors. Nowak 2015 argues for the frequency approach. Despite the examples above, a more systematic attempt at applying the concept of phonological merger to strong verbs remains an original research endeavour.

Stemming from my analysis of analogical changes in strong verbs, the claim of this thesis must be clarified and expanded. The claim as I have described so far is as follows: *mergers of different forms of a strong verb trigger analogical remodelling.* In the following, I will specify this hypothesis in three further ways. These features will also further distinguish my hypothesis from the analysis of the works discussed above.

(1) *Merger of which strong verb forms?*

The first question to be answered is about which strong verb forms require phonological merger for analogical innovations to be triggered.

Returning to the literature quoted above, vowel alternation is a means to "render tense distinction" (Krygier, 1994: 249), i.e. the distinction between present and past. When present and past forms begin to merge, the important tense distinction is no longer transparent, as in the example of *bear*/*bare* above. This is where analogical change is expected. To write this out more clearly, when present and past forms begin to merge, analogical change is expected. This more precise formulation is necessary to distinguish my approach from two other, similar approaches: Krygier (1994) and Nübling (2016), Nübling et al. (2017).

Krygier (1994) theoretically agrees with the premise of the central claim of this thesis, but concludes that it does not constitute a significant factor in explaining analogical changes

in strong verbs (1994: 249). The empirical evidence behind this conclusion is Krygier's analysis of the behaviour of what they call bi-, tri- and four-alternant stems (Krygier, 1994: 76). These are strong verbs that alternate between either two, three or four different root vowels to form their stems. Krygier believes that bi-alternant stem verbs must have come about after the merger of different stems and hypothesises that bi-alternant stem verbs are more likely to become weak verbs while four-alternant stem verbs will more likely remain strong. According to Krygier 1994, there is no empirical evidence for this hypothesis. Therefore, Krygier reaches the conclusion above, that the merger of stems does not constitute a significant factor causing analogical changes in English strong verbs.

The problem with this argumentation is that the practical hypothesis Krygier presents and the theoretical idea motivating this hypothesis do not align. The classification that counts the number of different root vowels strong verbs have does not take into account whether tense distinctions remain phonologically transparent. If a present form merges with a past form then the tense distinction is lost. If, by contrast, two past forms merge, tense distinction is not lost. A tri-alternant verb becoming a bi-alternant verb could have resulted from either change. Whether the verb is bi-alternant is not directly connected to whether tense distinction is lost. Rather, it depends on which stems phonologically merge with each other. PDE bi-alternant strong verbs such as *freeze, froze(n)*; *stand, stood* and *fling, flung* are likely to remain stable, as long as the tense distinction is stable.

The classification of (German) strong verbs in Nübling et al. (2017) is a more complex version of Krygier (1994). Modern strong verbs are classified abstractly as ABC or ABB or ABA (Nübling et al. 2017: 285). These abbreviations refer to root vowel distinctions between the three strong verb stems, which are ordered present, preterite, past participle. In the pattern ABC the root vowels of present (A), preterite (B) and past participle (C) are all different (e.g. *sing, sang, sung*), while in ABB (e.g. *freeze, froze, frozen*) the root vowel of the present (A) is different from the root vowel shared by both the preterite and the past participle (B). Now as Nübling (2016: 274f.) points out, while ABA (German e.g. *rufen, rief, gerufen* or English e.g. *see, saw, seen*), where the present and past participle share the same root vowel, is possible, AAB, where present and preterite share the same root vowel, is not. While these comments are made in discussion of German strong verbs, they also apply to English strong verbs.

The pattern ABA appears to contradict the claim above. If vowel alternation marks tense distinction, how can the root vowel of a present and a past form, in this case the past participle, have the same root vowel, i.e. tense value (as in present *see,* past participle *seen*).

The way this possibility is usually understood (e.g. Nübling, 2016: 278) is that the past participle stem is frequently used to form the perfect. The perfect is a periphrastic form combining the past participle with an auxiliary verb (e.g. I *have seen*…). Therefore, the tense value is marked in the periphrastic form. However, past participles do not necessarily occur periphrastically. They appear alone in absolute clauses (Kortmann, 1995; e.g. *Seen by the man, …*) and again have past (or anterior) semantics. The periphrastic explanation appears not to cover all uses of the English past participle.

The answer proposed in this thesis is that while vowel alternation is the primary marker of tense in strong verbs, it is not necessarily the only marker of tense. Transparent endings can also mark tense, as the dental suffix in weak verbs does (e.g. *help**ed***). In this thesis, I will argue that the past participle ending *-(e)n*, in some cases, distinguishes the past participle in English from the present stem. Therefore, it is required that present and past *forms* merge for analogical change to be triggered, not only that stems or root vowels merge.[5]

It is the object of this thesis to study the analogical effect of mergers between present and past forms. In the course of my analysis, I have found two further parts of the English verbal system that may be affected by merger. Firstly, between strong verbs and weak verbs derived from the same root. For example, in OE there were two English verbs *meltan* and *(for)myltan*, the former was used in intransitive contexts (e.g. *the ice is melting*), the latter in transitive contexts (e.g. *the sun is melting the ice*). These verbs already merged in certain OE dialects and fully merged in ME. In the resulting change, strong forms were lost (except for *molten*, which can be used as an adjective in PDE) and one verb, forming its preterite with a dental suffix, continued in both transitive and intransitive contexts. This kind of change can be found in multiple strong verbs. It is a lexical change, not an analogical change.

Secondly, if preterite forms of two or more different verbs merge, one of the forms can also be affected by analogy. For example, in ME the preterite *flew* /fleu/ is attested in the paradigm of four different strong verbs: *fly, flow, flee* and *flay* 'pull off skin'. The ME form *flew* goes back to OE *fleow*, which was the preterite of the verb *flow*. In PDE, this preterite is associated with the verb *fly*. When the ME preterite *flew* became associated with the verb *fly*, *flow* innovated a new preterite form *flowed*. For the other two verbs, *flee* and *flay*, other analogical alternatives were also generalised: *fled* and *flayed*.

[5] However, this is different in the case of the (English) preterite. When the present and preterite stem merge, present and past forms will inevitably merge, as present and past endings are not only already similar in OE, but also are almost entirely lost over the course of ME, so that there are few endings left to distinguish present and preterite forms. Towards the later periods of ME, the terms present and preterite *stem* is almost synomymous with the term present and preterite *form*. I will discuss the development of English endings in Chapter 3.

In this thesis, I will focus on the effects of merger in the first instance, between present and past forms. I will exclude certain strong verbs from my analysis, because I believe they were primarily affected by weak verbs derived from the same root. In this case, I will mention in a footnote the strong verbs excluded from the study and the relevant weak verbs derived from the same root, with which I believe the strong verb merges.

(2) *Expanding the concept of merger*

I will argue in this thesis, that it is not only when present and past forms merge, but also when they become *phonologically similar*, that analogical change is triggered. When there are only "small" phonological differences within one phoneme (in the case of this thesis always a vowel) between a present and a past stem form, this small phonological difference cannot carry the morphological information of tense distinction. I define two types of phonological similarity between two vowels.

1. Length: the distinction between a present and a past form lies merely in the length of the root vowel.
2. Peripherality: the distinction between a present and a past form is merely a "minor" distinction in the openness/height of the root vowel (e.g. between two different types of mid vowels such as /o/ and /ɔ/). This applies to short vowels, long vowels and diphthongs (e.g. between /eu/ and /ɛu/).

Expanding the definition of merger to include "phonological similarity" clearly deviates from most of the examples of analogical change in strong verbs given above. It makes the claim of this thesis fully depart from the literature on analogical change in strong verbs. However, it is necessary to be able to apply the concept of merger onto analogical changes in strong verbs systematically. Additionally, it is still possible to embed this claim within the existing literature. In the rest of this section, I will discuss claims within phonology literature that supports the concept of small phonological distinctions. Later, I will provide a handful of examples where other literature discusses examples that can be classified as changing due to phonological similarity (and not merger).

The traditional view of phonology emphasises the contrastiveness of phonemes. By definition, phonemes are established because they contrast each other. The contrastiveness of specific phonemes is established with minimal pairs, such as *b**a**d* and *b**e**d*, or *ba**d*** and *ba**t***, words that are distinctive in one phoneme. The view that phonemes are fundamentally contrastive is captured in the following comment by Bloomfield (1926: 157): "Such a thing as a small difference of sound does not exist in language".

There have been many challenges to this traditional view of phonology. There is in fact large variety in the way speakers produce the same phoneme, dependant on their physiology, style of their speech etc. (Ladefoged & Johnson, 2011: 281), which may or may not cause contrastiveness between different phonemes to be less salient. Additionally, many researchers have come across "intermediate phonological relationships" (Hall 2013) that cannot be easily incorporated into the traditional concept of phonemes (and allophones).

Following from these insights, new types of phonological categories have been established that challenge the primary feature of the phoneme, its contrastiveness. Labov (1994, Labov et al. 1991) has promoted the term near-merger, referring to two sounds that are articulated differently but are perceived to be the same. The examples mainly focus on American/English dialects, where speakers distinguish in production, but do not perceive a difference, between *sauce* and *source* in New York, *pool* and *pull* in Albuquerque or *too* and *toe* in Norwich, UK. The term near-merger has remained controversial, for example the question as to how such distinctions can be maintained despite not being perceived (Yu, 2007: 189).

Effectively applying the term near-merger into the history of a language is difficult. The discovery of the concept of near-merger depended on modern technology to precisely determine the phonetics of speakers, which requires the presence of speakers. We have no access to speakers of past languages and cannot perform phonetic experiments on them. However, applying the term to language history is precisely what Labov (1994, Labov et al. 1991) attempted when hypothesising that the apparent 16th century merger between ME /ɛ̄/ in *meat* and ME /ā/ *mate* is an instance of a near-merger (not before /r/ as in *bear*). Some 16th century speakers of England attested that *meat* and *mate* merged. This merger contradicts the further phonological development of English, where *meat* but not *mate* later merged with *meet*. Labov's example of this historical near-merger between ME /ɛ̄/ and /ā/ is precisely an instance where, I argue, present and past forms of English strong verbs also analogically remodel their past stems, possibly due to this very near-merger (e.g. ME 'speak' pres. /spɛ̄k/, pret. sg. /spāk/ → PDE *speak, spoke*).

With the exception of this historical near-merger argued for by Labov, the term near-merger is not identical to the definition of phonological similarity given above. The concept has been most successfully and widely applied to the phenomena of consonantal devoicing in languages such as German, Catalan and Polish (Yu, 2007: 188).

One possible example of a near-merger between short peripheral mid vowels is a perception test conducted in Sweden (Janson & Schulman 1983). Janson & Schulman tested

the perception of speakers of two different Swedish dialects. The first dialect, associated with Stockholm, has two short front vowels /i e/, while the other dialect (from Lycksele) has three short front vowels /i e ɛ/. When testing the perception of the difference between /e/ and /ɛ/, Lycksele speakers proved equally "incapable of distinguishing between /e/ and /ɛ/" (Janson & Schulman 1983: 329) as speakers of the Stockholm dialect, despite reliably articulating the phonetic difference. However, I have not found a follow-up study with similar results when applied to a different language. For example, in a study of French, Dufour et al. 2007 conclude that French speakers who produce the /e/ and /ɛ/ distinction also perceive this distinction.

Similarly to Janson & Schulman, Ladd 2006 also argues that the phonemes /e/ and /ɛ/ are "partially similar" in some European languages. Ladd focuses on Italian and French (e.g. Italian *pesca* with /e/ 'fishing', with /ɛ/ 'peach'), where some speakers do not distinguish between the phonemes or there is variation as to which vowel is found in a lexeme. Ladd (2006: 16) also notes that the similarity between these two phonemes appears to be relatively stable, quoting Trubeckoj's 1969 [1939] comments on the "particular closeness" of /e/ and /ɛ/ in French. If this is a sound change in progress, then the pace of change is "glacial" (Ladd, 2006: 18). To explain this apparent example of systemic instability between two phonemes, Ladd argues that these two types of front mid vowels are sub-phonemic categories, i.e. sub-phonemes rather than phonemes. They also note the confusion in the German distinction between long /ē/ and /ɛ̄/ (as in the two subjunctive forms of 'give' *gebe* vs. *gäbe*). The above examples from living languages provide some tentative confirmation that the phonemic contrast of peripheral mid vowels can be "small". As noted above, it is difficult to make such direct conclusions about Middle English peripheral vowels.

Turning now to the phonemic distinction of length: Even more than for peripherality, long and short vowels can only be defined relatively, not absolutely. Shorts vowels tend to be around half as long as long vowels, though with great variation between languages (Lehiste, 1970: 34). Listeners depend on "word-external speech context", i.e. knowledge of the general speed of speech, to determine whether speakers produce long or short vowels. A long vowel in fast speech may have the same length as a short vowel in slow speech (Hirata 2004). Therefore, without context or when mixing different speech speeds, listeners have been shown to have difficulty in distinguishing long and short vowels (Hirata & Lambacher 2004; Johnson & Strange 1982).

I have found no study finding near-mergers between long and short vowels. Instead, Labov (2006) has argued that even small length distinctions between vowels can maintain

clear differentiation between those vowels. Chen & Wang (1975) have argued that length distinctions are diachronically less stable and perceptually less salient, specifically when compared to distinctions between oral and nasal vowels. They base their argumentation on the loss of vowel distinctions in Chinese dialects, Hindi and Romance languages, as well as in the difficulty for language learners to perceive phonemic vowel length. However, their argumentation is based only on a handful of language families, with some notes added on Germanic and Slavic languages. It is problematic to make cross-linguistic claims based only on these languages. I have not found in the literature any convincing theory backing up the claim that forms merely distinct in terms of vowel length are near-mergers or phonologically similar. However, based on analogical changes in English strong verbs, as I will show below, analogical change happens when present and past forms are merely distinct in terms of vowel length, as they do when those forms are merely distinct in terms of peripheral vowels, which have been argued to be near-mergers, and as they do when those forms merge.

The literature discussed above points to the following conclusion: not all phonemic contrasts are equally contrastive. It therefore provides theoretical support for expanding the concept of merger beyond the "full merger" to other, "smaller" phonological distinctions. However, the literature does not clearly conclude that the instances of phonological similarity set up in this thesis correspond to specific intermediate phonemic categories. The primary reason for defining phonological similarity as above derives from observation of analogical change in strong verbs rather than from the literature discussed here. Understanding the precise connection between intermediate phonemic categories and the analogical changes that I will analyse in this thesis requires further study.

(3) *Analogical change expands to related categories*

There is a third further factor that I suggest is necessary to understand analogical changes in English strong verbs. This third factor is a possible explanation of analogical change that I have established from my own observation of English strong verbs. I am not able to back it up with other literature. It therefore remains speculative.

After establishing a strong verb group (1) where analogical change happens due to phonological similarity, I have found that this analogical change can spread to another strong verb group (2) with the same, or almost the same, past paradigm. The difference between strong verb group (1) and (2) is the present root vowel, which causes the present and past forms to become phonologically similar in one group but not the other. Table 4 below abstractly exemplifies this idea, where a, b, x, y and z refer to phonologically distinct

morphemes (i.e. root vowels and/or endings) that form the different stems of strong verbs. After phonological change, x merges with a.

Table 4 Spreading analogical change

	Strong Verb Group 1		Strong Verb Group 2	
	a ≠ b ≠ x ≠ y ≠ z	After x > a	a ≠ b ≠ x ≠ y ≠ z	After x > a
Pres.	a	a	b	b
Pret. Sg.	x	x > a	x	x > a
Pret. Pl.	y	y	y	y
Past ptc.	z	z	z	z

The phonological value of x merges with a, which causes phonological similarity between present and the pret. sg. forms in strong verb group 1. Following the central claim of this thesis, analogical change is expected to re-distinguish present and pret. sg. forms. In strong verb group 2, the merger does not occur, as present and pret. sg. forms remain distinct between b and x = a. However, due to the similarity in the past paradigm, groups 1 and 2 appear to still be related cognitively, for the analogical change spreads from the pret. sg. form in strong verb group 1 to the pret sg. form of strong verb group 2.

This type of change explains marginal behaviour in analogical changes in strong verbs. While this is a hypothetical explanation that is difficult to prove, there are some factors which can be highlighted, factors that strengthen the claim. First, the analogical change in groups 1 and 2 is near-simultaneous. When pres. and pret. sg. stems merge in group 1, analogical change occurs in both groups. Secondly, analogical change in group 2 occurs at the expense of the phonological value x, which has merged with a. I will discuss the significance of this second factor on the pret. sg. form *holp* in Chapter 4.

Phonological Similarity Literature Review Part 2: Outside of Germanic Strong Verbs

In the previous literature review part, I presented examples of analogical change caused by mergers between different stems as discussed in the literature on English and German strong verbs. In this part, I will present literature that discusses the broader point that analogical change can be employed to (re-)distinguish, or more clearly mark, a morphological distinction.

The theory that analogical change can cause the clear distinction of morphological categories is argued for in two classic theoretical works on analogical change: Kuryłowicz' laws of analogy (1947) and Mańczak's tendencies of analogy (1957).

Mańczak's fourth tendency of analogy is that zero-endings are more often replaced by overt endings than vice-versa (Mańczak, 1957: 321). Mańczak exemplifies this rule with analogical changes in Polish nominal morphology (e.g. *chłop* 'farmer, man' Acc. Sg. *chłopa* replaces *chłop*). A similar English example is discussed in Hock (2021: 243), where the plural of OE *word* is also *word*, which is then distinguished by analogically acquiring the plural s-ending, as in PDE *words*. Mańczak's fourth tendency of analogy implies that analogy serves the function of distinctively marking morphological categories.

a. Latin

	Singular	Plural
NOM	*mūrus* 'wall'	*mūrī*
ACC	*mūrum*	*mūrōs*

b. Old French

NOM	*mur-**s***	*mur-Ø*
ACC	*mur-Ø*	*mur-**s***

c. Later French

NOM = ACC	*mur-Ø*	*mur-**s***

Figure 2 Analogical change in the French nominal system (Hock, 2021: 246)

Kuryłowicz' first and fifth laws of analogical change also address the distinctive marking of different morphological forms. The precise formulation of these laws are controversial as there are many counter-examples. However, examples covered by these laws are instructive here. The following Old French example is from Hock (2021: 246; see Figure 2): After several endings are lost due to sound change, in Old French *murs* ('wall'), the nom. sg. ending -s is the same as the acc.pl. ending, while the acc. sg. zero-ending is shared with the nom. pl. After analogical change, nom. and acc. merge but sg. and pl. become categorically distinct. The aim of maintaining phonological distinction between different morphological categories (in this example number) can explain why the accusative endings spread into the nominative.

While these examples cover inflectional endings of the nominal system, the theoretical reason that causes analogical change, generating a more distinctive morphological distinction between different categories, is analogous to the analogical change in strong verbs. When present- and past-tense forms of strong verbs merge or become phonologically similar, they resemble the zero-endings from Mańczak's fourth tendency of analogy. The morphological category of tense is no longer marked. In English strong verbs, analogical change intervenes to re-distinguish forms of different tenses.

Another example, covered by Kuryłowicz' first law of analogy, is German *Bäume* 'trees' (Hock, 2021: 244). The Umlaut on the plural form was acquired in analogy with other nouns whose Umlaut derives from sound change, such as *Gäste*. Without Umlaut, the plural form would have been **Baume*. Kuryłowicz' first law of analogy says that bipartite, complex

markers (i.e. Umlaut and the ending *-e* in *Bäume*) "replace" simple markers (i.e. the ending *-e* in **Baume*). While the terminology of Kuryłowicz' first law is quite different from the terminology I employ, the argumentation is quite similar. In the *Bäume* example, the ending *-e* is apparently insufficiently distinctive and the distinctiveness of the plural is strengthened through analogy. Whether the ending *-e* (*Baum* vs *Baume*) qualifies as "phonological similarity", I will keep open here. However, the process of making "similar" forms less similar by means of distinct morphological functions by analogy can also be seen in strong verbs.

I have not found any study of analogical change that studies the effect of "minor" peripherality or length distinctions on analogical change. Given the theory that some phonological distinctions can be regarded as minor/intermediate (e.g. Hall 2013), this may be a rich and interesting route of inquiry.

It would be incomplete to restrict this section to morphology, for the loss of distinction between different morphological categories can equally cause other types of language change, such as syntactic change. There are numerous examples from English: after the loss of subjunctive endings, a periphrastic subjunctive with *would* has developed (Rissanen, 2000: 228); after the loss of case endings stricter word order rules are established (Fischer, 1992: 374) etc. When morphological distinctions are lost new syntactic rules are also able to (re-)define contrasts between different categories.

Similarly, it has been argued that certain sound changes, such as epenthesis, dissimilation and metathesis, can occur in order to enhance contrast (Hume & Johnson, 2001: 7f.) For an example from English, in the epenthesis of /ɪ/ in the plural form of nouns with stem-final sibilants (*bus, buses* etc.), the epenthetic vowel serves the function of distinguishing the plural form. Examples from other languages can be found in Hume & Johnson (2001: 7f.)

Additionally, there are examples on the lexical level that show the opposite effect, where two words can merge despite remaining distinct in terms of vowel length. Fertig (2013: 62) discusses the German noun *Spieß*, which continues two different nouns, 'spear' MHG *spieʒ* and 'spit' MHG *spiʒ*. After vowel monophthongisation in *spieʒ*, the two words were distinguished by vowel length only: /ī/ and /i/. The two words, which had become phonologically similar following the definition above and whose semantics were also similar, merged. In German, *Spieß* usually means 'spit', but continues the long vowel of 'spear'. The other example Fertig mentions in this context is from English strong verbs. PDE *bid* and *forbid* were also phonologically similar in EModE, their root vowels in /i/ and /ī/

respectively, and they also continue the same root in PDE, with a short vowel. I will discuss this example in more depth in Chapter 4.

In this part I have explained the approach of this thesis and provided background literature that supports the claims argued for here. I argue that analogical change can occur in English strong verbs in order to re-distinguish tense distinctions. I have provided a number of examples of analogical change causing the distinction of morphological categories, including examples from Germanic strong verbs, but also from other languages and word classes. Additionally, I have mentioned that other aspects of language change can similarly bring about the distinguishing of categories. I have further explained how I expand the concept of merger to include "phonological similarity" and how the concept of intermediate phonemic categories provides partial but not full support to the concept of phonological similarity argued for here. Finally, I have presented the hypothesis that in certain contexts analogical change can spread from one category with phonological similarity to a second similar category without phonological similarity.

Methodology

I will conclude with the methodology of my analysis of English strong verbs.

My analysis of the phonological development of English strong verbs is firstly based on OE strong verb lists. For this I am using a combination of Krygier (1994: 255-267) and Seebold (1970). Krygier lists all OE strong verbs including verbs that look like strong verbs in OE even if only one form is attested. In contrast, Seebold analyses strong verbs across Germanic languages and notes when strong verbs are marginally attested in a single Germanic language. Marginally attested strong verbs without secure etymology are not regarded by Seebold as strong verbs. Therefore, I am using Seebold's strong verb list to filter strong verbs out of Krygier's list that are poorly attested across Germanic languages. For a full list of all strong verbs included in the study and how they are affected by analogical remodelling, see the Appendix.

Secondly, I will follow the phonological history of the strong verb forms to identify where phonological similarity occurs. This analysis relies on phonological histories of English. For this thesis, I have primarily used the phonological history of the first three volumes of *The Cambridge History of the English Language*, which each have a subchapter titled "Phonology and Morphology" for different stages of English, OE (Hogg 1992); ME (Lass 1992) and EModE (Lass 2000). The sound changes relevant for my analysis overwhelmingly follow these phonological histories, and I will not quote these sources explicitly in the following analysis. I will only directly quote a reference for a sound change

when I date the sound change or when I am quoting a different historical phonology of English.

The phonological history of English strong verbs will be helpful for identifying instances of phonological similarity between past and present forms. According to the theory, it is in these instances that analogical change is expected. I will then consult literature on how these strong verbs are attested in writing. For this thesis, I have consulted a range of sources that list how strong verbs are attested in English: general overviews include the OED and the *Helsinki Corpus of English Texts*; overviews of ME include the *Middle English Dictionary* (MED) and Long (1944), whose data is from the 15th century. Overviews of EModE include Wyld (1953) and grammars written in the EModE period, of which I will use Greenwood (1729). For dialectal forms, I have consulted *The Dictionary of the Scots Language* (DSL) and *The English Dialect Dictionary* (EDD), as well as Anderwald (2009).

3. Some features of English strong and weak verbs

In this part, I will introduce some background knowledge about strong and weak verbs. I will introduce only what is relevant to this thesis; this not meant to be comprehensive. I focus on four particular features of the English verbal system: firstly, I will describe how the OE strong verb system changed from a four-stem system to the PDE three-stem system. Secondly, I will define mixed weak, neo-strong and unmarked verbs. Thirdly, I will present the development of verbal endings and specifically which present and past endings merge in what period of English. And lastly, I will discuss the retention of the past participle ending *-en* in past participles (such as *written*).

a. Remarks about English strong verbs

In OE, strong verbs had four stems (e.g. 'creep': *creop-, creap-, crup-, crop-*). The first stem (*creop-*) was used for present forms, the infinitive and the present participle, while stems two to four were used for past forms (*creap-* for the pret. ind. 1./3. Sg.; *crup-* for other pret. forms; I will call this stem the pret. pl. stem; *crop-* for the past ptc.) As demonstrated for OE 'creep', these four stems (usually) consist of the same consonants (/kr_p/) and only differ in terms of the root vowel (or diphthong) and the endings attached to the stems. In a strong verb, the four root vowels can all be different (as in OE 'creep'), but it can also occur that two stems share the same root vowel (e.g. OE 'sing': *sing-, sang-, sung-, sung-*).

There were seven strong verb classes in OE. Strong verb classes differed from each other in terms of the root vowels that formed the four stems. OE 'creep' is an SV II. Most other OE SVs II also formed their four stems with the same root vowels: -eo-, -ea-, -u-, -o- (e.g. 'fly': *fleog-, fleag-, flug-, flog-*). Strong verbs from other classes generally had different root vowels across their four stems (as can be seen in OE 'sing').

These seven strong verb classes will be discussed in detail in Chapter 4, specifically in terms of how they develop from OE to PDE. There is one major difference between OE and PDE strong verb stems that I will discuss here. In OE, there were four strong verb stems, while in PDE, there are, at most, three strong verb stems (e.g. PDE *sing, sang, sung*). The difference between the OE and the PDE systems is that PDE has generalised one of the two pret. stems. OE *sing*'s pret. sg. stem was *sang-*, while its pret. pl. stem was *sung-*. In PDE, the pret. sg. stem (*sang*) has generalised.

This generalisation of one of the two pret. stems is obligatory for all English strong verbs (the only exception being the suppletive verb *be*, with pret. sg. *was*, pret. pl. *were*). The generalisation is an analogical change. In some strong verbs, there was never any root-vowel

distinction between pret. sg. and pret. pl. (e.g. OE pret. of 'shake': sg. and pl. *scoc*-). The spread of either pret. stem into the other stem was analogically modelled on those strong verbs whose pret. sg. and pl. root vowels had already been shared.

This analogical spread of one pret. root vowel to the other largely occurs during the ME period. It is therefore happening while other analogical changes are occurring in English strong verbs – that is, as many are analogically acquiring a dental suffix. I hope to show in Chapter 4 that the analogical changes where one pret. stem is generalised at the expense of the other is intimately connected to those other analogical changes.

b. Definitions: Weak verbs, mixed weak verbs, neo-strong verbs and unmarked verbs

Turning to weak verbs, these verbs formed their past forms with a dental suffix and usually without any vowel alternation (e.g. OE 'love' pres. *lufian,* pret. *lufode*). The dental suffix consists of a dental plosive (/t/ or /d/), which can optionally be preceded by an unstressed vowel. In OE and ME, the dental suffix was followed by endings, but these endings were later lost due to phonological change (the morphemic analysis of OE pret. *lufode* is *luf-od-e*, with root *luf-* followed by dental suffix *-od-*, followed by ending *-e*). The unstressed vowel preceding the dental suffix was lost in PDE except in verbs with root-final dental plosive (e.g. *defended* /dɪfɛn̲dɪd/ vs *hoped* /həʊp̲t/). When the unstressed vowel was lost, the dental suffix assimilated in voice to the preceding phoneme.

While the dental suffix (and the following endings) is generally the only inflectional feature of weak verbs' past forms, in some cases, vowel alternation between present and past forms of weak verbs did appear. In this case, what I call 'mixed weak verbs' arise (see also Table 2). Mixed weak verbs have past forms that are distinct from their present forms in both vowel alternation and a dental suffix (e.g. *feel, felt*). The origin of mixed weak verbs is mostly regular sound change, however in some cases, former strong verbs analogically changed to become mixed weak verbs (e.g. *creep, crept*; see Chapter 4a).

In other weak verbs, the dental suffix was lost. This happened in some weak verbs with root-final dental plosives. The result was verbs whose present and past forms were the same (e.g. *cut, cut*; *fit, fit* etc.) I will call these verbs 'unmarked verbs'. In a handful of cases, vowel alternation was already present when the dental suffix was lost. The result was verbs whose past was formed through vowel alternation and without dental suffix, i.e. the same as strong verbs. These verbs, that acquire vowel alternation and lose their dental suffix following sound change, I call 'phonological neo-strong verbs' (see again Table 2; see also footnote 2 for a definition of the term neo-strong).

One sound change that generated both mixed weak verbs and, eventually, neo-strong verbs is a sound change called pre-cluster shortening (PCS), which occurred at the turn from OE to ME. PCS affected the pret. of weak verbs whose dental suffix was directly attached to the root (without any vowel between root and suffix; e.g. OE pret. of 'feel' *felte*). PCS refers to the sound change where long vowels before two consonants were shortened (V̄CC > V̆CC, e.g. *felte* /fēltə/ > /feltə/). The effects of PCS continue to be seen in PDE, where many mixed weak verbs still retain the long vowel in the present and the short vowel in the past (e.g. *feel, felt*).

PCS also occurred in weak verbs with root-final dentals (e.g. OE pret. of 'meet' *mette*: /mēttə/ > /mettə/). Following PCS, the pret. form of *meet* (/mettə/) was different from the present stem (/mētən/) in two ways: it had a short root vowel /e/ (as opposed to long /ē/ in the present stem) and a dental geminate /tt/ following the root vowel (as opposed to the single /t/ in the present stem). The dental geminate /tt/ reflected the combination of the root-final dental of *meet* and the dental suffix, marking past tense. Later in ME, geminate consonants were de-geminated: /tt/ > /t/. This left the distinction present /mēt/, past /met/ with no trace of a dental suffix on the past form. Following PCS and de-gemination, *meet* (and some other weak verbs) had become neo-strong verbs.

These three categories of verbs are important for analogical changes in strong verbs. For in certain cases, strong verbs were analogically remodelled to become mixed weak verbs, neo-strong verbs or unmarked weak verbs. Some examples of such former strong verbs include PDE mixed weak verbs *creep, crept* (former SV II); *sleep, slept* (former SV VII), the PDE strong verb *slide, slid* (former SV I, after neo-strong verb *hide, hid*) and PDE unmarked verbs (such as former SV III *burst*[6]). These analogical changes will be discussed in detail in Chapter 4.

c. The development of verbal endings in English

Tracing the development of verbal endings in English is a crucial prerequisite to what will be done in the main part of this thesis. Different verbal categories are (usually) marked with vowel alternation and endings. Even when two alternating vowels with the function of distinguishing tense are phonologically similar, endings can still function to distinguish tense.

[6] Though in the case of strong verbs becoming unmarked verbs, it is not always clear whether this change is merely phonological or also analogical.

However, the general story of verbal endings between OE and PDE is one of gradual loss. PDE only continues a handful of verbal endings (3. Sg. *-s*, pret. *-(e)d/t*, past ptc. *-(e)n*, *-(e)d/t*).

The endings in Table 5 were typical in OE (Hogg, 1992: 148).

Table 5 OE verbal endings of strong verbs

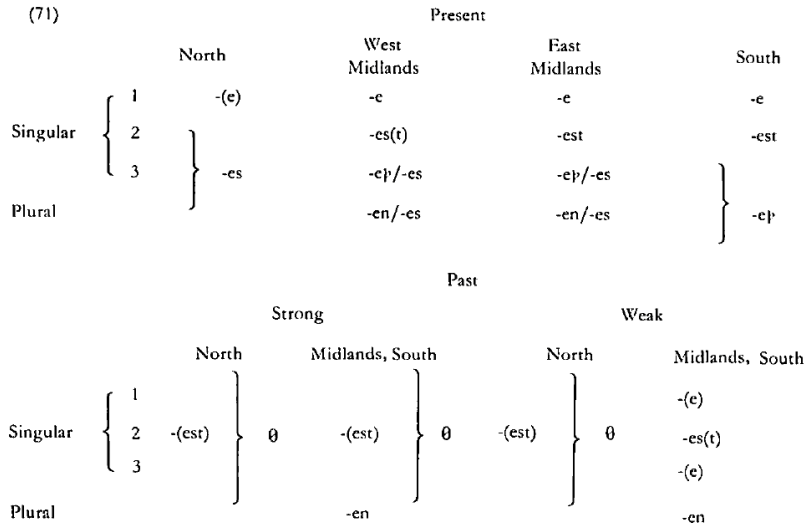
	Present		
	Indicative	Subjunctive	Imperative
1sg	-u,-o	-e	
2sg	-es	-e	-∅
3sg	-eð	-e	
Plural	-að	-en	-að
	Past		
1sg	-∅	-e	
2sg	-e	-e	
3sg	-∅	-e	
Plural	-on	-en	
Infinitive		-an	
Present Participle		-end	
Past participle		-en	

From late OE, many of the endings began to merge. First, unstressed front vowels (i.e. endings that were front vowels) were merged in /e/ (Hogg, 1992: 120). At the beginning of the Middle English period, the front and back vowels were further merged to /ə/ (Lass, 1992: 77). This merger meant that ME only differentiated six endings (-∅, *-e*, *-es*, *-est*, *-(e)ð* and *-en*).

In the first half of ME, different ending systems were generalised in different dialect groups: Northern, Midlands and Southern. The different ending systems are shown in Table 6 below (Lass, 1992: 137).

In the North, the ending *-es* spread from the 2. Sg. across all present forms apart from the 1. Sg, probably influenced by language contact with Scandinavian. In the Midlands, this spread is also attested. In addition, the OE ending *-að* was also analogically replaced by the plural ending *-en* (from the pret. plural and the subj. plural). The Southern endings were most conservative in retaining the variety of OE endings. In the 14th century, the Midlands plural ending *-en* began to spread into the South. At the same time, the ending *-en* dropped due to sound change, so that, in effect, the spread of the plural ending *-en* into the present resulted in a zero ending in the present plural. In late ME and EModE, the 3. Sg. *-s* ending spread

Table 6 ME verbal endings



southward, and it continues as the 3. Sg. ending in PDE. In the pret. sg. of strong verbs, endings are mainly zero-endings, while in the plural, the ending tended to be *-en*, which, again, dropped in late ME. The past ptc. ending was also *-en* and would also be expected to drop in late ME. However, the past ptc. ending could be retained.

The present second singular developed to late ME *-st*. This ending was eventually lost, after the pronoun *you*, which originally was the 2. person plural pronoun, came into use in the singular and carried its endingless 2. Pl. verbal form into what had become the singular.

Having described the development of endings from OE to PDE, it is crucial to pinpoint when endings of present and past categories merge, focusing on the indicative, infinitive and past ptc. endings.

1. Sg.: OE pres. *-u*/*-o* vs. pret. -Ø; ME pres. *-e* vs. pret. -Ø; late ME pres. = pret. -Ø.
2. Sg.: OE pres. *-es* vs. pret. *-e;* ME pres. *-es(t)* vs. *–(e)*; EModE. pres. = pret. -Ø.
3. Sg.: OE pres. *-eð* vs. pret. -Ø; ME pres. *-eð*/*-es* vs. pret. -Ø; EModE. pres. *-ð*/*-s* vs. pret. -Ø; PDE -s vs. pret. -Ø.

Pl./Inf./Past ptc.: OE pres. pl. *-að*, inf. *-an* vs. pret. pl. *-on*, past ptc. *-en*; ME pres pl. *-eð*/*-es*/*-en*, inf. *-en* vs. pret. *-en*, past ptc. *-en*; EModE pres. pl. = inf. = pres. pl. -Ø and past ptc. -Ø/*-en*.

Reviewing the merger of endings across different categories as listed above: the 1. Sg. pres. and pret. merge in late ME after the dropping of word-final *-e* (Lass, 1992: 79 writes that, while determining the exact date of this sound change is unclear, word-final *-e* was archaic in Chaucer's time (i.e. the 14th century). In the 2. Sg. pres. and pret. merge in EModE, since

naturally the pronoun *you* was used in both pres. and past. In the 3. Sg. pres. and pret. never merge. In the Pl./Inf./past ptc. endings, merger occurs in ME, though the merger of pres. and pret. pl. endings also occurs around the 14th century, as the plural ending *-en* begins to be used across different dialects in the pres. pl.

d. The retention of the past ptc. ending -en

The retention of the past ptc. ending *-en* will become a crucial part of the argument in this thesis. Why can this particular *-en* ending be retained in PDE, while other verbal endings in -en have all dropped?[7] One reason is suggested by Jespersen (1965: 76-83). It is connected to the fact that past participle forms can also be used as adjectives (e.g. *the broken window*). As adjectives, they are inflected for case in the ME period (e.g. *brokene*). While the outcome of the uninflected form ME *broken* /brōkən/ would be *broke* /brōk/, the outcome of the inflected form *brokene* (/brōkənə/) would be *broken* /brōkən/ after sound change. A comparable adjective/past ptc. distinction is preserved in some weak past ptc.s and adjectives (e.g. past ptc.: *The scholar has* ***learned*** (/lənd/) vs. adjective: *the* ***learned*** *scholar* (/lənɪd/), where the unstressed vowel preceding the dental suffix has survived in the adjective form, due to the former inflectional ending (e.g. *lerned-e*), which has dropped. This distinction can also be seen on strong verbs where the past ptc. ending has dropped (e.g. past ptc.: *The ship has sunk* vs. adjective *The sunken ship*).

In strong verbs that have retained the past ptc. ending, the state is different. The following is my interpretation and differs from Jespersen (1965: 76-83) and Lass (2000: 171)[8]. After phonological change, the past ptc. ending *-en* drops in every verb's past ptc. As I will argue in Chapter 4, in some past ptc. forms analogical change is required. One type of analogical change in the past ptc. is re-instating the past ptc. ending, in analogy to the adjective (as in *broken* above). This analogical change then spreads across English strong verbs. However, in two contexts, analogically re-instating the past ptc. ending is blocked for phonological reasons. In these two contexts, the past ptc. ending *-en* is never retained in PDE. Firstly, after nasals (e.g. *come, shone, sung* not **comen, *shinen, *sungen* etc.), secondly, after consonant clusters (e.g.*foughten*, **sunken, *holden, *standen* etc.)

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[7] The ending *-en* also remains in some plural forms of nouns (e.g. *ox, oxen*).

[8] For example, Lass (2000: 171) writes that the past ptc. ending *-en* "sometimes survives. (…) The story is not entirely clear, but seems to involve both differing regional outputs (…) and phonological and morphosyntactic conditioning." Wyld (1953: 344) argues that variation in the past ptc. is due to dialectal differences. However, if the variation is caused merely by dialectal variation, why is the variation confined to the past ptc. ending, while there is no variation in plural and infinitive endings, which have the same phonological form and occur in the same phonological contexts?

4. Phonological similarity

> *"During the Middle English period (and indeed for another three centuries) the whole strong verb system was in flux, with three major development patterns simultaneously (and variably) at work: (a) reduction in the number of vowel grades per verb; (b) "hybridisation" or mixing of forms from more than one class in the conjugation of a given verb; and (c) movement of verbs wholly or partly into the weak conjugation. These produce a complex and apparently disorderly picture during our period; it is nearly impossible to set out "standard paradigms" the way we can for Old English."* (Lass 1992: 131)

The above quote from Lass neatly summarises the state of ME and EModE strong verbs. The goal of this chapter is to make sense of these developments, especially development patterns (b) and (c). The goal is not to explain every form attested in the "disorderly" Middle English period, but rather to explain how and why the OE strong verb system changed in such a way in ME to become the PDE strong-verb system. As stated in the introduction, I will employ the concept of *phonological similarity* to explain the cause of analogical change. Before presenting the analysis, I will first introduce the concept of *minority* strong verbs.

Minority Strong Verbs

My analysis of the phonological development of English strong verbs is largely organised following the Germanic SV classes I to VII. This is because each class has different phonological pre-conditions and there is similarity in the development of strong verbs belonging to the same class. In every strong-verb class, a larger group of verbs follow the same phonological changes (these verbs will be "majority SVs"), while there is a smaller group of verbs that are influenced by different sound changes and develop along different lines, and these will be called "minority SVs". While majority SVs are, broadly, a homogenous group, in which all verbs follow the same sound changes, the group of minority SVs do not necessarily follow the same sound changes within their minority SV group.

Minority SVs are SVs with the root-final consonants <h, g, w, r, l> as well as homorganic consonant clusters. These root-final consonants have various phonological consequences for the root vowels (i.e. the markers of tense) immediately preceding them. Due to these sound changes, minority SVs tend to change their vowel-alternation pattern and have a different vowel alternation pattern from majority SVs of the same SV class. The following section is meant to briefly sketch the specific sound changes caused by these root-final consonants; the more detailed effects of these sound changes will be discussed later in this chapter.

OE <-*h*> /x/

There was the following allophonic distribution of /x/ in OE: in consonant codas it varied between [x] and [ç], the latter occurring after front vowels. Between vowels, by contrast, /x/ had been weakened to [h] and lost prior to OE. Strong verbs with word-medial /x/ are called contracted verbs. In parts of the present stem, such as the infinitive, the word-medial consonant /x/ was lost and the now adjacent vowels contracted to a diphthong or a long vowel (e.g. 'see' PGmc. *seh^{w}ana* > OE *seon*; 'flee' PGmc. *fleuhana* > *fleon*).

In the subsequent development, /x/ in consonant codas caused diphthongisation twice, so-called OE Breaking and ME Breaking. Finally, it was lost in consonant codas over a long process beginning in late ME and completed by the end of EModE.

OE <-*g*>

In PGmc., there was allophonic distribution between [ɣ] and [g]. [g] followed homorganic nasals, while [ɣ] occurred in all other positions (Ringe, 2017: 215). This distribution continued in OE with the only change that, when /ɣ/ was geminated, the outcome was /gg/ (Hogg, 1992: 91). In contexts of palatalisation, /ɣ/ changed to /j/ and /gg/ to /ʤ/. Palatalisation also caused diphthongisation of a following stressed vowel. During OE, initial (unpalatalised) /ɣ/ was strengthened to /g/ (Hogg, 1992: 91). Additionally, also in OE, /ɣ/ was devoiced word-finally to /x/.

Palatalisation generated two different sets of allophones in onsets and codas in ME. In onsets, there was variation between /j/ and /g/ whereas in codas it varied between /j/ and /ɣ/ (and /x/). In early ME codas, /j/ was vocalised to /i/ and /ɣ/ to /u/, creating new diphthongs.

/w/

Like unpalatalised /ɣ/ above, OE /w/ vocalised in consonant codas and became part of Middle English diphthongs.

/r/

/r/ in consonant codas also caused OE breaking (i.e. diphthongisation). In EModE, post-vocalic /r/ was lost in (British) PDE. This loss of /r/ interacted with other sound changes, most notably the Great Vowel Shift, meaning that words with a post-vocalic /r/ followed different sound changes in EModE.

/l/

/l/ also caused OE breaking. In late ME, /l/ caused diphthongisation of the preceding non-front vowel.

Homorganic Consonant Clusters /nd/ and /ld/

In late OE, vowels before homorganic consonant clusters were lengthened ("homorganic cluster lengthening" HCL). The initial contexts include /nd, ld, rd, mb, ŋg/; however, this lengthening did not occur in all dialects and was later retracted in many words. HCL only continues in PDE for certain vowels followed by /nd/ or /ld/.

In the beginning of this chapter, I briefly stated the effects of <h, g, w, r, l> and homorganic consonants on the (root) vowels preceding them. These phonological changes occur only in strong verbs with these root-final consonants. In these verbs, the vowel alternations differ from other SVs of the same class, for which reason their phonological development must be discussed separately.

I will now present my analysis showing instances of phonological similarity between strong verb stems and the analogical remodelling that follows. I have ordered my discussion of strong verb classes by following similar instances of analogical change from one group of verbs to another, rather than by discussing the SV classes from I to VII. The order of the discussion will be: SVs II and parts of SVs VII (4a.), SVs III (4b.); SVs IV and V (4c.); SVs I (4d.); and SVs VI and the rest of SVs VII (4e.)

The following analysis seeks to systematically examine analogical remodelling of all English strong verbs. Not included are strong verbs that are affected by phonological similarity with weak verbs derived from the same root, which will merely be mentioned in footnotes. Also not included are strong verbs only attested in OE or only marginally attested from ME onwards. This is because the types of analogical changes focused on in this thesis largely begin in the ME period (Hogg 1992: 156).

a. SVs II and a sub-group of SVs VII: Tracing analogical change triggered by phonological similarity

SVs II are a class of strong verbs whose development within English sharply differs from that found in other Germanic languages. The class SVs II contains a large number of verbs (there are around 51 SVs II in OE). The class remains well-represented in many modern Germanic varieties, with, according to Fertig (2020: 208), 26 strong verbs (i.e. +VA, -DS) continuing in Swedish, 25 (or 28 following Nübling et al. 2017: 285-286) strong verbs continuing in German and 35 strong verbs continuing in Dutch. In contrast, only five SVs II remain +VA, -DS in PDE (*choose, chose, chosen*; *freeze, froze, frozen*; *fly, flew, flown*; *shoot, shot, shot*; *forbid, forbade, forbidden*). Around 18 other former SVs II continue in PDE. All of these verbs have acquired a dental suffix.

This mass analogical acquisition of a dental suffix of SVs II, which occurred in English but not in other Germanic languages, requires an explanation. It challenges the theory of frequency causing analogical change as the frequency theory takes into account both type and token frequency. Even if individual verbs within SVs II have a low token frequency they can still remain strong verbs due to the large type frequency of SVs II. This is exactly the situation in German (Nübling, 2016: 275-276), where groups like SVs II comprise a significant number of German strong verbs, but in their total occurrence as a group they are less frequent than other strong verb groups with less members.

The way this mass analogical acquisition of a dental suffix of SVs II in English is explained following the frequency theory is demonstrated in Branchaw (2010: 38-39). Branchaw argues that the analogical acquisition of a dental suffix is caused by, firstly, the overall relative infrequency of SVs II (compared to SVs I) and secondly, the divergent phonological outcomes of SVs II. These divergent phonological outcomes can be seen on the one hand in the various root vowels in the present stems of SVs II (e.g. /ī/ *freeze,* /ū/ *choose,* /ʌɪ/ *fly,* /ɪ/ *forbid,* /ʊ/ *brook,* /aʊ/ *crowd,* /ʌ/ *suck*), on the other hand in that among those SVs II that remain +VA, -DS in PDE (listed above), "no two are alike" (Branchaw, 2010: 39, also Fertig, 2020: 208). However, seven SVs II continue in PDE with present root vowel /ī/ (*freeze, flee, creep, cleave, seethe, reek* and *sneeze*), which is a similar number to the six to ten SVs I[9] that continue +VA, -DS in PDE. Despite the phonological variety within SVs II, why could these seven verbs not have stabilised their strong VAP as a group, similarly to SVs I?

As developed in Chapter 2, in this thesis I will take a different approach to analogical change in English strong verbs centred on the concept of phonological similarity. I would like to focus on a different, related, observation that is not usually made in the framework of frequency. The frequency approach centres on the difference between strong verbs that remain +VA, -DS and those that become -VA, +DS. However, one important observation about SVs II can only be made if these two groups are seen together. This requires first an analysis of the majority PDE phonological outcomes of the OE root vowels that make up SVs II's four strong verb stems.

[9] The variation six to ten is due to divergent vowel-alternation patterns in SVs I. Six SVs I continue the VAP /ī/, /əʊ/, /ɪ/ in PDE (e.g. *write, wrote, written*; also *rise, ride, drive, smite* (also with weak forms) and *stride* (also with the past ptc. *strode*). There are additionally four SVs I with slightly different VAPs (*bite, bit, bitten*; *slide, slid, slid*; *abide, abode, abode* (more commonly weak *abided*) and *shine, shone, shone*). Excluded here are those SVs I that remain +VA, -DS but have been affected by a different group of strong verbs (*strike, struck* and *sneak, snuck*).

SVs II are divided into two groups in OE: those with a present stem in root vowel OE /eo/ (called SV II eo-presents, e.g. 'fly' *fleogan, fleag, flugon, flogen*) and those with a present stem in root vowel OE /ū/ (SV II ū-presents, e.g. 'bow' *bugan, beag, bugon, bogen*). Across the past stems, these two groups have the same root vowels (OE pret. sg. /æɑ/, pret pl. /u/, past ptc. /o/). Table 7 depicts the hypothetical development of these root vowels from OE to PDE, if the root vowels had merely followed regular phonological change[10].

Table 7 SVs II root vowels after phonological change

	OE		ME		EModE		PDE	
Pres.	/eo/	/ū/	/ɛ̄/	/ū/	/ī/	/ou/	/ī/	/aʊ/
Pret. Sg.	/æɑ/		/ɛ̄/		/ē/		/ī/	
Pret. Pl.	/u/		/u/		/u/		/ʌ, ʊ/	
Past ptc.	/o/		/ɔ̄/		/ō/		/əʊ/	

If we look at the PDE outcomes of OE root vowels after regular phonological change and compare these values to how SVs II appear in PDE, we can make the following observations: As I have already mentioned, seven SVs II have the PDE present stem root vowel /ī/ resulting from SVs II eo-presents; three (*crowd, sprout, bow*) the PDE present stem root vowel /aʊ/ resulting from SVs II ū-presents; two verbs maintain the past ptc. root vowel /əʊ/ (*frozen* and *chosen*). Strikingly, if we look at the pret. of the five SVs II that remain +VA, -DS in PDE (*chose, froze*, *flew*[11], *forbade*, *shot*), none of these verbs have the expected root vowels pret. sg. /ī/ or pret. pl. /ʌ, ʊ/. This contrasts with most other PDE +VA, -DS verbs, whose pret. forms (e.g. *drove*, *sang*, *blew*, *shook*) do follow regular phonological change from OE pret. forms.

This means that, if we take the entire group of SVs II together, combining both verbs with and without dental suffix in their pret. forms, analogical change in the pret. of SVs II in English occurred in every single verb. At some point, the continuations of OE root vowels were replaced across the entire group, independently of whether new root vowels or a dental suffix were analogically acquired. The question of which verb remained strong and which one became weak conceals a more fundamental question: why did all SVs II analogically remodel their pret. root vowels?

[10] This table does not consider contextual sound changes, as they occur in minority SVs II, such as *fly*.
[11] The pret. of *fly, flew*, also does not follow phonologically from its OE pret. form.

It is to answer this question that I use the concept of phonological similarity as defined in Chapter 2. Table 8 copies the ME part of Table 7, the expected ME values of SVs II root vowels.

Table 8 SVs II ME phonological similarity

ME	SV II eo-presents	SV II ū-presents
Pres.	/ē/	/ū/
Pret. Sg.	/ɛ̄/	/ɛ̄/
Pret. Pl.	/u/	/u/
Past ptc.	/ɔ̄/	/ɔ̄/

As I argued in Chapter 2, when present and past forms merge or near-merge, there is evidence from other languages that analogical change can be triggered. In both SV II eo-presents and SV II ū-presents, a context of phonological similarity can be identified in ME (highlighted in Table 8). In SV II eo-presents, it is between the present and pret. sg. forms (e.g. between ME pres. ind. 1. Sg. (of *choose*) *chese* / /t͡ʃēz(ə)/ and pret. ind. 1.Sg. /t͡ʃɛ̄z/). These two forms, present and pret. of the same category, are formally distinct in two ways, the root vowel pres. /ē/, pret. /ɛ̄/ and the present 1. Sg. ending -ə. But this ending is dropping in late ME. Afterwards, the two forms are distinct merely in their root vowels, the two mid-high front vowels /ē/ and /ɛ̄/. According to the theory of phonological similarity triggering analogical change, this distinction is too small to reliably carry morphological information.

In SV II ū-presents, phonological similarity occurs between present and pret. pl. forms (e.g. between ME pres. ind. pl. (of *shove*) *scuven* /ʃūvən/ and pret. ind. pl. *scuven* /ʃuvən/). Here, the present and pret. forms of the same category are merely distinct in terms of vowel length. Following the theory of phonological similarity triggering analogical change, it is in these contexts that analogical change is expected.

In SVs II, the second part of this thesis' central claim also applies. It could have been the case that both SVs II groups generalise the other pret. root vowel that has not become phonologically similar across their paradigm. In SV II eo-presents, the root vowel /u/ could have spread into the pret. sg., while in SV II ū-presents, the root vowel /ē/ could have spread into the pret. pl. But this did not happen. Instead, phonological similarity in one of the SVs II groups appears to have equally affected the other group where phonological similarity did not occur. The phonological similarity in SV II eo-presents between pres. root vowel /ē/ and pret. sg. /ɛ̄/ spread into SV II ū-presents, which also analogically remodelled their pret. sg. stem. The phonological similarity in SV II eo-presents between pres. root vowel /ū/ and pret. pl.

root vowel /u/ spread into SV II eo-presents, which also analogically remodelled the pret. pl. stem. Table 9 is a variation of Table 8, showing in blue those parts of the paradigm of SVs II that require analogical remodelling.

Table 9 Areas of analogical remodelling

ME	SV II eo-presents	SV II ū-presents
Pres.	/ēo/	/ū/
Pret. Sg.	/ēa/	/ēa/
Pret. Pl.	/u/	/u/
Past ptc.	/ō/	/ō/

The theory of phonological similarity triggering analogical change therefore provides an answer to the question why all SVs II analogically remodelled their pret. forms. In the remainder of this sub-chapter, I will discuss the ME attestation of SVs II, and the question of what kind of analogically remodelled forms can be found in SVs II, including also analysing minority SVs II, where different sound changes operate, before turning to a sub-group of SVs VII, where similar instances of phonological similarity can be found.

Analogical Remodelling of SVs II

There are, broadly, four attested types of analogical change that are attested in the pret./past forms of ME SVs II: (1) the past ptc. root vowel /ō/ spreads into the pret. (as in PDE *freeze, froze, frozen*); (2) the root vowel <a> spreads into the pret. (ME pret. *chase* of *choose*; not generalised in PDE); (3) mixed weak forms are generated, characterised by both a dental suffix and vowel shortening in past forms (i.e. +VA, +DS, such as *creep, crept*) and (4) a dental suffix is analogically acquired without any vowel alternation in past forms (i.e. -VA, +DS, such as *seethe, seethed*). I will now discuss the ME attestation of SV II eo-presents.

Root-final Labial

(OE *cleofan, creopan*; PDE *cleave, creep*)

The aforementioned four types of analogical change are attested for *creep* and *cleave*: (1) spread of the past participle root vowel /o/ into the preterite singular (and plural; e.g. *crope*); (2) a handful of forms with /a/, which are associated with Northern dialects by the OED and also attested in Scots (DSL: *crap* /krɑp/); (3) forms with a dental suffix. The ME attestation appears to show both regular weak forms (e.g. *crepid* likely /krēpəd/ or /krēpt/) and weak forms with a short vowel /krept/ (e.g. *crept*). Naturally, it cannot be said for certain that the ME form *crepid* represents a regular weak-verb form, while the ME form *crept* represents a mixed weak verb. But given that in both verbs past forms with a short vowel are generalised

in PDE, combined with ME attestations of *crept* and *cleft*, it is very likely that pret. forms with a short vowel already existed in ME.

Of the four new variants, two continue across a long period of time in *creep*: *crope* and *crept*. *Crope* is still in use in the 19th century US South (Smith, 1883: 47). *Crept* has become the standard form. For *cleave*, the OED stills lists all four forms of analogical remodelling as possible PDE past forms: pret. *clove, clave, cleaved, cleft*; past ptc. *clove, cloven, cleaved, cleft*.

Root-final Dental

(OE *seoðan, geotan, greotan,* PDE *seethe, yet* 'pour'*, greet* 'cry')

Verbs with dental codas are more difficult to follow as two of the three verbs have become archaic/dialectal in PDE. *Seethe* is still common in PDE. In OE, the consonant coda varied between /ð/ and /d/ across different strong verb stems (i.e. OE *seoðan, seað, sudon, soden*). This variation is due to Verner's Law. In the pret. sg. stem of *seethe*, the analogical variants (1) *sothe* and (4) *seethed* appear in ME. The /d/ of the past participle is not attested to have analogically spread into the pret. sg. stem; *sod-* is not attested. Regular weak forms continue in PDE. In the past participle, *sodden* is still attested until the 17th /18th centuries (OED) and there is also the form *sothen*, where the dental fricative has spread to the past ptc. *Sodden* still continues as an adjective in PDE (though with a short vowel). For the verb *seethe*, analogically changing the pret. root vowel after the past ptc. root vowel required change to both the root vowel and the consonant coda, which did not occur. According to the OED, the weak past ptc. nevertheless appears very late, only in the 1700-1800s.

Greet and *yet* are infrequently attested in ME and with their root ending in a dental, it can be difficult to interpret forms. For example, is the ME pret. form *gret* a neo-strong verb like *meet, met* with the ME phonological form /gret/, or does it continue the OE strong form, i.e. ME /grēt/? The MED interpretation of the data does not decide whether the <e> vowel of *gret* is long or short. On the other hand, the OED lists ME forms such as *gette* (pret.sg. of *yet*) as strong forms, despite the <tt> likely indicating that the consonant was a geminate due to the additional presence of a dental suffix and/or that the preceding vowel had been shortened. There is still clear evidence of vowel shortening in the pret. forms of these two verbs, along the lines of *meet, met*. For example, in Scottish English, where the verb *greet* continues to be used, there are two possible past tense forms of *greet*: *grat* /grɑt/ and *gret* /grɛt/ (i.e. with the short vowel in the pret.; SND). Many spellings also point to the existence of such forms already in ME. Given developments in other SV II eo-presents and also in some SVs VII (as

shown later), it is very likely these verbs (would have) joined the meet-neo-strong verb group.

Root-final Alveolar

(OE *freosan, ceosan, fneosan, dreosan, hreosan* PDE *freeze, choose, sneeze*)[12]

Analogical remodelling of SV II eo-presents with roots ending in OE -s- generally follows other SV II eo-presents with one major difference: the mixed weak verb inflection is not attested in ME, nor has it been generalised in PDE. The attested analogically remodelled forms include the three other options that are also available to other SV II eo-presents: (1) the spreading of the past participle root vowel <o> (e.g. *chose*); (2) the spreading of the root vowel <a> (e.g. *chase*); and (4) (regular) weak forms (e.g. *chesed*). Analogical change in SVs II with root-final alveolars also includes consonantal levelling between stems (e.g. past ptc. *koren* → *chosen*).

Freeze is not well attested in the ME period. The MED lists only two preterite singular forms, *frēs*, which is a phonologically regular form continuing the OE form, and *frēsede*, an analogically created weak form. The MED does not list any past plural forms. The past ptc. forms show that the form is remodelled from *froren* to *frozen*, both forms are attested in ME. The OED does not distinguish pret. sg. from pl. forms, but claims that from the 1600s, *froze* is the common form across the preterite, though weak forms continue until the 19th century.

ME *fnesen* 'sneeze' is even less frequently attested in ME, though the MED lists one preterite 3.Sg. form, *fnoze*. According to the OED[13], ME *fnesen* continues in PDE in the form of *sneeze*, whose past forms (*sneezed*) have acquired a dental suffix.

Choose is by far the best attested word of this group, but its development is somewhat different. In ME, there are two attested present stems, one being *chese* /tʃēz/, which would be the regular continuation of an eo-present, while the second form *chose* /tʃōz/ derives from an OE sound change: /eo/ > /ō/ (Lass, 1992: 43). This change is marginal, but happens in two other SV II eo-presents, *shoot* and *lose*[14]. ME /tʃōz/ is the basis of PDE *choose*. In ME by

[12] There are no relevant SV II eo-presents with root-final velars. OE *reocan* PDE *reek* is excluded here as it merges with the denominal weak verb 'reek' from OE *rec* 'smoke'.

[13] The OED writes: "*Fnese* had apparently gone out of use early in the 15th cent., its place being mainly supplied by *nese*. The adoption of *sneeze* was probably assisted by its phonetic appropriateness; it may have been felt as a strengthened form of *neeze*."

[14] *Shoot* and *lose* are excluded from the discussion here, as they are both affected by weak derivative verbs. In ME, the present stems of *shoot* and *lose* become phonologically similar to the present stem of OE *losian* and *scotian* (ME strong /lōsən/, weak /lōsən/; strong /ʃōtən/, weak /ʃōtən/). In PDE, the past forms of *lose* and *shoot*, *lost* and *shot* respectively, continue the weak past forms of those former weak verbs (OE *losode* > *lost*; *scotode* > *shot*).

contrast, present forms with root vowel <e> predominate, according to the OED, MED and Long (1944: 71-74).

Despite the irregularity of the development in the present stem, analogical remodelling of the preterite and past ptc. followed the same pattern as for other eo-presents, with roots vowels in <a> (*chase*) and <o> (*chose*), as well as weak forms attested. According to the dates of the OED, the remodelled past ptc. (*koren* → *chosen*) began to appear in the 12th century, with the regular past ptc. *core* or *coren* still attested in the 15th century. *Chose(n)* was also attested in the pret. pl. around 1300 (OED) and predominated in the 15th century (Long, 1944: 73). According to Long and the MED, forms with <o> also appeared in the pret. sg. in late ME. Meanwhile, regular past sg. forms in <e> also appeared across ME and also spread to the pret. pl., while there are also many weak forms listed in the OED. The PDE inflection was already generalised in EModE. Greenwood (1729: 159) lists *choose, chose, chosen* with no possible variation.

Minority SVs II eo-presents

I will now turn to minority SV II eo-presents. In these verbs, different sound changes apply, for which reason the instances of phonological similarity are not (necessarily) identical to those found in other SV II eo-presents.

Root-final OE <g>

(OE *fleogan*, *leogan, dreogan,* PDE *fly, lie, (dree)*

Table 10 Phonological similarity in Minority SV II eo-presents with root-final OE <g>

	OE	ME strong	ME weak
Present	*fleogan* /fleoɣan/	/fleiən/	/leiən/
Pret. Sg.	*fleah* /flæɑx/	/fleiç/→ /fleu/	→ /leidə/
Pret. Pl.	*flugon* /fluɣan/	/flūən/ → /fleuən/	
Past Ptc.	*flogen* /floɣen/	> /fləuən/	→ /leidə/

The allophonic variation of /g/ in the coda made a very different vowel-alternation pattern appear in these minority strong verbs in OE when compared to majority SV II eo-presents. The vocalisation of /j/ and /ɣ/ and ME breaking before /x/ further impacted the vowel-alternation pattern. The ME pret.sg., /fleiç/, following ME breaking, appeared to have the same root vowel as the present stem (there were two different ME diphthongs, /ei/ and /ɛi/, both spelled <ei>, that develop differently (Lass, 1992: 51), as it was also monophthongised in /ī/, /flīç/ (*fligh*). The pret. sg. was therefore distinguished from the present stem only by the root-final [ç]. This distinction was lost as word-final /x/ began to be dropped in the late fourteenth century (Lass, 1992: 63). For *fly,* analogical alternatives appeared in the preterite, for example in <ow> /ɔu/ spreading from the past ptc. into the

preterite. The second analogical pattern was generated by analogy to a sub-group of SVs VII such as *flow* (ME. *flowen, flew*). After regular sound change, the past ptc. forms of *fly* and *flow* had merged. Through analogical change, *fly* acquired the pret. of *flow* (ME *flew*). To remain distinct from *fly, flow* analogically acquired a dental suffix to form its past (PDE *flowed*).

Lie (i.e. 'not to tell the truth') already had many weak forms in ME, as has been generalised in PDE *lied*. In addition to the complex vowel alternation pattern, its present stem merged with SV V *lie* 'to recline'. *Dree* 'suffer, undergo', which is now chiefly regional, had both strong and weak forms in ME. For both *lie* and *dree*, the forms listed in the MED are all either phonologically regular forms or weak forms, and no analogical changes within the strong verb category (such as *flew*) are attested.

Root-final -w

(OE *ceowan, breowan*, PDE *chew, brew*)[15]

Table 11 Phonological similarity in Minority SV II eo-presents with root-final -w

	OE	ME strong	ME weak
Present	*breowan* /breowan/	/breuən/	> /breuən /
Pret. Sg.	*breaw* /bræɑw/	/brɛu/	→ /breudə/
Pret. Pl.	*bruwon* /bruwan/	/brūən/	
Past Ptc.	*browen* /browen/	/brɔuən/	→ /breudə/

After OE /w/ is vocalised in ME, an irregular version of the standard SV II eo-presents' vowel alternation pattern arises. It closely resembles the pattern of other SV II eo-presents, though in diphthongised form. Present and pret. sg. forms are phonologically similar (i.e. ind. 1. Sg.: pres. /breu(ə)/, pret. /brɛu/) and require analogical remodelling. Strong forms of *brew* persisted in ME, but weak forms also arose. *Chew* is poorly attested in ME and all past forms are with dental suffix. Both verbs are regular weak verbs in PDE.

Contracted SVs II

(OE *fleon, teon* 'draw, pull'; PDE *flee*)

Table 12 Development of Contracted SV II eo-presents

	OE	ME strong	ME weak
Present	*teon* /teon/	/tēn/	/flēn/
Pret. Sg.	*teah* /tæɑx/	/teiç/ > /tīç/	→ /fled(d)ə/
Pret. Pl.	*tugon* /tuɣan/	/tūən/	
Past Ptc.	*togen* /toɣen/	/tɔuən/	→ /fled(d)ə/

[15] OE *hreowan* PDE *rue* is excluded here as in ME its present stem merges with OE *hreowian* (weak) in /hreowən/.

Following the monophthongisation of ME /ei/ in /ī/ in the pret. sg. stem, present and pret. sg. stems are still distinguished by vowel height (/ē/ and /ī/) and by root-final [ç] in the pret.sg., though [ç] slowly drops over the course of the EModE period. Phonological similarity does not occur in contracted SVs II.

ME *ten* is relatively frequent but becomes obsolete in the 16th century (OED). There are no weak forms listed in the OED and only one weak form is listed in the MED, *teghit.*.

The entire past paradigm of *flee* fully matches *fly* already in OE. Historically regular strong preterite forms continue across the ME period. Simultaneously, two other possible past tense forms are attested in ME: firstly, *flew* following the analogical change of *fly* and secondly, *fled*, which is attested from 1300 onward (OED), following common analogical change in SV II eo-presents. This final form continues in PDE. In this case, the reason for the analogical acquisition of a dental suffix seems to be primarily caused by the need to keep past forms of *fly* and *flee* apart. The resulting analogically remodelled form with a short vowel, *fled* (following other mixed weak verbs/neo-strong verbs with a long vowel in the present and a short vowel in the past, such *meet, met*; *keep, kept*; and other SVs II eo-presents *creep*, *crept*), is remarkable, as the preterite form does not contain a post-vocalic consonant cluster of the shape required to cause vowel shortening (as discussed in Chapter 3). However, in the context of other SV II eo-presents analogically being remodelled after mixed weak verbs, the analogical change in *flee* is understandable. The explanation given by the OED, that past *fled* is influenced by Middle Swedish pret. *flydde*, is far-fetched.

To sum up the discussion of SV II eo-presents: of the 17 verbs that are attested in ME, three remain +VA, -DS in PDE, two by generalising the past participle root vowel across the past stems (*chose* and *froze*), one by being remodelled after SVs VII (*flew*); three become mixed weak verbs (*crept, cleft, fled*); five become regular weak verbs in PDE (*chewed, brewed, sneezed, seethed, lied*) and six become (near-)obsolete in PDE. These verbs have generalised different methods of remodelling past stems to re-distinguish tense. The cause of the remodelling is (largely) shared across the group of verbs, however which alternative they generalise is determined by other factors.

One major factor that determined the choice of which alternative re-modelling was generalised in PDE is the phonological structure of the verb. For example, only SV II eo-presents ending in labials and dentals could analogically be changed into mixed weak verbs. This is because the mixed weak verbs that have been created after PCS all have root-final labials or resonants (e.g. *keep, leave, feel* etc.) Additionally, SV II eo-presents and mixed weak verbs shared the same ME present root vowel /ē/ (or ɛ̄). Due to their similarity in

phonological structure, some SV II eo-presents were analogically remodelled to become mixed weak verbs (e.g. *keep*, *kept*; *creep* → *crept*). Meanwhile others, such as SV II eo-presents whose root-final consonant is alveolar, did not join this group, as there were no mixed weak verbs with root final alveolars (Minkova and Stockwell (1998: 230) list *lose* as part of this mixed weak verb group; however, I do not believe that *lose* belongs in this group (see footnote twelve above). There is no precedent on the basis of which which a mixed weak verb like *freeze, frest* etc. could be generated analogically. We will see more examples of analogical changes according to which strong verbs become mixed weak verbs when we turn to SVs VII with root-final consonants, later in this chapter.

SV II ū-presents

After having discussed SV II eo-presents, I will now investigate analogical changes in SV II ū-presents. There are 14 SV II ū-presents in OE, of which 10 remain in ME. I will begin with eight majority SV II ū-presents, though only two are well-attested in ME (*suck* and *shove*) and finish with two minority SV II ū-presents.

Majority SV II ū-presents

(OE *brucan, crudan, scufan, sprutan, sucan, supan, hrutan, lutan*; PDE *brook, crowd, shove, sprout, suck, sup, rout, lout*)

As was already argued, phonological similarity in majority SV II ū-presents developed between the pres. and pret. pl. stems (e.g. 'shove' ind. pl.: pres. /ʃūvən/, pret. /ʃuvən/). In addition, SV II ū-presents were also affected by the phonological similarity of SV II eo-presents between pres. and pret. sg. Like in SV II eo-presents, both pret. root vowels were subject to analogical remodelling.

The development of SV II ū-presents is complicated by non-standard phonological developments in these verbs' present stem. The non-standard development within SV II ū-presents can be seen in the variation of their PDE present stem root vowels. Table 13 shows this variation and possible ME root vowels from which the PDE root vowels derive.

Table 13 SV II ū-presents' PDE present root vowels

	PDE Present Stem Root Vowel	< ME
sprout, lout, crowd, rout	/aʊ/	/ū/
brook	/ʊ/	/u/
suck, sup, shove	/ʌ/	/u/

There are three variations in PDE, of which the first is the standard development of /ū/ from ME to PDE. ME /ū/ was diphthongised during the GVS and becomes /aʊ/ in PDE. It should be noted that all four verbs that continue this regular development have root-final dentals. In contrast the verbs listed in the other two columns of the table followed non-

standard developments. The PDE variation between /ʌ/ and /ʊ/ is secondary (around the 17th century (Lass 2000: 89). Verbs with root vowels /ʌ/ and /ʊ/ likely derive from ME /u/. The verbs in this category all have root-final velar or labial consonants.

Given that originally all SV II ū-presents had the root vowel /ū/, some kind of shortening must be assumed to arrive at ME/EModE /u/. There are multiple ways of explaining this. One possible explanation is a dialectal shortening of /ū/ in Northumbrian, the Northern dialect of OE. As will be discussed in 4d., Seebold (1966) identifies the shortening of /ī/ in Northumbrian as a way of understanding some outcomes of non-standard SVs I. One major parallel between these two developments, apart from the fact that in both cases high vowels are shortened, is the phonological context. Shortening of /ī/ affected SVs I with root-final /p/ and /k/ in standard English, precisely the labial and velar contexts that are relevant in SV II ū-presents.

Luick (1921: §389) suggests a "murky" sound change, which they locate in the Western Midlands and parts of the North before the 13th century, by which /ū/ was shortened before velar and labial *fricatives.* This explanation includes two SV II ū-presents *bow* (which will be discussed later) and *shove*. However, Luick explicitly writes that shortening of *suck* is caused by other factors.

Even after accepting some kind of shortening of /ū/, major questions remain. As this is not a phonology thesis, I will skip over this question and return to discussing strong verb stems. As a summary, the general phonological development of SV II ū-presents present stems is sketched in Table 14.

Table 14 SV II ū-presents: Development of present stem root vowel

OE	ME	EModE	PDE	
/ū/	/ū/	/ou/ > /ɔu/	/aʊ/	
	/u/	/u/	ʌ	ʊ

Following on from the discussion of the development of the present root vowel, I will discuss the development of the past forms. Table 15 shows the development of the vowel alternation pattern between PGmc. and ME.

Table 15 SV II ū-presents' stems in OE. and ME

	OE	ME
Present	/ū/	/ū/ (>/u/)
Pret. Sg.	<ēa> /æɑ/	/ǣ/ > /ɛ̄/
Pret. Pl.	/u/	/u/
Past Ptc.	/o/	/ɔ̄/

Only two SV II ū-presents are well attested in ME: *shove* and *suck*. In both verbs, the two expected types of analogical remodelling appear: the spread of the past ptc. root vowel <o> into the pret. and forms with a dental suffix. This is particularly true of Long's 15th-century data, specifically in the pret. sg. attestation of *suck* (Long, 1944: 99), which is best attested: while only one form has the root vowel <e>, expected from phonological change, eight forms have the root vowel <o>, while six forms have a dental suffix. Root vowel <o> is also frequently attested in pret. pl. forms, though given that in ME /u/ is often spelled <o>, forms attested with <o> could reflect both /u/ (the original pret. pl. root vowel) or /ɔ̄/ (the root vowel analogically acquired from the past ptc.)

Strong pret. and past ptc. forms of SV II ū-presents did not continue into EModE. There are no such forms listed in Wyld 1953 or Greenwood 1729 and the OED does not list any strong forms after ME. In PDE, all SV II ū-presents continue with a dental suffix across past forms.

Minority SV II ū-presents

(OE *bugan, smugan* PDE *bow*)

Table 16 Minority SVs II

	OE	ME	EModE
Present	*bugan* /būɣan/	/būən/	/bou/
Pret. Sg.	*beah* /bæɑç/	/beiç/	/bei/
Pret. Pl.	*bugon* /buɣan/	/būən/	→/bɔu/
Past Ptc.	*bogen* /boɣen/	/bɔuən/	/bɔun/

As with other SV II ū-presents, phonological similarity arises between the present stem and the pret. pl. stem in early ME; in this case they have merged following the vocalisation of OE [ɣ]. It is the past-participle root vowel /ɔu/ that is overwhelmingly attested in the ME pret. pl. In the GVS, as /ū/ is diphthongised, it becomes phonologically similar to /ɔu/, first as /ou/ then as a variation of /ɔu/, though the two sounds never merge (Lass, 2000: 93). Forms with a dental suffix predominate in EModE and continue in PDE.

The concept of phonological similarity triggering analogical change (as argued for in this thesis) is presented in its full breadth in for SVs II. Firstly, the concept of phonological *similarity* (as opposed to merely merger) is critical for analogical change in SVs II. While ME /ē/ and /ɛ̄/ will eventually merge in EModE-PDE /ī/, this occurs much later than analogical change is attested in SVs II. Conversely, ME /ū/ and /u/ do not usually merge in English. Analogical change triggered merely by merger could not explain the ME analogical change that is required in SVs II. Secondly, the separate instances of phonological similarity triggering analogical change in both majority SVs II groups spread into the other group

respectively, in which context phonological similarity does not occur, and analogical change would therefore not be expected.

SVs VII with root-final consonants

Analogical changes in SVs VII with root-final consonants resembles analogical changes in SV II eo-presents. This is because, in many cases, the instance of phonological similarity in SV II eo-presents and SVs VII with root-final consonants is the same: between ME root vowels /ē/ and /ɛ̄/.

In PGmc. and Gothic, SVs VII formed their preterite stem with a reduplication syllable consisting of the first consonant of the root and a vowel. In OE, this reduplication syllable has been almost entirely lost. SVs VII have instead generated a new vowel-alternation pattern. The root vowel of their pret. stem is either OE /ē/, /e/ or /eo/ (Brunner, 1965: §394).

SVs VII can be grouped according to their present stem root vowel in PGmc. The following development in English is, broadly, dependent on whether the root has any consonants in the coda in PGmc. or not, the latter being called *verba pura*. Following sound change, phonological similarity between present and all past forms develops in most SVs VII with root-final consonants, while in SVs VII verba pura, phonological similarity develops only between present and past ptc. forms. As the phonological similarity in SVs VII with root-final consonants mirrors SV II eo-presents, I will discuss this sub-group here. I will return to the other SVs VII in Chapter 4e.

SV VII ea-presents

(OE *beatan, eadan, heawan, hleapan*; PDE *beat, hew, leap*)

Table 17 Phonological similarity in SV VII ea-presents

	OE	ME
Present	/æɑ/ *beatan*	/bɛ̄tən/
Pret. Sg.	/eo/ *beot*	/bēt/
Pret. Pl.	/eo/ *beoton*	/bētən/
Past Ptc.	/æɑ/ *beaten*	/bɛ̄tən/

This sub-group of SVs VII had root vowel /au/ across all four stems in PGmc. After de-reduplication, a preterite with the root vowel /eo/ was introduced. The present-preterite distinction in OE (present root vowel /æɑ/, pret. root vowel /eo/) was exactly inverse to the SV II eo-presents' present-preterite distinction. Following monophthongisation, the same type of phonological similarity between present and preterite (and past ptc.) forms as seen in SV II eo-presents developed (between pres. /ɛ̄/, pret. /ē/ and past ptc. /ɛ̄/; e.g. ind. 1. Sg.: pres.

/bēt/, pret. /bēt/; ind. pl. pres. /bētən/, pret. /bētən/ and past ptc. /bētən/) with the significant difference that there was no past participle stem in -o-. There was therefore no established strong verb stem that remain adequately phonologically distinct.

Leap, like *creep* in SV II, analogically remodelled after mixed weak verbs, with its preterite *lept*. In ME other analogical alternatives were also attested. Following SVs II, forms with <o> such as pret. *lope* and past ptc. *lopen* are attested. There is also evidence of preterites with a short vowel (*leppe*); with root vowel <a> (*lap*); and weak verbs with long vowels (*leepte*).

For *beat,* the pret. form *beat* in PDE is the same as the present form. Preterite forms with a short vowel are also attested (*bette*), as are forms with root vowel <o> (*bote*) and regular weak forms (*beated*). The fact that PDE continues a long vowel in the preterite is possibly to distinguish the preterite form of *beat* from the preterite form of *bet*.
The development of *hew* follows *chew* and *brew*. Regular weak forms spread from the 14th century (OED).

SV VII ǣ-presents

(OE *brædan, ondrædan, (hwætan), lætan, slæpan*; PDE *dread, let, sleep*)

Table 18 Phonological similarity in SV VII ǣ-presents

	OE	ME
Present	/ǣ/ *slæpan*	/slɛ̄pən/
Pret. Sg.	/ē/ *slep*	/slēp/
Pret. Pl.	/ē/ *slepon*	/slēpən/
Past Ptc.	/ǣ/ *slæpen*	/slɛ̄pən/

In SV VII ǣ-presents, which had the PGmc. root vowel /ǣ/ in the present and a root-final consonant, phonological similarity appeared analogously as in SV VII ea-presents. The root vowel of the pret. had become OE /ē/ after de-reduplication. In ME, the present stem was phonologically similar in ME /ɛ̄/.

These verbs are largely attested with dental suffixes across the ME period. *Sleep* is not attested with any other analogical variation besides the acquisition of a dental suffix, both with evidence of a short vowel and a long vowel. *Sleep* already had weak past forms in OE. This can possibly be explained in that, in some OE dialects, its present stem was *slepan*, with present stem root vowel /ē/, (Brunner, 1965: §63). In this form, the present stem had already merged with the pret. in OE. In PDE, pret. *slept* follows other former SVs II and VII such as *lept* and *crept*.

For *let* there are some pret. forms with root vowel /a/ attested, but no forms in <o> in ME. Pret. forms are frequently spelled with a geminate <tt> (*lete* vs. *lette*), indicating a short

vowel in the pret. The present stem also shortens its vowel to PDE /ɛ/, due to phonological change, which places *let* in the unmarked verb category with /lɛt/ functioning as its present and past stem.

The attestation of *dread* is similar to *let.* It also had preterite forms with root vowel <a> attested and its weak forms often have a geminate consonant. Its present stem vowel also shortens in ME. The only difference is that it generalises a regular weak verb preterite *dreaded* in PDE.

The ME attestation of *brǣdan* also follows *dread* and *let*. The verb becomes obsolete in ME.

SV VII ā-present (OE scadan; PDE shed) and ō-present (OE wepan PDE weep)

Shed is the only SV VII in PGmc. -ai-, where the strong verb continues in ME.

According to the OED, *shed* is already a weak verb in Northumbrian OE, while it remains a strong verb in West Saxon. The OE attestation is surprising as the present stem is attested as both *scādan* and *sceadan*; while the preterite stem is both attested as *scēd* or as *scead*. The variation is caused by palatal diphthongisation, which in the OE dialects of Northumbrian and West Saxon causes a vowel following a palatal consonant to diphthongise. However, usually OE /ē/ is diphthongised to /ie/, which makes the attestation of a West Saxon preterite *scead* diphthongised from *scēd* surprising. Nevertheless, based on the OE attestation, that diphthongised present and pret. stem merge in *scead-*, makes analogical remodelled forms like OE *sceadade* (Brunner, 1965: §394) understandable.

In ME, a form resulting from *sceadan*, with <e> (e.g. *shede*), is largely attested in the present stem. In the preterite stem, there were overwhelmingly weak forms written with a geminate (e.g. *shedde*), which makes the shortening of the preterite vowel from /ɛ̄/ or /ē/ likely. Preterite forms with a root vowel <a>, often with a dental geminate (e.g. *shadde*), also appear in ME. In PDE, the preterite *shed* is with a short vowel /ɛ/, which continues ME *shedde*. In the present, *shed* has also shortened its vowel, meaning that *shed* does not distinguish its present and past forms in PDE.

Only one verb of SVs VII with a PGmc. root vowel in /ō/ and a following consonant is significantly attested in ME: *weep.* It is formed with a -ja- suffix in PGmc., which causes i-mutation. Its present and pret. stem have already merged in the OE root vowel /ē/ (see Table 19).

In ME, the attested preterite forms largely appear with a dental suffix or as unmarked preterites. The past form with dental suffix and short vowel *wept* continues in PDE, spreading also to the past ptc.

Table 19 Phonological similarity in weep

	OE	ME
Present	*wepan*	/wēpən/
Pret. Sg.	*wep/weop*	/wēp/
Pret. Pl.	*wepon/weopon*	/wēpən/
Past Ptc.	*wopen*	/wōpən/

In this section, I have discussed a few sub-groups of SVs VII. The verbs discussed in this section developed phonologically similar present and preterite forms in ME (or even in OE), largely with the phonological similarity between present stem root vowel /ɛ̄/ and preterite stem /ē/. As in SV II eo-presents, this phonological similarity caused analogical remodelling. Unlike in SV II eo-presents, phonological similarity appeared not only in the pret.sg. stem but in all past stems of the strong verbs. None of these verbs remain +VA, -DS in PDE. Three verbs (*leap, sleep, weep* i.e. those in root-final labials) joined the mixed weak verb category. Three verbs (*beat, let, shed*) do not mark their preterite forms and have become unmarked verbs. Two verbs (*dread* and *hew*) have become regular weak verbs.

b. SVs III: Contrasts

In OE, the root vowels of SVs III were followed by two consonants, the first one of these consonants being an /m/, /n/, /l/ or /r/ in nearly all cases. These consonants had various phonological effects on the preceding root vowels. SVs III can be separated into five different groups due to these differences in phonological development over the history of English. These groups are separated according to the root-final consonants, which follow the root vowel. In group 1), which I call SV III homorganics, the root-final consonants have caused homorganic cluster lengthening, which has lengthened the root vowel (e.g. *bind, bound, bound*); group 2) are called SV III nasal-velars after Branchaw (2010: 63), where the PDE root-final consonant(s) are nasals, velars or nasal-velars (e.g. *sing, sang, sung*); group 3) are SVs III with root-final -rC (/r/ followed by any consonant, e.g. *bark, barked*); group 4) SVs III with root-final -lC (/l/ followed by any consonant, e.g. *help, helped*); and group 5) comprises of the other SVs III (-CC)[16]. Table 20 shows the OE vowel-alternation patterns of the first four SVs III groups.

Post-OE developments will further distinguish the five SVs III groups. They also behave differently with regards to analogical remodelling. As will be shown below, SV III homorganics and nasal-velars remain +VA, -DS in almost all cases, while the SVs III with

[16] Many of these SV III groups qualify as minority SVs according to the definition of this thesis. However, because there are so many sub-groups of SVs III, many of which have multiple members, defining "majority" and "minority" groups is not useful.

Table 20 OE vowel alternation patterns of SVs III[17]

SV III	Homorganics	Nasal-Velars	-rC	-lC
Present	/i/ *bindan*	/i/ *singan*	/ĕo/ *beorcan*	/e/ *helpan*
Pret. Sg.	/ɑ/ *band*	/ɑ/ *sang*	/ăɑ/ *bearc*	/ăɑ/ *healp*
Pret. Pl.	/u/ *bundon*	/u/ *sungon*	/u/ *burcon*	/u/ *hulpon*
Past Ptc.	/u/ *bunden*	/u/ *sungen*	/o/ *borcen*	/o/ *holpen*

root-final rC, -lC and -CC analogically acquired a dental suffix in almost all cases. I will argue that the concept of phonologically similarity can explain these developments.

SV III Homorganics

(OE *bindan, findan, grindan, windan, (climban), hrindan, swindan, þindan* PDE *bind, find, grind, wind, (climb*)

Table 21 Development of SV III homorganics

	OE	ME	EModE	PDE
Present	/i/ *bindan*	/bīndən/	/beind/	/ʌi/ *bind*
Pret. Sg.	/ɑ/ *band*	/bɔ̄nd/ or /band/	→ /bound/	/aʊ/ *bound*
Pret. Pl.	/u/ *bundon*	/būndən/	/bound/	
Past Ptc.	/u/ *bunden*	/būndən/		

As has already been stated, the root vowels of SV III homorganics were lengthened in late OE. However, the sound change that caused this lengthening, HCL, is complicated by dialectal variation. While vowels followed by /nd, ld, mb, ŋg/, amongst others, were lengthened, this lengthening was later retracted in certain contexts. The details need not be discussed here. For now, the discussion will be reduced to the HCL effects of /nd/, for the relevant SV III homorganics have root-final /nd/ (or /mb/)[18]. High vowels lengthened by HCL before /nd/ remain long in PDE, while non-high vowels have been retracted to short vowels (Luick, 1921: §268 and §429). Therefore, PDE *hand* and *send* have short vowels (Minkova, 2014: 167-168), while the stems of SV III homorganics continue ME lengthened vowels (pres. *bind* from ME /ī/; past *bound* from ME /ū/.)

Following from this, the pret. sg. root vowel of SV III homorganics, OE /a/, must have been similarly lengthened (in some dialects) and then retracted. /a/ was lengthened to /ɑ̄/ in late OE, which was then raised back to /ɔ̄/. Forms in /ɔ̄/ are well attested in SV III homorganics' pret. sg. forms, such as ME *fond*, from *find*, and *bond*, from *bind* etc. ME pret. forms in <a> are also attested.

[17] SVs III with root final -CC are not listed here as each verb has a different vowel alternation pattern.
[18] HCL due to /ŋg/ was fully retracted. *Yield*, with root vowels lengthened before /ld/, will be discussed later in this chapter.

It is interesting that it is the pret. sg., which has dialectal variation, where eventually analogical remodelling occurs. In PDE, the pret. pl. root vowel replaces the pret. sg. root vowel. This cannot be explained with phonological similarity. It is instead due to the generalisation of one of the preterite stems across English strong verbs.

As Table 21 above shows, no phonological similarity developed between present and past forms in SV III homorganics, as the root vowels remained sufficiently distinct. There are also no attested instances of analogical remodelling in ME. The only analogical change that happened is the spread of the pret. pl. stem root vowel into the pret. sg. stem. SV III homorganics remain +VA, -DS in PDE and the vowel alternation pattern continues PGmc. ablaut vowels after regular phonological change.

Climb is difficult to account for. The difficulty derives from the word-final <b>, which is unpronounced in PDE. It is unclear whether *climb* had lengthened vowels in ME, i.e. whether the verb underwent HCL. According to the OED, "clear evidence of the long vowel (in *climb*) has not been found before the 16th century". *Climb* with short vowels (*clim*) also continues in Scottish and other English dialects, as a strong verb *clim, clam, clum* (DSL) (i.e. as an SV III nasal-velar). In the South, weak forms of *climb* prevail from the 16th century (OED). In PDE, the past has analogically acquired a dental suffix (i.e. *climbed*). The cause of the analogical acquisition of a dental suffix cannot be explained with phonological similarity. *Climb* exists somewhere between SV III homorganics and nasal-velars and its precise phonological development is difficult to track between different vowel alternation patterns and dialects.

SV III nasal-velars

(OE *drinkan, -ginnan, scrincan, sincan, singan, stincan, swimman, clingan, slincan, spinnan, springan, stingan, swingan, winnan, wringan, hlimman, hrimpan, þrintan, limpan, linnan, swincan, þringan, crimman, cringan, cwincan, sinnan, twingan* PDE *drink, begin, shrink, sink, sing, stink, swim, cling, slink, spin, spring, sting, swing, win, wring*)[19]

SV III nasal-velars develop in parallel to homorganics until late OE, after which they retain their short root vowels. Few phonological changes occurred to the root vowels of SV III nasal-velars across English. Phonological similarity did not arise in SV III nasal-velars.

[19] I exclude *run* from the discussion here, as it is possibly influenced by a derivative weak verb (i.e. OE *rinnan/irnan* (strong) and *ærnan/gerennan* (weak). The history of *run* is affected by many complex factors: Besides the existence of strong and weak verbs, the further phonological history is complicated by metathesis and great dialectal variation in ME. How the PDE forms *run, ran, run* relate to the ME forms requires detailed analysis (see for example the OED).

This group of strong verbs has also remained stable into PDE. Like SV III homorganics, they are all still +VA, -DS in PDE and continue PGmc. ablaut patterns.

Table 22 Development of SV III nasal-velars

	OE	ME	EModE	PDE
Present	/i/ *singan*	/singən/	/sing/	/ɪ/ *sing*
Pret. Sg.	/ɑ/ *sang*	/sang/	/sæng/	/æ/ *sang*
Pret. Pl.	/u/ *sungon*	/sungən/	/sung/	/ʌ/ (*stung*)
Past Ptc.	/u/ *sungen*	/sungən/	/sung/	/ʌ/ *sung*

There is one interesting development that has happened in these verbs. In PDE, SV III nasal-velars appear as two separate groups, the first group as in *sing, sang, sung* and the second group as in *sting, stung, stung*. There is variety in different dialects of English as to which verbs belong in which category (Branchaw, 2010: 65). This variation is old, dating back to the EModE period (Greenwood 1729: 160 lists for example "sprang or sprung" and "sank or sunk" as possible pret. forms). The reason for this split is analogous to processes happening in other strong verbs: one stem of the preterite is generalised in PDE, and SV III nasal-velars have two possible stems that can be chosen. Different preterite root vowels have been generalised in different verbs.

The concept of phonological similarity cannot offer an explanation for which stem is chosen in a given verb. The distribution of these two nasal-velar groups is discussed by Bybee & Moder (1983) and Branchaw (2010: 63ff.), who analysed token frequency and the phonological structure of these verbs.

To sum up, in the two groups of SVs III discussed so far, we have observed little analogical remodelling, limited to the generalisation of one of the preterite stems. This coincides with the lack of phonological similarity between present and past stems. Only one verb, *climb*, has analogically acquired a dental suffix. In the following SV III sub-groups, we will observe the opposite development. Almost all other SVs III have become regular weak verbs.

SVs III with root-final -rC (SVs III -rC)

(OE *beorcan, ceorfan, smeortan, sweorfan, steorfan, weorpan, hweorfan, sceorpan, deorfan, sweorcan, beorgan, sceorpan, weorðan* PDE *bark, carve, smart, swerve, starve, warp*)[20]

[20] OE *beornan, spurnan* and *murnan*; PDE *Burn, spurn* and *mourn* are excluded here, due to the influence of derivative weak verbs. OE *beornan* (strong) and *bærnan* (weak). In ME there are four different present stems of burn (OED), due to complex phonological developments following metathesis. OE *murnan* (strong) and *murnian* (weak) > ME /murnən/. Brunner (1965: §389 and §417) argues that *spurnan* (strong) was mixed up with OE **spyrnan* (weak).

Table 23 Phonological similarity in SVs III with root-final -rC

	OE	ME	EModE
Present	/ĕo/ *beorcan*	/berkən/	/bark/
Pret. Sg.	/ăɑ/ *bearc*	/bark/	/bark/
Pret. Pl.	/u/ *burcon*	→/borkən/	/bork/
Past Ptc.	/o/ *borcen*	/borkən/	/bork/

The OE vowel alternation pattern of SVs III with root-final -rC (hereafter called SVs III -rC) resembles that of SV II eo-presents (as a reminder, SV II eo-presents OE vowel alternation pattern is /eo/, /æɑ/, /u/, /o/). The difference is in the diphthong root vowels that appear in the present and pret. sg. stems of these two strong verb groups: for SVs III -rC, these diphthongs are equivalent to short vowels, while for SV II eo-presents these diphthongs are equivalent to long vowels. The ME continuations of the short vowels /ĕo/ and /ăɑ/ are /e/ and /a/ respectively, which does not result in phonological similarity between the present and pret. sg. of SVs III -rC, unlike the continuation of long diphthongs in SV II eo-presents, as argued above.

However, one similarity in the development of these two groups of strong verbs is that the past ptc. root vowel spreads into the pret. pl., (i.e. pret. pl. /u/ → /o/). This likely follows from the phonological similarity in SV II ū-presents (between pres. /ū/ and pret. pl. /u/), which, as was discussed in the previous sub-chapter, spreads into SV II eo-presents. The spread of this analogical change appears to extend even to SVs III -rC (and also to SVs III with root-final -lC, see below, where I will discuss this phenomenon in more detail). All SVs III -rC have the root vowel <o> attested in the pret. pl. in ME according to the OED and the MED, except *swerve*, which is poorly attested in ME. There are some cases of <a> spreading into the pret. pl. (as in *karven*) and of <o> spreading into the pret. sg. (as in *corve*) and of <u> in the pret. sg. (as in *kurve*).

Phonological similarity between stems arises when /e/ is lowered to /a/ before /r/. This sound change, occurring around the 15th century according to Lass (2000: 109), makes present and pret. sg. stems identical (e.g. ME pres. *berk-*, pret. sg. *bark-* > EModE *bark-, bark-*; i.e. /bark/ ind. 1. sg. of both pres. and pret.).

For SVs III -rC, one kind of analogical remodelling is overwhelmingly attested in past forms. They remain largely +VA, -DS in the ME period, with some forms with a dental suffix. In EModE, these verbs have all analogically acquired a dental suffix and become regular weak verbs without any trace of old strong forms. The OED lists 1500s *carven* as a past ptc of *carve* and *starven* for *starve* as strong forms, but these are also analogically remodelled forms. Wyld (1953) and Greenwood (1729) do not list any SVs III -rC as EModE

strong verbs, nor can any EModE strong forms be found in the Helsinki Corpus. The merger of the present and pret. sg. stem, following the late ME change of /e/ to /a/ before /r/, can be seen as the cause of this analogical change, following the claim that phonological similarity (in this case merger) causes analogical remodelling.

SVs III with root-final -lC (SVs III -lC)

(OE *helpan, gelpan, gellan, swellan, delfan, sciellan, seolcan, bellan, feolan, scelfan, sweltan, teldan, melcan* PDE *help, yelp, yell, swell, delve*)[21]

Table 24 Development of SVs III with root-final -lC

	OE	ME	EModE
Present	/e/ *helpan*	/helpən/	/hɛlp/
Pret. Sg.	/æɑ/ *healp*	/halp/	/haulp/
Pret. Pl.	/u/ *hulpon*	→/holpən/	/hɔulp/
Past Ptc.	/o/ *holpen*	/holpən/	/hɔulp/

Analogical remodelling of the pret. pl. root vowel /u/ → /o/ is likewise found in SVs III with root-final -lC (hereafter called SVs III -lC). Pret. pl. forms with root vowel /o/ are attested for all SVs III -lC except *yelp* in the MED and the OED.

The full extent of the spread of the analogical change pret. pl. /u/ → /o/ in English strong verbs, following phonological similarity between present and pret. pl. forms in SV II ū-presents, can now be mapped, as in Table 25.

Table 25 Spread of pret. pl. /u/ → /o/ across strong verb groups

OE	SV II ū-presents	SV II eo-presents	SVs III -rC	SVs III -lC
Present	/ū/	/eo/	/ĕo/	/e/
Pret. Sg.	/æɑ/	/æɑ/	/æɑ/	/æɑ/
Pret. Pl.	/u/ → /o/	/u/ → /o/	/u/ → /o/	/u/ → /o/
Past Ptc.	/o/	/o/	/o/	/o/

Table 25 shows the spread of analogical change in the pret. pl. /u/ → /o/ across these four strong-verb sub-classes. While each sub-class has a different OE root vowel in the present stem, they all share the same past paradigm, with the exception of the pret. sg. root vowel, where /æa/ appears in SVs II, while /æɑ/ appears in SVs III. The distinction between these two vowels is length (and likely some minor qualitative differences, given the different qualities these two vowels develop in ME: OE /æɑ/ > ME /ɛ̄/; OE /æɑ/ > ME /a/). The similar past paradigm of these four strong verb sub-groups apparently allows the analogical change /u/ → /o/ in the pret. pl. to spread across these groups. No other strong-verb sub-class has a similar past paradigm, and this analogical change does not spread beyond these four groups

[21] PDE *melt* is excluded here. OE *meltan* (strong) and *myltan* (weak) merge in ME /meltən/

(only the other SVs III have root vowel /u/ in the pret. pl. in OE, but their past participle root vowel is also /u/, not /o/).

Returning to the development of SVs III -lC: In the 15th century, short back vowels before /l/ diphthongise by inserting the back vowel /u/ (Luick, 1940: §502). In many contexts /l/ is then deleted, remaining word-finally and before dentals. This sound change increases the phonological distinction between present and past stems (see Table 24).

However, it is precisely in this period that SVs III -lC change analogically. This analogical remodelling takes two forms: The spread of the pret. pl./past ptc. root vowel /o/ into the pret. sg. or the acquisition of a dental suffix across past stems. The triggering cause cannot be found in the phonological similarity between present and past stems within SVs III -lC themselves, but rather, again, in the similarity of their vowel alternation pattern with SV IIIs -rC.

Table 26 Spread of analogical change Pret. Sg. /a/ → DS

ME	SVs III -rC	SVs III -lC
Present	/e/ > /a/	/e/
Pret. Sg.	/a/ → DS	/a/ → DS
Pret. Pl.	/o/	/o/
Past Ptc.	/o/	/o/

As Table 26 shows, these two groups shared the same vowel alternation pattern in ME until the 15th century. In this period, /e/ was lowered to /a/ in SVs III -rC, while /l/ caused diphthongisation in SVs III -lC as discussed above. I argued above that phonological similarity in the former group triggers analogical remodelling in pret. sg. stems, which analogically acquire a dental suffix. Following the hypothesis of analogical change spreading into similar paradigms, this analogical remodelling now spread to SVs III -lC, whose past stems' vowel alternation pattern was analogous for most of the ME period. This generalisation of analogical remodelling spreading from one group with phonological similarity to a second group without phonological similarity affected SVs III -lC twice.

Interestingly, while in SVs III -rC analogically remodelled forms with a dental suffix were generalised without a trace of other analogical innovations, in SVs III -lC, there is minor attestation of another type. The root vowel /o/ is attested in the pret.sg., though this is only attested in the verb *help*. For example, in Shakespeare plays both *holp* and *helped* can be used as pret.sg. forms[22], but there is no attestation of *halp*. Preterite forms with root vowel <a> are not attested after ME according to the OED and the Helsinki Corpus for all SVs

[22] Coriolanus (V, 3) "I *holp* to frame thee. Do you know this lady?"
Richard the III (V,3) "The last was I that *helped* thee to the crown;"

III -lC. Therefore, it is precisely the form that triggered analogical remodelling due to phonological similarity in SVs III -rC, which is then no longer attested in SVs III -lC in EModE. A second option for analogical remodelling in SVs III -rC, the spread of pret. pl. root vowel /o/ to the pret. sg. (e.g. pret. sg. †*bork*), is attested in SVs III -lC (*holp*), but not in SVs III -rC.

While in all cases SV IIIs -lC have acquired a dental suffix to form their past stems in standard PDE, /o/ past tense forms do marginally remain in this group. The past tense *holp* is still acceptable in regions of the US (OED), while *swollen* remains listed as a possible form of the past participle of *swell* in the OED.

Minority SVs III with root-final -lC

(OE *geldan, swelgan,* PDE *yield, swallow*)[23]

Two verbs (*yield* and *swallow*) are minority SVs III -lC. The root vowels of *yield* were lengthened due to HCL. The lengthened root vowels in *yield* differ from those verbs I grouped into SV III homorganics, therefore I discuss *yield* separately.

Table 27 Phonological similarity in Yield

	OE	ME
Present	*geldan* /jeldan/	/jēldən/
Pret. Sg.	*geald* /jæɑld/	/jēld/
Pret. Pl.	*guldon* /guldon/	/gūldən/→ /jūldən/
Past Ptc.	*golden* /golden/	/gōldən/→ /jōldən/

In early ME, the vowel alternation pattern of *yield* was very similar to SV II eo-presents. After the present ending was lost, 1. sg. ind. present and pret. forms were phonologically similar (pres. /jēld/ and pret. /jēld/). Similar kinds of analogical changes as in SV II eo-presents can be found for *yield*: (1) forms with root vowel /ɔ̄/ *yolde*; (2) forms with root vowel <a> *yalde*; (3) forms with a dental suffix, both mixed weak verbs *yelte* as well as regular weak verbs *yelded*. It is the latter form that has been generalised in PDE *yielded*.

For OE *swelgan* (PDE *swallow*), /lɣ/ was vocalised in ME and generated a new syllable. Meanwhile, the root vowel in the present stem (from OE /e/) varies between <e>, <a> and <o> (e.g. *swelou, swalough* and *swolwe*). Present stems in <a> or <o> merge with past stems, <a> with the pret. sg. stem, <o> with the past ptc. and the pret. pl. stem. *Swallow* is overwhelmingly attested with a dental suffix in the ME period, with major variation in terms of the root vowels of these weak forms, following the variation in the present stem (*swolwed*, *swalod*, *iswelowed*).

[23] OE *belgan*, PDE *bellow* is excluded here, as it merges with OE weak derivative *bylgan* in ME /belwən/.

SVs III with root-final -CC (SVs III -CC)

(OE *feohtan, brestan, þerscan, bregdan, fregnan, stregdan* PDE *fight, burst, thrash, braid*)

There are only few SVs III with root-final -CC and the phonological development of every verb is different.

Table 28 Development of fight

	OE	ME	EModE	PDE
Present	/ĕo/ *feohtan*	/ei/ > /ī/: /fīçtən/	/feiçt/	/ʌi/ *fight*
Pret. Sg.	/ăɑ/ *feaht*	/fauxt/	/fɒ̄xt/	/ɔ̄/ *fought*
Pret. Pl.	/u/ *fuhton*	/fūxtən/	→ /fɒ̄xt/	
Past Ptc.	/o/ *fohten*	/fɔuxtən/	/fɒ̄xt/	

Phonological similarity between present and past stems never develops for *fight*. The only analogical change that can be observed is in the pret. pl. stem. It is not transparent whether ME pret. pl. /fūxtən/ changed by analogically adopting the pret. sg. or past ptc. root vowel. According to the evidence of the ME pret. pl. forms as presented by Long (1944: 186), the majority of forms were spelled either with root vowels <ou/ow> (13 forms) or <au/aw> (12 forms), with only two <o> forms. <au/aw> forms clearly represent the phonological value /au/, analogically spreading from the pret. sg. By contrast, <ou/ow> forms are ambiguous; they could both represent /ū/, continuing the original pret. pl. form, or /ɔu/, analogically spread from the past ptc. Finally, <o> forms most likely represent /ɔu/, spread from the past ptc., though more past ptc. forms are spelled <ou/ow> than <o>. As the pret. sg. and past ptc. root vowels merge in EModE, it cannot be definitively said whether the pret. pl. analogically acquired the root vowel of the pret. sg. or the past ptc.

The analogical origin of *fight*'s pret. pl. stem is relevant as the two possible origins from which the pret. pl. analogically adopted its root vowel would represent different types of analogical change. The generalisation of one pret. stem at the expense of the other was an analogical change all strong verbs underwent between ME and EModE. If this analogical change (which Long's data clearly shows to have occurred at least partially) was generalised, then analogical change in *fight* followed standard strong verb analogical changes. On the other hand, if the origin was the past ptc., this analogical change is more unusual.

The ME attestation of *burst* is complex. One difficulty is r-metathesis leading to distinctive forms such as ME *berst-* and *brest-* etc., which are both common. Furthermore, there is variety in root vowels in ME. According to the MED, the present stem is attested with root vowels <a, e, i, u>; the pret. sg. with root vowels <a, e, ea, o> and one regular weak form in <i> (*bristed*); the pret. pl. with root vowels <a, e, o, u> and the past ptc. with root

vowels <a, e, i, o, u>. Both the pret. pl. and the past ptc. forms occur with a dental suffix in ME.

Due to the great variation in ME forms, no "standard" vowel alternation pattern can be listed here. The ME variety changes by EModE, where the majority of present and past forms are attested as *burst,* with the only other forms being *brust* and *brast*. In PDE, *burst* functions as a present and past form. Mapping the ME variety of *burst* onto dialectal difference and solving the question of whether past forms already merged with present forms in ME requires further study.

OE *þerscan* 'strike, beat' was also affected by r-metathesis in ME. Additionally, a new present stem *thrash* is attested in ME (from 1364), likely after a sporadic change from e > a in the present stem (OED). *Thresh* and *thrash* have split into two lexemes in PDE, at least in standard British and North American English (i.e. *to thresh corn* but to *thrash an opponent* OED). Present stem *thrash* merged with the pret. sg. form of ME *threshen* (OE *þærsc*), though this strong pret. form is not attested in ME. Strong pret. forms from ME onwards are only attested dialectally, as analogical innovations (e.g. Scots *threwsh*). Most ME pret. forms have a dental suffix. The OED lists a number of strong past ptc. (e.g. *throshen*), next to weak forms. The merger of the new present stem with the pret. sg. stem can be argued to cause analogical remodelling.

Braid is influenced by the vocalisation of palatalised /g/.

Table 29 Phonological similarity in braid

	OE	ME
Present	*bregdan* /brejdan/	/breidən/ > /braidən/
Past Sg.	*bragd* /bræjd/	braid
Past Pl.	*brugdon* /bruɣdon/	brūdən
Past Ptc.	*brogden* /broɣden/	brɔudən

In ME, present and pret.sg. stem merge. This example was already discussed in Chapter 2, noting the MED's comments to the effect that the merger of present and past forms caused the analogical innovation of forms with a dental suffix.

Conclusion

The analysis of SVs III has shown how strong verbs groups can remain +VA, -DS as a group when there is no phonological similarity between present and past stems. This has been argued for SV III homorganics, nasal-velars and *fight*, which all remain +VA, -DS in PDE. In contrast, in SVs III -rC phonological similarity arose between present and pret. sg. stem, leading to the systematic analogical acquisition of a dental suffix in the past forms.

Weak forms also spread into SVs III -lC. Finally, I analysed the minority SVs III with root-final -CC, which presented some problems that remain unresolved.

c. SVs IV and V: Remodelled strong verbs

In this sub-chapter, I will discuss the many instances of phonological similarity in SVs IV and V. Most verbs from these classes remain +VA, -DS in PDE, after analogical remodelling, as I will show. SVs IV and V have similar vowel alternation patterns in OE, *-e, æ, ǣ, o-* and *-e, æ, ǣ, e-* respectively. The following phonological and analogical changes are also similar; therefore I will discuss the two classes in the same sub-chapter.

SVs IV

SVs IV, a comparatively small group already in PGmc., can be separated into verbs with root-final -r, -l and -m in English.

SVs IV with root-final -r

(OE *beran, sceran, teran, ðweran;* PDE *bear, shear, tear*)

Table 30 Phonological similarity in SVs IV with root-final -r

	OE	ME	EModE		PDE	
Present	/e/ *beran sceran*	/bɛ̄rən/	/bɛ̄r/	/ʃɛ̄r/ > /ʃīr/	/ɛ̄/ *bear*	/ɪə/ *shear*
Pret. Sg.	/æ/ *bær*	/bār/	/bɛ̄r/		→ /ɔ̄/ *bore*	
Pret. Pl.	/ǣ/ *bæron*	/bɛ̄rən/ →/bɔ̄rən/ or /bārən/	/bɛ̄r/ or /bɔ̄r/			
Past Ptc.	/o/ *boren*	/bɔ̄rən/	/bɔ̄rn/		/ɔ̄/ *born*	

In ME, present and pret. pl. stems began to merge (e.g. inf./pres. subj. pl. with pret. ind. pl. in /bɛ̄rən/). This was due to the lengthening of /e/ to /ɛ̄/ in the present stem, combined with the raising of /ǣ/ to /ɛ̄/ in the pret. pl. stem. Analogical remodelling occurred through the spread of (1) the pret. sg. root vowel /ā/ (*baren*) and (2) the past ptc. root vowel /ɔ̄/ (*boren*) into pret. pl. forms. Both types of pret. pl. are well attested in ME SVs IV with root-final -r. The two variants of preterite stems are listed in Greenwood's English grammar (1729: 159, 161), as mentioned in Chapter 2, for *bear* and *tear* (though not for *shear*).

As also mentioned in Chapter 2, in EModE present and pret. 1Sg. forms merged in /bɛ̄ə/ (and /tɛ̄ə/). In *shear* the present stem root vowel was actually raised to /ē/ and /ī/, as one of the exceptions of /r/ blocking the raising of /ɛ̄/ (cf. Lass, 2000: 110). This means that present and pret. sg. participated in the near-merger of ME /ɛ̄/ and /ā/ (after Labov et al. 1991; discussed in Chapter 2) and there was also phonological similarity. After phonological similarity/identity had arisen, two forms of analogical remodelling established themselves in all three verbs: (1) generalisation of /ɔ̄/ from the past ptc. across the preterite stem and (2)

emergence of regular weak forms. Root vowel /ɔ̄/ has been generalised in the past stems of all three verbs (*bore* and *tore*), but for *shear* both forms with a dental suffix *sheared* and with vowel alternation, *shore* and *shorn,* are possible according to the OED.

SVs IV with root-final -l

(OE *stelan, cwelan, dwelan, felan,* PDE *steal*)

There is only one well-attested SV IV with root-final -l in ME, *steal*. The phonological processes for *steal* resemble SVs IV with root-final -r.

Table 31 Phonological similarity in steal

	OE	ME	EModE	PDE
Present	/e/ *stelan*	/stɛ̄lən/	/stɛ̄l/ > /stīl/	/ī/ *steal*
Pret. Sg.	/æ/ *stæl*	/stāl/	/stɛ̄l/ > /stēl/	→ /ɔʊ/ *stole*
Pret. Pl.	/ǣ/ *stælon*	/stɛ̄lən/ → /stɔ̄lən/ or /stālən/	/stɛ̄l/ or /stɔ̄l/	
Past Ptc.	/o/ *stolen*	/stɔ̄lən/	/stɔ̄lən/	/ɔʊ/ *stolen*

As in SVs IV with root-final -r, in ME the present and the pret. pl. forms merged in /stɛ̄lən/, with pret. pl. forms analogically acquiring pret. sg. or past ptc. root vowels (*stalen* and *stolen*). After the GVS, ME /ɛ̄/ was raised first to /ē/ and only later further to /ī/. This means that there was again a near-merger between present and pret. forms, continuing ME /stɛ̄l/ and /stāl/ respectively. After phonological similarity had occurred, *stole* was generalised in both the pret. sg. and the pret. pl.

Root-final -m

(OE *niman, cuman*; PDE *come*)

The two SVs IV with root-final -m are irregular and frequent in OE (Hogg, 1992: 154f.) *Come* remains frequent in PDE, while *niman* 'take' has become obsolete, although it remained frequent until the 17th century (OED).

Table 32 Development of niman

	OE	ME
Present	*niman*	/nimən/
Pret Sg.	*nam* or *nom*	/nām/ or /nōm/
Pret Pl.	*namon* or *nomon*	/nɔ̄mən/ or /nōmən/
Past Ptc.	*numen*	/numən/

In OE, the preterite root vowel varied in different dialects between /a/, /o/ and /ɔ̄/ in the pret.sg. and between /ā/ and /ō/ in pret.pl. (Hogg & Fulk 2011: 243). No phonological similarity between present and past forms developed from these OE forms. Weak forms are only attested from the 1600s, as the verb was becoming obsolete.

Table 33 Phonological similarity in come

	OE	ME	EModE	PDE
Present	/u/ *cuman*	/kumən/	/kum/ > /kʌm/	/ʌ/ *come*
Pret Sg.	/ō/ *c(w)om*	/kōm/ →/kām/	/kūm/ →/kɛ̄m/	/ɛi/ *came*
Pret Pl.	/ō/ *c(w)omon*	/kōmən/	/kūm/	
Past Ptc.	/u/ *cumen*	/kumən/	/kum/ > /kʌm/	/ʌ/ *come*

OE *cuman* had a unique vowel alternation pattern, which arose from a mixture of phonological and analogical changes (Hogg & Fulk, 2011: 245). These root vowels remained in ME, though a new pret.sg. form in root vowel <a> (ME *cam*), by analogy with other SVs IV and V, is attested in ME. According to Long (1944: 223), pret. sg. forms with <o> are attested three times more frequently than pret.sg. forms in <a> in ME. Simultaneously, present and past ptc. forms merged in /kumən/ after endings merged (first the past ptc. ending merges with the infinitive and pres. subj. pl. endings, later in ME with the pres. ind. pl. ending (Lass, 1992: 137f.)

The phonological identity between present and past forms (i.e. the past participle) should cause analogical remodelling, according to the theory argued for so far. However, in the case of *come,* this is not attested. In the ME data listed by the OED, the MED and Long (1944: 218-220), there is no evidence of analogical remodelling of the ME past ptc. stem. There is variation in the data between writing <u> and <o>, but it is common to write <o> for short /u/ in ME (Jordan, 1968: 32). There is also some attestation of lengthening due to OSL in both the present stem and the past ptc. stem. In ME, there were no weak past participles or other types of analogical remodelling. In later ME, when the -en ending is lost, retaining the past ptc. -en ending to distinguish present and past ptc. forms was blocked as the past ptc. ending was always lost following nasals (i.e. **comen* does not exist in PDE, in the same way as **shinen* and **sungen* do not exist; Lass, 2000: 171)[24].

With the GVS, /ō/ was raised to /ū/ and present and preterite forms became phonologically similar (present /kum/ and pret. /kūm/). In Standard PDE *came*, from ME /kām/, has been generalised as a phonologically distinct alternative. The past ptc. stem *come* remains in PDE. The OED lists a number of analogical alternatives for this past ptc., forms that develop regionally (after ME): (1) retaining the past ptc. -en ending, which the OED identifies in Northern English dialects and in English dialects of Wales; (2) forms with a

[24] I will argue in chapters 4.2d. and 4.2e. that the retention of the past ptc. ending -en can lead to phonological distinction between present and past ptc. in SVs I, VI and VII.

dental suffix from the 1500s; (3) generalised preterite *came* into the past ptc. from the 1800s, dialects according to the OED mainly in Scottish and US. However, these forms remain marginal and the past ptc. form *come*, identical to the present stem *come*, remains the standard form in PDE.

This past ptc. form violates the theory established so far, which postulates that phonological similarity triggers analogical remodelling. The irregularity of *come* in this regard corresponds to further irregularities in the use of *come* across PDE varieties. According to Anderwald (2009: 149ff.), it is common in many different dialects of English to have a fully unmarked past stem, with *come* functioning as the present, preterite and past pariticple stem. According to Tagliamonte (2001), preterite *come* is the most frequent non-standard strong verb form across English dialects. The preterite form *come* /kʌm/ can be regularly derived from the ME pret. /kōm/ after common shortening of /ū/ raised from /ō/ following the GVS (as in *blood*; Anderwald, 2009: 152). *Come* is therefore exceptional in terms of its past tense forms in several regards.

SVs V

The discussion of SVs V is separated into three groups; majority SVs V, minority SVs V and -ja- suffix SVs V, whose present stem was formed with a -ja- suffix in PGmc. (e.g. OE *biddan* < PGmc. **bed-ja-na*).

Majority SVs V

(OE *etan, sprecan, tredan, wefan, -gietan, brecan, cweðan, cnedan, wrecan, fretan, fetan, stecan, screpan, nesan, drepan, swefan, lesan, metan* PDE *eat, speak, tread, weave, get, break, bequeath, knead, wreak, fret*)

There were 22 majority SVs V in OE. Table 34 sketches their general development.

Table 34 Phonological similarity in majority SVs V

	OE	ME	EModE	PDE	
Present	/e/ *wefan*	/wēvən/	/wēv/	/ī/ *weave*	/ɛ/ *get*
Pret. Sg.	/æ/ *wæf*	/wāf/	/wēv/	/əʊ/ *wove*	/ɒ/ *got*
Pret. Pl.	/ǣ/ *wæfon*	/wēvən/ →/wɔ̄vən/ /wāvən/	/wōv/		
Past Ptc.	/e/ *wefen*	/wēvən/ →/wɔ̄vən/	/wōvən/	/əʊ/ *woven*	/ɒ/ *gotten*

Majority SVs V are affected by multiple instances of phonological similarity. However, their subsequent phonological and analogical development shows great variation. While verbs such as *weave* and *speak* follow standard phonological changes, in *break* the present stem root vowel ME /ɛ̄/ irregularly continues with PDE /ei/. In four other verbs, the root vowels (*fret, get, tread, wreak*) were shortened due to a sporadic sound change.

Table 34 shows the general development of majority SVs V. The occurrence of phonological similarity is similar to what happened in SVs IV, as here, too, the present and pret. pl. forms merged in ME /ɛ̄/. In majority SVs V, an additional merger occurred in that the root vowel of the past ptc. also was /ɛ̄/. This means that in the 13th and 14th centuries, the inf., pres. pl. (ind. and subj.), pret. pl. (ind. and subj.) and past ptc. all merged, for example in /spɛ̄kən/ for the verb *speak*. The following analogical alternatives appear in the ME data: (1) spread of /ā/, as in *spaken*, into the pret. pl. (and marginally into the past ptc.); (2) spread of the past participle's root vowel <o> from other strong verb classes across all past stems (e.g. *spoken*); (3) acquisition of a dental suffix, e.g. *speked*.

From the discussion of SVs IV, we are already led to expect that one of these three ME results of analogical change – for *speak*: *spak-*, *spok-* and *speked* – will not survive after the ME period: *spak-*. Again, ME present /spɛ̄k/ and past /spāk/ near-merge in EModE. Past forms continuing ME /spāk/ do not continue in PDE across all majority SVs V, except for *ate,* the pret. of *eat*, which I will discuss later. The other two types of analogical change do continue in PDE, however in a complex distribution.

In PDE, there are three different outcomes of analogical change that are generalised in majority SVs V. Those that continue to form past tense through vowel alternation have generalised root vowel <o> across their past stems. They are split into two groups: those with long root vowels ME /ɔ̄/ > PDE /əʊ/ (*spoke, broke, wove*) and those with short root vowels: ME /o/ > PDE /ɒ/ (*got, trod*). These two groups are similarly distinct in the present stem, either continuing ME long root vowel verbs ME /ɛ̄/ > /ī/ (*speak, weave*) or /eɪ/ (*break*), or continuing a ME short root vowel /e/ > /ɛ/ (*get* and *tread*). Alternatively, two verbs have analogically acquired a dental suffix to form their past in PDE (*kneaded, wreaked*).

The PDE outcome of majority SVs V further confirms the theory of phonological similarity triggering analogical change. In all three groups, the original past root vowels, which all merged or near-merged with the present stem, have all been replaced by analogical innovations.

However, the theory of phonological similarity triggering analogical change cannot predict how or which of these more distinct forms were generalised. An explanation that attempts to explain how these groups came about will require discussion of sporadic, but quite common, late ME shortening of /ɛ̄/, especially before dentals (Schlüter, 2012: 599). It will have to take into account dialectal variation in ME and EModE. For example, in EModE, both the present and the past stems of *get* and *tread* are attested with long and short vowels (Wyld, 1953: 352; OED). The short past stem /o/ also appears to be attested for *speak* ME

<spockyn>, EModE <spocken> (OED); *wreak* <wrocken> (1500s-1600s OED); *knead* <knodden> (ME-1600s OED), *mete* <mott> (1500s OED)[25]. However, this discussion is beyond the scope of this thesis.

Exceptional majority SVs V: eat *and* fret

There are two majority SVs V that have not been discussed so far: *Eat* and *fret*. The two verbs are etymologically related (Seebold, 1970: 179), *fret* being a compound of *eat*, which is still quite visible in German *essen* vs. *fressen*. There are two differences in their developments that make them different from other majority SVs V.

Firstly, in OE, the pret. sg. of *eat* and *fret* is long like the pret. pl. The consequence for phonological similarity is shown in Table 35.

Table 35 Phonological and analogical changes in eat

	OE	ME	EModE possible forms	PDE
Present	/e/ *etan*	/ɛ̄tən/	/ɛ̄t/ > /īt/	/ī/ *eat*
Pret. Sg.	/ǣ/ *æt*	/ɛ̄t/	/ɛ̄t/ > /īt/ → /ɛt/ → /āt/ > /ɛ̄t/	/ei/ *ate*
Pret. Pl.	/ǣ/ *æton*	/ɛ̄tən/		
Past Ptc.	/e/ *eten*	/ɛ̄tən/	/ɛ̄t/ > /īt/ → /ɛt/ → /āt/ > /ɛ̄t/ → /ītən/	/ī/ *eaten*

As Table 35 shows, all strong verb stems of *eat* merge in ME /ɛ̄t/. The second difference in the development of *eat*, and also *fret*, is in the attested analogically changed forms (see again Table 35). A form with root vowel /ā/ in the preterite was innovated, in analogy with other SVs V, which continues in PDE *ate*. In addition, a preterite with a dental geminate and shortened vowel was also formed (*ett*, following *meet, met*). Finally, the -en ending was retained in the past ptc., as opposed to other verbal categories (plural and infinitive endings) where the -en ending was lost after phonological change. The most conspicuous difference between *eat* and *fret* on the one hand and other majority SVs V on the other hand is the absence of analogically remodelled forms with <o>. The preterite forms †*ote* or †*frot* are not attested at all in English. There are no attested regular weak forms for *eat*, such as *eated*.

All three variants of analogical remodelling attested remain in the sphere of phonological similarity. Variant (1) pres. /ɛ̄t/, pret. /āt/ again participates in the EModE near-

[25] Further points of interest: The pret. sg. root vowel /a/ does survive in the archaic form *begat*. Strikingly, this form, like *get* and *got*, has a short vowel in PDE. As the ME short vowel /a/ is not raised by the GVS, there is also no phonological similarity with the present stem *beget*. Another interesting verb (pair) is *bequeath* and *quoth*. *Bequeath* (past. *bequeathed*) 'leave property to a person' continues the long vowel ME /ɛ̄/ and a dental suffix in the past, while the archaic pret. form *quoth* 'said' can be placed into the (PDE) short vowel <o> group.

merger between ME /ɛ̄/ and /ā/. Variant (2) with the distinction pres. /ɛ̄t/, past /et/ may be phonologically distinct in ME, with both a qualitative and a quantitive distinction, but given that the EModE outcome of these two forms is present /ēt/, past /ɛt/, i.e. the two vowels have moved in opposite directions and passed by each other, phonological similarity in terms of a quantitative distinction but no qualitative distinction must be assumed at some point in ME/EModE. Variant (3) pres. /ɛ̄tən/, past ptc. /ɛ̄tən/ remains identical until -en is lost in present forms. As none of the analogical models immediately solves the phonological similarity problem, the common inflection remains *eat – eat – eat*. In Greenwood (1729: 159), the past stems of *eat* are pret. *eat* or *ate* and past. ptc. *eaten* or *eat*. The PDE forms are therefore only in the process of being generalised in the 18th century, after they have become suitably distinct following phonological change. *Eat* is in fact the only SV IV/V that both continues the root vowel ME /ɛ̄/ in the present stem and the root vowel ME /ā/ in the preterite stem, despite the phonological similarity in the development of the two stems. This can be explained by the lack of more phonologically distinct options of analogical remodelling. It is ironic given that PDE *ate* does not continue an OE form, but is analogically generated in ME.

As in *eat*, there is no past form in root vowel <o> attested for *fret*. Similar to *eat,* in ME overt analogical innovations include *frat*, which analogically acquired the root vowel /ā/ as well as forms with a dental suffix, attested as *freted* or *frette*. In PDE, present forms continue a root vowel that was shortened (*fret* /frɛt/) and past forms with a dental suffix have generalised (*fretted*).

Majority SVs V present a challenge when it comes to explaining the various PDE outcomes. However, they follow the general theory of analogical remodelling caused by phonological similarity as established here. Each of the three past stems merges with the present stem at different times between ME and EModE. In every case, analogically remodelled forms appear and eventually are generalised.

Minority SVs V

(OE *seon, feon, pleon*, PDE *see*)[26]

Only *see* is attested from ME. Table 36 sketches the general development of *see*.

[26] PDE *weigh* is excluded here as its present stem will merge with the derivative weak verb OE *wecgan* in ME /weiən/.

The OE dialectal variation of *see* (Brunner, 1965: §391) is listed in Table 36. In ME, there is even more diversity in the attestation of *see*[27]. The following discussion is limited to the forms that standardise in PDE.

Table 36 A selected part of the development of see

	OE	ME	EModE	PDE
Present	*seon*	/sēn/	/sī/	*see* /sī/
Pret. Sg.	*sæh* or *seah*	/saux/	/sɑ̄/	*saw* /sɔ̄/
Pret. Pl.	*sawon, sægon* or *segon*	(→) /sauən/	→ /sɑ̄/	*saw* /sɔ̄/
Past Ptc.	*sawen, sewen, segen* or *gesene*	/sēn/	/ sīn/	*seen* /sīn/

The OE dialectal variation of *see* (Brunner, 1965: §391) is listed in Table 36. In ME, there is even more diversity in the attestation of *see*[28]. The following discussion is limited to the forms that standardise in PDE.

Selecting merely the PDE forms, there are two types of analogical remodelling, which follow common tendencies in PDE strong verbs. Firstly, the past ptc. ending *-n* remains in the past ptc. stem of *see*, while the same ending is lost in infinitive and plural endings. In this way, the forms of the present and past ptc. stems are no longer identical. This retention of the past ptc. ending –(*e*)*n* is common in English strong past participles, but, as I will argue below, can also function as a means of distinguishing phonologically similar past ptc. stems in SVs I, VI and VII. This does not explain why the form continuing the rare OE Northumbrian form *gesēne* (originally an adjective, cf. Brunner, 1965: §391) has become standardised in PDE.[29]

Secondly, the pret. sg. stem /saux/ from OE *seah* spreads into the pret. pl. stem. This analogical spread is already attested in ME. The standardisation of the preterite stem is recent. Wyld finds major variation in the EModE period regarding the preterite forms of *see* (1953: 353) and these forms follow from the ME forms. The analogical remodelling of the spread of pret. sg. *saw* into the pret. pl. therefore likely follows the late ME/EModE trend of generalising one form across the entire pret. paradigm. In modern English non-standard

[27] ME preterite forms listed in the OED, besides the forms listed in Table 34, broadly include (ignoring ME spelling variations and voiced variants of root-initial /s/ as in *zee*) pret. sg. *saih, see* and *sedd*; pret. pl. *saih/seih, sowe, sewen, sih, seen* and *see*; past ptc. *sain, see, sie* and *saw*.
[28] ME preterite forms listed in the OED, besides the forms listed in Table 34, broadly include (ignoring ME spelling variations and voiced variants of root-initial /s/ as in *zee*) pret. sg. *saih, see* and *sedd*; pret. pl. *saih/seih, sowe, sewen, sih, seen* and *see*; past ptc. *sain, see, sie* and *saw*.
[29] The OED notes Scandinavian influence (Old Icelandic past ptc. of 'see' *sénn*), as well as the similarity with other frequent English verbs (*see, seen* is similar to *be, been; do, done, go, gone* etc.) as possible reasons.

dialects, *seen* is also commonly used as a pret. form (attested, amongst others, in English (Anderwald 2009: 120) and Canadian dialects (Jankowski & Tagliamonte, 2022).

SVs V with PGmc. -ja- suffix (SVs V -ja-)

(OE *biddan, licgan, ðicgan*, *sittan*, *giefan*; PDE *bid, lie, sit, give*)

There are four OE SVs V with a PGmc. -ja- suffix (hereafter called SVs V -ja-). I will additionally count *give* within this group, despite not being formed with the suffix -ja- in PGmc., as it, like other SVs V -ja-, has PDE /i/ as its present stem root vowel, deriving from Scandinavian influence.

The -ja- suffix in the present stem had changed the present stem vowel of this group due to i-mutation, from /e/ > /i/in the distant prehistory of Old English. Therefore, the major mergers seen in other SVs V between present stem and past plural, past participle did not occur. Additionally, the presence of the suffix led to gemination of the root-final consonant, meaning that the present stem was never lengthened and these verbs largely continue with short vowels in PDE.

In *sit*, the pret. *sat* continues an unlengthened preterite root vowel, i.e. one where OSL did not occur. The geminate /tt/, which did not allow OSL in the present stem to occur, has likely been analogically extended to the past stems. Forms with regular OSL-lengthened /ā/ > /ɛ̄/ are also common into EModE. Over time, forms with a short root vowel /a/ > /æ/ dominate in both preterite stems.

Table 37 Development of sit

	OE	ME	EModE	PDE
Present	*sittan*	/sittən/	/sɪt/	/ɪ/ *sit*
Pret. Sg.	*sæt*	→ /satt/	/sæt/	/æ/ *sat*
Pret. Pl.	*sæton*	→ /sɛ̄ttən/	→ /sæt/	
Past Ptc.	*seten*	→ /settən/	/sɛt(ən)/ → /sæt/, /sɪtən/	

There is no phonological similarity between present and past stems in *sit*. The past ptc. form however begins to merge with the past stem of the weak derivative *set,* with both forms (past ptc. of *sit* and past forms of *set*) having the phonological form /set/ in late ME. Three types of analogical remodelling are attested in the past ptc. of *sit*: (1) retaining the past ptc. -en ending; (2) generalising pret. /sæt/; or (3) forming a past ptc. with the same root vowel as the present stem /sɪtən/. It is the second form that is generalised in PDE.

The paradigm of *bid* (OE *biddan* ‘ask’) experiences phonological similarity with two other strong verbs of classes I (OE *bidan* ‘wait’) and II (OE *beodan* ‘command’).

Table 38 Development of bide, forbid *and* bid

	ME			EME		
SV class	I 'bide'	II 'command'	V 'ask'	I	II	V
Present	/bīdən/	/bēdən/	/biddən/	/bɛɪd/	/bīd/	/bɪd/
Pret. Sg.	/bɔ̄d/	/bēd/	/bād/ /badd/	/bōd/	→ /bōd/	/bɛ̄d/ /bæd/
Pret. Pl.	/bidən	→ /bɔ̄dən/	/bēdən/ /beddən/	/bōd/	/bōd/	/bɛ̄d/ /bæd/
Past ptc.	/bidən/	/bɔ̄dən/	/bēdən/ /beddən/	/bɪdən/	/bōdən/	/bīdən/ /bɛd/

	PDE		
	I	II	V
Pres.	*(a)bide*	*forbid*	*bid*
Pret.	*(a)bode*	*forbade*	*bid/bade*
Past Ptc.	*(a)bode*	*forbidden*	*bid/bidden*

There are many instances of phonological similarity and merger between different stems of the three strong verbs. The PDE forms of these verbs have been mixed and matched out of these various forms. *Bid's* past ptc. *bid(den)* is taken from *(a)bide*. *(A)bide* has instead generalised its preterite *(a)bode* to the past ptc. (though the verb can also be inflected weak in PDE (OED). The origin of *bid*'s pret. *bid* is not clear from the paradigms above. *Bid*'s other pret. *bade* regularly continues the pret. stem of *bid* (ME /bād/). This form is nowadays common as the pret. of *forbid, forbade*. *Forbid* itself derives from the SV II eo-present OE *forbēodan*. Regularly, at least after common analogical change, *forbid* would be PDE *forbeed, forbode*. But the preterite -*bode* is associated with *(a)bide*. *Forbid* has taken the preterite -*bade* from *bid*. After this highly confusing set of changes, the PDE past forms of *bid* have become pret. *bid* and past ptc. *bid(den).*

In OE, *give* is a majority SV V. However, the form is influenced by a slightly different form that arose due to language contact with Old Danish speakers in Britain. During the ME period, two different paradigms compete.

Table 39 Two ME paradigms of give

	OE > ME	Scand. → ME
Present	/jɛ̄vən/	/givən/
Pret. Sg.	/jāv/	/gāv/
Pret. Pl.	/jɛ̄vən/ → /jāvən/	/gāvən/
Past ptc.	/jɛ̄vən/ → /jɔ̄vən/	/givən/

The first variant displays the same phonological similarity as in majority SVs V, as well as similar forms of analogical remodelling. In the EModE period only the second variant, influenced by Scandinavian, is continued, and it is they that finally remain in PDE.

There, phonological similarity between present and past ptc. stems is again resolved by the retention of the past ptc. ending -en (*give* and *given*).

Lie ('to recline') is affected by the vocalisation of OE palatalised /j/. The development of the four stems is shown in Table 40.

Table 40 Development of lie

	OE	ME	EModE	PDE
Present	*licgan* /liʤan/	/līən/	/lɛi/	*lie* /lʌɪ/
Pret. Sg.	*læg* /læj/	/lai/	/lɛ̄/	*lay* /leɪ/
Pret. Pl.	*lægon* /lǣjon/	/laiən/		
Past Ptc.	*legen* /lejen/	/laiən/	/lɛ̄n/	*lain* /leɪn/

No phonological similarity, according to the definition given here, occurs. There are very few forms of analogical remodelling attested for *lie*. The OED attests a handful of weak forms <liggit>, <ligged>, <lied> etc. in the EModE for both the preterite and the past ptc. Other than that, the forms continue phonological forms into PDE. *Lie* maintains its original vowel alternation pattern in PDE.

Conclusion

SVs IV and V broadly share similar OE features: a present stem in root vowel /e/, pret sg. root vowel /a/ and pret. pl. root vowel /ǣ/. Verbs with these root vowels that follow general phonological paths encounter phonological similarity between present and pret. pl. stem in early ME and between present and pret. sg. stem in EModE. SVs IV and V have largely analogically remodelled their pret. stems with the root vowel <o>. Some verbs have acquired a dental suffix. SVs IV and V follow the general pattern of analogical remodelling caused by phonological similarity.

d. SVs I: Further remodelling

In this thesis, SVs I are split into the following groups: I will begin with majority SVs I (e.g. *drive*), and then discuss specificities in the development of majority SVs I with root-final dentals (e.g. *bite*) and root-final nasals (e.g. *shine*). Then I will discuss SVs I whose present stem vowel is shortened (e.g. *reap*) and minority SVs I (e.g. *wry* 'cover'). Finally, I will discuss the verb *writhe*.

Majority SVs I

OE (*drifan, risan, hlifan, liðan, blican, grisan, miðan, wican, slifan, swifan, swican, scrifan, sican* PDE *drive, rise*)[30]

[30] OE *clīfan, grīpan* and *scītan* are excluded here. *Clīfan* becomes phonologically similar with OE *clifian* in ME (/klīvən/ and /klivən/). *Grīpan* and *scītan* become phonologically similar with ME *grippen, shitten* (both denominal from 'grip' OE *gripa*; 'shit' OE *scitte*) in /grīpən/ and /gripən/ etc.)

Table 41 Phonological similarity in majority SVs I

	OE	ME	EModE	PDE
Present	/ī/ *writan*	/wrītən/	/wrɛit/	/ʌi/ *write/bite*
Pret. Sg.	/ā/ *wrat*	/wrɔ̄t/	/wrōt/	/əʊ/ *wrote*
Pret. Pl.	/i/ *writon*	/writən/	/writ/	/ɪ/ *bit*
Past Ptc.	/i/ *writen*	/writən/	→ /writən/	/ɪ/ *written, bitten*

In majority SVs I, the present and pret pl. as well as the past participle stem root vowels are phonologically similar, as the difference in the root vowels of present stem /ī/ and pret. pl. and past ptc. stems /i/ is merely one of length. Once plural, past ptc. and infinitive endings merge in ME *-en*, present and past forms become phonologically similar in present /wrītən/ and past /writən/, for the verb *write*.

However, it must be pointed out that the exact phonological distinction between ME /ī/ and /i/ is not clearly reconstructable. The distinction may have been merely length or a distinction in both length and quality, as between PDE /ī/ and /ɪ/ (as in PDE *beat* vs. *bit*). The former opinion is argued for by Lass (2000: 87-91), who follows EModE orthoepists (pronunciation guides). These orthoepists, Lass argues, show that the distinction remained merely in terms of quantity until 1700. Other phonologists believe that /i/ was lowered and centralised to /ɪ/, already in ME (e.g. Dobson, 1968: 569). This phonology debate is relevant to the concept of phonological similarity as I define it. Phonological similarity is here defined as either a quantitative or a minor qualitative phonological distinction, while combined qualitative and qualitative distinctions are no longer defined as phonological similarity. If this definition of phonological similarity is correct, then I believe the behaviour of majority SVs I[31] lends further support to Lass' argumentation, in that during the ME period, /ī/ and /i/ were phonologically similar and therefore only distinguished quantitively.

This phonological similarity is only relevant in the ME period. In the OE period, endings still maintained distinctions between different categories. Table 42 shows how the endings of different categories are largely distinct in OE but merge in ME.

Table 42 Phonological similarity between present and past categories in majority SVs I

	OE	ME
Infinitive	/ī/ *writan*	/wrītən/
Present Ind. Pl.	/ī/ *writað*	/wrītən/
Present. Sub. Pl.	/ī/ *writen*	/wrītən/
Pret. Ind. Pl.	/i/ *writon*	/writən/
Pret. Sub. Pl.	/i/ *writen*	/writən/
Past Participle	/i/ *writen*	/writən/

[31] This debate is also relevant to SV II ū-presents.

As can be seen in Table 42, the situation in "classical" OE (around 800AD) was such that, between present and past stems, only the present subjunctive plural was phonologically similar with the preterite subjunctive plural and the past participle. However, as the number of endings was reduced due to the merger of unstressed vowels in /ə/ in the 11th century (Lass, 1992: 77), many present, preterite and past participle forms began to converge, with root-vowel length remaining the only tense distinction. Phonological similarity between present, preterite plural and past participle stems continued until the 15th century, when /ī/ began to diphthongise to /ɛi/. Diphthongisation removed the phonological similarity between the stems. This means that it is in the period between the 11th and 15th century when analogical changes in majority SVs I regarding the vowel alternation pattern of the preterite plural and past participle stems are to be expected.

In the period between the 11th and the 15th century (i.e. the ME period), four important changes can be seen in the attestation of majority SVs I.

(1) Open Syllable Lenghtening (OSL), around 1200 (Lass, 1992: 73), lengthens the pret.pl/past. ptc. root vowel /i/ > /ē/. OSL of /i/ (i.e. high vowels) is irregular and often not generalised in PDE.

(2) *-e* and *-en* endings are regularly deleted. Final *-e* has been fully deleted by the 15th century (Lass, 1992: 79). However, the past participle ending *-en* can be retained.

(3) The pret. sg. root vowel /ɔ̄/ analogically spreads to the preterite plural and the past participle stems.

(4) The degemination of word-medial /tt/ and /dd/, starting around 1200 in the North and being completed in London around 1400 (Lass, 1992: 59), causes a group of mixed weak verbs to resemble majority SVs I (e.g. 'hide' pres. /hīdən/, past /hiddə/ > pres. /hīd/, past /hid/).

I will begin by looking at how the first three changes affect majority SVs I and finally consider the fourth change, as it introduces a further complexity. The first three changes are exemplified in Table 43 with the strong verb OE *drifan,* PDE *drive*.

Table 43 ME changes exemplified in drive

	ME
Present	/ī/ /drīvən/ > /drīv/
Pret. Sg.	/ɔ̄/ /drɔ̄v/
Pret. Pl.	(1) /i/ >/ē/ /drivən/ > /drēv/ (3) → /drɔ̄v/
Past Ptc.	(1) /i/ >/ē/ /drēv/ (2) /drivən/ > /driv/ → /drivən/ (3) → /drɔ̄v/

Considering the three changes from the perspective of phonological similarity, it can be seen that after the first change, /i/ > /ē/, phonological similarity between present and pret.pl./past ptc. stems possibly remains[32]. In contrast, the retention of the past participle ending -en as well as the spreading of the past singular /ɔ̄/ to the other past stems do increase phonological distinction between phonologically similar present and past forms.

There is evidence of OSL of /i/ > /ē/ in the pret. pl. and past ptc. of majority SVs I in ME, spelled as <e>. However, these forms were marginal in EModE. Wyld's (1953: 344-346) list of EModE strong verbs includes only a handful of forms with root vowel <e>. This change has not left any trace in PDE. The lengthening of high vowels after OSL does not always continue in PDE (Brunner, 1967: §12).

Instead, in the past participle the ending -en is often continued in PDE (e.g. *written, driven* etc.), though there are also ME forms attested where the ending is lost.

The past singular /ɔ̄/ spread across the past stems in ME. In contrast, the opposite change of the pret. plural /i, ē/ spreading into the pret. sg. is rare. /ɔ̄/-vowels are also found in the past ptc., however marginally. Johnson's advice (1755; from Lass, 2000: 170) that in the past ptc. *written* is more "elegant and refined" than *wrote* is still true in PDE.

Therefore, the two changes that were typical for all strong verbs were adequate changes to keep the majority SVs I's root vowel alternation pattern phonologically distinct. The spread of the pret. sg. root vowel into the pret. pl. generalised a phonological distinct pret. form *drove* at the expense of the phonologically similar form /driv(ən)/. The retention of the past ptc. ending -en (as in *driven*) also increased phonological distinction between the present and the past ptc. forms.

As the two analogical changes that occurred in majority SVs I are standard analogical changes across most strong verbs, it could be argued that they occur because they are standard analogical changes and not because there is phonological similarity in majority SVs I between present and past forms. However, the explanatory force of the concept of phonological similarity triggering analogical change in SVs I is twofold: Firstly, it can explain why the pret. sg. spreads into the pret. pl. in majority SVs I and not vice versa.

[32] There is no clear example in English strong verbs of an /i/ vs closed front mid vowel /e/ distinction triggering analogical remodelling. Note also Trubeckoj's comments, who (in discussing the closeness of French /e/ and /ɛ/) observed that "from a purely phonetic point of view, the difference between French i and e is not greater than the difference between e and ɛ. But the closeness of the relationship between e and ɛ is apparent to any Frenchman, while in the case of i and e there can be no question of any particular closeness" (Trubeckoj, 1969: 78). Similar results are obtained in Janson & Schulman 1983 for Swedish dialects.

Secondly, additional explanatory force can be seen when looking at further changes in SVs I, beginning with change (4) listed above.

Majority SVs I with root-final dentals

(OE *writan, ridan, stridan, besmitan, bitan, slidan, gnidan, witan, wridan, dritan, flitan, ðwitan, slitan* PDE *write, ride, stride, bite, slide, smite*)

Degemination of word-medial dental geminates makes a group of formerly mixed weak verbs resemble SVs I. Degemination occurs after open syllable lengthening (Lass, 1992: 75), as can be seen in the preterite of 'hide', late ME /hid/, which does not become /hēd/ (though a few such forms are attested).

Table 44 Similarity between majority SVs I with root-final dental and hide-neo-strong verbs

Late ME	*bite*	*hide*
Pres.	/bīt/	/hīd/
Pret. Sg.	/bɔ̄t/	/hid/
Pret. Pl.	/bɔ̄t/, /bēt/ or /bit/	/hid/
Past Ptc.	/bit(ən)/	/hid/

Table 44 shows the following phonological and grammatical similarities between majority SVs I with root-final dentals and hide-neo-strong verbs[33]: their present and past forms are formed without any overt suffix or ending (with the exception of the past ptc. -en, which is attested in some of majority SVs I past ptc. forms, but not in all); they have a root-final dental consonant; their present stem is formed with the root vowel /ī/; their pret. pl. and past ptc. are (possibly) formed with the root vowel /i/. The main difference between the two groups is the pret. (sg.) form of majority SVs I in root vowel /ɔ̄/, which does not occur in hide-neo-strong verbs, and there is no attested form that acquired this root vowel analogically (i.e. no attestations of the pret. form †*hode* are found).

Majority SVs I with root-final dentals are not affected by hide-neo-strong verbs during ME. The standard ME past tense of *bite* is *bote* (and *slide* is *slode*). After the diphthongisation of /ī/, starting in the 15th century, majority SVs I with root-final dentals begin to change following hide-neo-strong verbs (pret. sg. *slidde* from *slide* in 1601 (the following dates are all from the OED); *wryt(t)* from *write* 1500s; pret. sg. *rid* from *ride* (1460); *bit(t)* from *bite* 1500s; *glid* from *glide* 1600s). In some verbs (*bite* and *slide*), the hide VAP has remained in PDE, while in others it has not (*ride* and *write*). In addition, *hide* has

[33] See footnote 2 for a defintion of the concept *neo-strong verbs*. *Hide-neo-strong verbs* refers to former weak verbs that have lost their dental suffix and acquired vowel alternation to form past tense and follow the vowel alternation pattern of *hide* (*hide, hid, hidden*).

analogically acquired the "strong" past participle ending *hidden*, while *slid* either analogically acquired a "weak" past ptc. *slid* or merely followed regular phonological change.

The dates here are interesting, though the picture presented here probably is imprecise in considering dialectal variation.

> 1200-1400: word-medial degemination /hiddə/ > /hidə/. Simultaneously, again over a period of time, word-final -ə is dropping /hidə/ > /hid/. Analogical remodelling of majority SVs I's pret. pl. and past ptc. forms is ongoing.
>
> 15th century: diphthongisation of /ī/ to /ei/.
>
> 1460-1600: Neo-strong pret. sg. forms (root vowels <i>, <y>) are attested in the pret. sg. of majority SVs I with root-final dentals.

The concept of phonological similarity can be integrated into this chronology, for in the period before the diphthongisation of /ī/, the past forms of hide-neo-strong verbs were phonologically similar to the present forms (present stem /hīd/ and past stems /hid/ are merely distinct in terms of vowel length). After the diphthongisation of /ī/, the phonological distinctiveness between present and past forms increases. Following the dates of the OED, it is only after the diphthongisation of /ī/ that majority SVs I with root-final dentals begin to adopt forms related to hide-neo-strong verbs (i.e. pret. sg. forms in root vowel /i/). This is what the theory of phonological similarity would predict.[34]

Amongst majority SVs I with root-final dentals and hide-neo-strong verbs, some verbs have become regular weak verbs: *chide* and *glide* later become regular weak verbs (past *chided*[35] and *glided*). About the pret. of *glide,* the OED writes: "The English verb remained strong until the 19th cent.; the usual inflection is now *glided*, though *glid* might be used in the past tense without causing surprise." For *light*, both pret. *lit* and *lighted* are possible, though the former appears to be significantly more common, according to the NOW corpus.

Majority SVs I with root-final nasals

(OE *scinan, whinan, cinan, dwinan, ginan, hrinan* PDE *shine, whine*)

There are two relevant strong verbs in root-final nasals that continue in PDE: *shine* and *whine*. In general, these verbs behave like majority SVs I, with one exception, the past

[34] In Greenwood's 1729 grammar, there is significant variation in majority SVs I with root-final dentals and hide-neo-strong verbs, showing that different patterns are still competing around this time. The "correct" forms in Greenwood's grammar are: *bite, bit, bitten*; *chide, chid, chidden* or *chid*; *hide, hid, hidden* and *hid*; *ride, rid* or *rode, ridden* or *rode*; *write, writ* and *wrote, written writ* and *wrote*.

[35] The OED asserts that the pret. of *chide* is *chid*, but this form cannot be found in the PDE NOW corpus (Corpus of News on the Web; Davies 2016-), in the form of a pret. of *chide*.

participle ending *-en* is invariably deleted because they end in a nasal. The OED writes about *shine*:

> "The regular strong past participle is rare in English, being unrecorded in Old English and appearing only once in Middle English *sinen*; it was superseded by the weak form *shined*, which was in common use *c*1300–1800; this was supplanted by the form of the strong past tense, which first appears as past participle in the second half of the 16th cent."

The spread of the pret. *shone* into the past ptc. can be explained with the theory of phonological similarity. The majority SVs I strategy of maintaining the past participle ending *-en* is blocked by the root-final nasal (as in *come*, **shinen* is not possible). Therefore, *shine* and *whine* must find other strategies of distinguishing their past participle (e.g. /ʃin/) from the present (e.g. /ʃīn/): firstly by generalising the pret. sg. stem into the past ptc. (as in PDE *shine, shone, shone*) or secondly by analogically acquiring a dental suffix (as in PDE *whine, whined, whined*).

These two verbs are the clearest demonstration that the retention of the past ptc. ending *-en* was necessary for other majority SVs I, because it allowed them to have a past ptc. form sufficiently distinct from present forms. They therefore demonstrate that, when present and pret. pl./past ptc. forms were indeed becoming phonologically similar (i.e. present /ʃīn/ and past ptc. /ʃin/ for *shine*), analogical remodelling was triggered. Without the option of retaining the -en ending, as was the case for SVs I in root-final nasals, other options of analogical remodelling had to be generated.

Present Vowel Shortening

(OE *ripan, strikan, snican* PDE *reap, strike, sneak*)

This group of SVs I corresponds to a type observed in SV II ū-presents. Some SVs I have present stem root vowels that appear to derive from the ME short vowel /i/ (e.g. PDE *reap* /rīp/: OE /ī/ > /i/ > (OSL) ē > (GVS) /ī/). Seebold (1966) argues that in SVs I the vowel was shortened before /t, k, p/ in the Northumbrian dialect, the Northern dialect area of OE. While in general these vowel shortenings did not impact majority SVs I across English, this vowel shortening had an impact in a handful of words (notably *reap, sneak* and *strike*). The argumentation is based (a) on geminates occuring in the spelling of the relevant Northumbrian forms, (b) on unexpected phonological outcomes in PDE, as was argued by Luick as early as 1899. For example, Northumbrian 'reap' Ps. 1.Sg. *hripp-o* implies /ripo/ with a short /i/, not the expected /rīpo/ with a long /ī/. After OSL (/i/ > /ē/) and the Great

Vowel Shift (GVS) (/ēː/ > /īː/), modern *reap* /rīp/ (and *sneak*) follow regularly. Table 45 shows the phonological similarity in SVs I affected by present stem vowel shortening.

Table 45 Phonological similarity in SVs I with secondarily shortened present vowels

	OE	ME
Present	/īː/ > /i/ *ripan*	/ripən/
Pret. Sg.	/āː/ *rap*	/rɔ̄p/
Pret. Pl.	/i/ *ripon*	/ripən/
Past Ptc.	/i/ *ripen*	/ripən/

The difference between majority SVs I and the "Northumbrian" vowel shortening is that in Northumbrian the result is merger between present and pret.pl./past ptc. stems. Recalling Table 42 above, we see that the various present and past categories listed in that table merge in Northumbrian. In the ME period, for *reap* the pret. sg. root vowel spreads across the past stems, while the -en ending is retained; however, forms with dental suffix are also found, and dominate in EModE. *Reap* has analogically acquired a dental suffix in PDE.

Vowel shortening can also explain the PDE phenomenon that both *strike* and *sneak* have analogically remodelled their preterites after SV III nasal-velars (i.e. *struck* and *snuck* after *swung, spun* etc.; Seebold, 1966: 18) Their present stem in short /i/ and a root-final velar consonant made them similar to SV III nasal-velars, which also had a short /i/ in the present stem and some of which also had a root-final velar consonant. This analogical remodelling allows present and past stems to become distinguishable again. In Scotland, *strike*, fully integrated into SV III nasal-velars (/strɪk/, /stræk/, /strʌkən/), is still attested in the 19th century, according to the DSL. *Sneak* is not attested in ME and the EModE. *Reap* is not influenced by SV III nasal-velars as it does not end in a velar consonant.

Minority SVs I

(OE *seon, ðeon, wreon, sigan, stigan, leon, sniwan, migan, teon*)[36]

All minority SVs I have become obsolete in PDE. I will use *wry* as an example to discuss one minority SV I.

Table 46 Phonological similarity in wry

	OE		ME	
Present	/eo/ *wreon*	<ie> *wriehð*	/wrēn/	/wrīn/
Pret. Sg.	/āː/ *wrah*	/æɑ/ *wreah*	†/wrɔux/	/wreiç/ > /wrīç/
Pret. Pl.	/i/ *wrigon*	/u/ *wrugon*	/wrīən/	/wrūən/
Past Ptc.	/i/ *wrigen*	/o/ *wrogen*	/wrīən/	/wrɔuən/

The root vowels of *wry* 'cover' varied in different dialects of OE. The variation in the present stem is due to phonological developments in different parts of the present stem (OE

[36] *Spiwan* is excluded from the discussion here. It merges in ME with OE *spiwian* (weak) in /spiuən/.

infinitive *wrēon*, pres. ind. 3. sg. *wrīehð*). The variation in the pret. stem reflects analogical change: besides forms regularly continuing SVs I root vowels (*wrah, wrigon, wrigen*), other forms analogically acquired SVs II root vowels (*wreah, wrugon, wrogen*), because contracted SVs I and II (e.g. OE *flēon* 'flee') had the same present forms in OE (Brunner, 1965: §383).

Table 46 shows the ME phonological continuation of the OE forms. According to the OED and the MED, these forms are all attested in ME, except a ME pret. sg. form continuing OE *wrah*. The second present stem in ME /ī/ appears to be attested more frequently and continues into EModE, according to the OED, though all minority SVs I have become largely obsolete after ME. There is phonological similarity between this present stem ME /wrīn/ and forms of all other ME past stems, also in root vowel /ī/. Past forms with a dental suffix are also attested in ME.

Writhe is a majority SV I that acquires a dental suffix (past *writhed*). It follows all the developments of other majority SVs I, but it has become a regular weak verb in PDE. Weak forms are attested in ME, as they are also attested in other majority SVs I. As I have argued above, phonological similarity appears between present and pret. pl./ past ptc. forms in ME. In most majority SVs I, "strong forms" (root vowel /ɔ̄/ into the pret. pl.; retention of the ending *-en* in the past ptc.) are analogically acquired. In *writhe*, these strong forms are not continued. Most past forms in and beyond EModE have a dental suffix.

e. SVs VI and VII: Present and past ptc. mergers

Instances of phonological similarity in SVs VI and the remaining SVs VII resemble each other. In all verbs of these classes, the present and the past ptc. root vowel was always identical, and forms could only be distinguished by their endings. In this sense, the phonological similarity also resembles SVs I. Note that SVs VII discussed in Chapter 4a. will not be discussed here.

SVs VI

Like SVs V, SVs VI are also separated into majority verbs, minority verbs and verbs with the PGmc. suffix -ja- in the present stem.

Majority SVs VI

(OE *acan, bacan, calan, galan, grafan, hladan, sacan, sceafan, sceacan, spanan, standan, tacan, wadan, wascan*; PDE *ache, bake, lade, forsake, shave, shake, stand, take, wade, wash*)[37]

[37] *Fare* (OE *faran* 'travel') is excluded here. It merges with the weak verbs OE *ferian* and *feran* in EModE /fɛə/.

Table 47 Phonological similarity in majority SVs VI

	OE	ME	EModE	PDE
Present	/a/ *scacan*	/ ʃāk(ə)n/	/ ʃɛ̄k/	/ei/ *shake*
Pret. Sg.	/ō/ *scoc*	/ ʃō(k)/	/ ʃū(k)/	/ʊ/ *shook*
Pret. Pl.	/ō/ *scocon*	/ ʃō(k)ən/		
Past Ptc.	/a/ *scacen*	/ ʃāk(ə)n/	/ ʃɛ̄k(ə)n/	/ei/ *shaken*

Phonological similarity arises after the merger of endings in early ME. Present forms such as the infinitive, present plural forms merge with the past participle. In the ME period, the *-en* endings of the infinitive and plurals drop off, but the past ptc. ending can be retained.

The analogical remodelling that occurred in majority SVs VI were: (1) retention of the past ptc. ending *-en*; (2) spread of the pret. form into the past ptc.; (3) regular weak forms. The first type of analogical remodelling is continued in most majority SVs VI that remain +VA, -DS in PDE (*taken, shaken*), while other majority SVs VI still continue such forms in PDE as adjectives (e.g. *laden*).

The second type of analogical remodelling, where the pret. form spreads into the past ptc., is also attested in many majority SVs VI. Examples include the past ptc.s of *lade*, *lode* (MED); for *forsake, forsoc*; for *stand, stod*. In Greenwood's grammar (1729), for majority SVs VI that are listed, both types (1) and (2) are possible in the past ptc., for example for *take* both *took* and *taken* are possible past ptc.s etc. In *stand,* the second type of analogical remodelling continues into PDE. We will return to this verb below.

The third type of analogical remodelling is the acquisition of a dental suffix. This is also attested in all majority SVs VI in ME, though in many cases both the OED and the MED comment that these forms are late ME. Weak forms are not only attested in the past ptc. but also in the preterite. Many majority SVs VI have become regular weak verbs, with past forms such as *ached, baked, shaved, waded* etc.

The present stem of *stand* is affected by HCL. In addition, *stand* is irregular across its development in English in having an -n-infix in its present and past ptc. stem, but lacking this infix in the preterite stem. This -n-infix was a common way of marking present (or imperfective) forms in Proto-Indo-European. It has remained in fossilised form in PDE.

Table 48 ME stand *with and without HCL*

ME	+HCL	-HCL
Present	/stɔ̄ndən/	/standən/
Pret.	/stōd/	/stōd/
Past Ptc.	/stɔ̄ndən/	/standən/

This archaic grammatical feature became important in ME in maintaining phonological distinction between present and preterite forms in forms affected by HCL. Had the consonant coda of present and preterite forms been levelled prior to ME, the present-preterite forms would have been phonologically similar (i.e. /stɔ̄ndən/ and /stɔ̄nd/). As we have seen in SV III homorganics, lengthened versions of /and/ do not continue in PDE, which is also the case in the strong verb *stand* /stænd/.

Stand is then further affected by a different rule: verbs with a root-final consonant clusters, like -nd in *stand*, cannot retain their past ptc. ending -*en*. Analogical model (1) of maintaining the past ptc. ending -en is therefore not possible. Analogous to SV I *shine*, analogical model (2) instead is generalised (PDE past ptc. *stood*).

Minority SVs VI with Root-final OE <g>

(OE *dragan, gnagan*; PDE *draw, gnaw*)

Table 49 Phonological similarity in draw

	OE	ME	EModE	PDE
Present	*dragan* /drɑɣɑn/	/drauən/	/drɑ̄/	*draw* /drɔ̄/
Pret. Sg.	*droh* /drōx/	/drɔux/ → /dreu/	/driu/	*drew* /drū/
Pret. Pl.	*drogon* /drōɣon/	/drɔuən/		
Past Ptc.	*dragen* /drajen/ → /drɑɣen/	/drauən/	/drān/	*drawn* / drɔ̄n/

In OE minority SVs VI with root-final OE <g>, levelling phenomena occurred. For example, retracted /ɑ/ spread from the present stem into the past ptc. In ME, both forms with and without retracted /ɑ/ continued (i.e. *drauen* and *drain*). Phonological similarity occurred between present forms and the past ptc. in /drauən/, which, as usual, disappeared after the retention of the past ptc. ending -*n* in PDE *drawn*.

The preterite remained distinct from the present stem (pret. root vowel ME /ɔu/ vs. pres. root vowel ME /au/). It is difficult to follow the phonological development of the ME pret. sg. form /drɔux/. Under normal circumstances /ɔu/ is monophthongised to EModE /ō/ (merger with ME /ɔ̄/), from which PDE /əʊ/. However, before /x/, there is great variety in the outcome of ME /ɔu/ (i.e. *tough* /tʌf/, *cough* /kɔf/, *dough* /dəʊ/, *plough*/*plow* /plaʊ/). Dobson (1968: §170) argues that /ɔu/ before /x/ sometimes became ME /ū/ and therefore participates in the GVS diphthongisation of /ū/ (which would explain the phonological value of *plough* and possibly *tough*[38]). This connection between ME /ū/ and /ɔu/ is possibly rather due to the small distinction between these two vowels in the 16th century, following the diphthongisation of /ū/, a distinction so small that it was difficult to distinguish for EModE

[38] *tough*, ME /tɔux/, merges with *rough*, ME /rūx/.

orthoepists (Lass, 2000: 93). Additionally, before /xt/, ME /ɔu/ merges with ME /au/ (e.g. *thought, daughter* both with ME /ɔu/ as the stressed vowel). In other words, the vocalism in ME /ɔʊx/ merges either with ME /ɔ̄/, diphthongising /ū/ or /au/ in different lexemes/contexts. This shows the relative proximity of these vowels in the EModE period.

In the pret. of *draw*, a form completely different from those above is generalised in PDE: *drew*. In ME, preterite forms of *draw* in /ɔu/ predominated but forms with <eu> are increasingly attested in the later period of ME. In EModE, the opposite picture appears, with the overwhelming attestation of *drew* and only few attestations of *drow* (OED, Helsinki Corpus, Wyld 1953). Weak forms also appear marginally. Similarly for *gnaw*, the analogical form *gnew* is well-attested in the EModE period. In PDE, the preterite form *gnawed* with a dental suffix has been generalised.

Given this pattern, it would be most fitting, following the general explanation of analogical change in English strong verbs developed so far, to set up phonological similarity as the reason for this change. For in *draw*, a pret. *drew* is generalised in PDE, which is different from the many possible phonological outcomes of ME /ɔux/ and /ɔu/. Meanwhile, in *gnaw,* where a similar form, *gnew*, is also attested, the PDE outcome is an analogically remodelled weak form *gnawed*. The most likely possible source of this phonological similarity is the merger of or variation between /ɔu/ and /au/. This merger is only generalised before /xt/ in PDE. In addition, Dobson (1968: §240-242) finds variation between ME /au/ and /ɔʊ/ before /x/ in EModE (e.g. in *though*). The time frame also aligns as the variation is backed up by late ME misspellings of /ɔu/ as <au> (in *daughter* and *sought*; there is also one ME pret. form *draugh* listed in the OED).

There is a second possible explanation (Long, 1944: 314; OED), arguing that the form *drew* follows phonological change, specifically a Northern sound change, where the first value of /ɔu/ is fronted to /iu/ (but written <ew>; Luick, 1921: §406). This would be a very unusual type of phonological/analogical change, in that a dialectal variant is generalised across the standard language.

Contracted SVs VI

(OE *flean, slean, lean*; PDE *flay, slay*)

Table 50 Phonological similarity in slay

	OE	ME	EModE	PDE
Present	*slean* /slēan/	/slɛi/ > /slai/	/slɛ̄/	*slay* /sleɪ/
Pret. Sg.	*sloh* /slōx/	/slɔux/ → /sleu/	/sliu/	*slew* /slū/
Pret. Pl.	*slogon* /slōɣon/	/slɔuən/		
Past Ptc.	*slagen* /slæjen/	/slaiən/	/slɛ̄n/	*slain* /lein/

There is also great variety in the ME attestation of *slay* and *flay*. The majority of the present forms had the root vowel /ɛ̄/, which develops regularly from the OE present stem. Alternatively, later in the period, the stem in ME /ai/ began to spread and continues in the PDE attestation. This is explained by the OED as an analogical change where the past ptc. root-final -i- spreads to the present stem. This would be a very unusual analogical change, in a present form analogically changing to match a past form. The present stem can instead be understood as having generalised pres. ind. 3. Sg. forms. In some OE dialects, -h- was not deleted in the 2. and 3. Sg. present forms (i.e., the 3. Sg. of *slay* is OE *slæhð*). From this form, ME 3.Sg. /slaið/ develops regularly. An analogical spread of the present singular into the entire present paradigm can therefore be posited (as in *wry*), which is less unusual.

A ME present stem in root vowel /ai/ merged present forms with the past ptc. Again, *slay* retained the past ptc. ending -*n*, i.e. PDE *slain*. In the past ptc., other analogically remodelled forms are also attested in ME such as *slawe* (after the past ptc. of *draw*), *slon* or *slowe*, however remain marginal.

In the pret. in ME, the overwhelming form was /slɔu(x)/. However, towards the end of the period (beginning in the late 14th century according to the OED), the form *slew* began to spread in both stems. Similar to the developments in *draw* and *gnaw*, pret. *slow* remained common in the late ME period, but apparently disappeared in EModE (OED, Helsinki, Wyld 1953: 354). Despite the many possible outcomes of ME /ɔux/, which occurred in pret. sg. stem, in no outcome did it become phonologically similar /ai/, i.e. the present stem. No phonological similarity developed in *slay.* The analogical change from pret. *slow* to *slew* clearly parallels the change from *drow* to *drew.* As mentioned above, there are other minor examples analogical change where *slay* is influenced by *draw*. The pret. *slow* is formed analogously to the pret. *drow*. The analogical change in the pret. of *slay* from /slɔux/ to /slɛux/ can possibly understood as a generalisation of phonological similarity from one group of verbs to a group with similar root vowel inflections. Though it must be added, excluding the marginal past ptc. form *slawe*, the present and past ptc. stems of *draw* and *slay* in ME are quite different from each other.

Analogical changes in *flay* are similar to *slay*. The OED notes that the present stem *flee* remained a dialectal variant. In the ME pret., /flɔux/ was common, but *flew* is also attested. This made *flay* the fourth ME strong verb competing for the preterite *flew*. As that preterite is generalised in *fly*, *flay* began to take weak forms *flayd* at the end of the ME period. There are also various attestations in the past ptc. Besides regular /flain/, forms such as *flawn* are attested in ME. Weak forms introduced into the past ptc. come in different forms: *flayed,*

fleed, *fled*, *flawed* (OED). While *flay*'s development resembles *slay*, it was further impacted by the similar strong verbs *fly* and *flee*.

SVs VI with PGmc. -ja- suffix (SVs VI -ja-)

(OE *weaxan, stæððan, swerian, scieððan, hliehhan, hebban, steppan*; PDE *wax, swear, laugh, heave, step*)

Similar to a number of SVs V verbs, some SVs VI were formed with the PGmc. *-ja- suffix. These verbs were affected by i-mutation in the present stem. Unlike other SVs VI, whose present stem root vowel developed from OE /a/, the present stem root vowel of SVs VI's with present stem in -ja- developed from OE /e/. In this group, every verb must be discussed separately.

PDE *swear* looks like an SV IV with root-final /r/ (pret. *swore* as in *bore*).

Table 51 Development of swear

	OE	ME	EModE	PDE
Pres.	/e/ *swerian*	/swēr(ən)/	/swɛə/	*swear* /swɛ̄/
Pret. Sg.	/ō/ *swor*	/swōr/	/swɔə/	*swore* /swɔ̄/
Pret. Pl.	/ō/ *sworon*	/swōr(ən)/		
Past Ptc.	/o/ *sworen*	/swɔ̄rən/	/swɔən/	*sworn* /swɔ̄n/

In OE, the past ptc. *sworen* was more common than the expected *swaren*. In ME, the pret. form *swar* is attested, in analogy with SVs IV, like *bear*, with which it shared the present and past ptc. root vowels. Similarly to SVs IV, this form *swar* is not continued in PDE as in EModE it merged with the present in EModE /swɛə/. In EModE, /ōr/ tended to merge with /ɔ̄r/ in /ɔə/. After this phonological change, the vowel alternation pattern of *swear* had become identical to *bear* etc.

Wax was another verb with great variety in its ME root vowels in different stems.

Table 52 Regular development of ME stems of wax *from OE*

	OE	ME
Present	*weaxan* /ăɑ/	/waksən/
Pret. Sg.	*weox* /eo/	/wēks/
Pret. Pl.	*weoxon* /eo/	/wēksən/
Past Ptc.	*weaxen* /ăɑ/	/waksən/

In OE, the verb analogically remodelled its pret. root vowel following SVs VII, with /eo/ as its pret. root vowel, while the regular SVs VI pret. root vowel /ō/ was confined to Northumbrian (Brunner, 1965: §392). After OE breaking, its OE present-stem root vowel was short /ăɑ/. However, given the ME attestation and the analogical development in the pret.

stem, the present-stem root vowel may also represent long /æɑ/, in analogy to SVs VII. For in ME, the present stem is variably attested with root vowels <e> and <a>, in most cases. Meanwhile, the ME pret. stem root vowels also varied between <a>, <e> and <o>; /ē/ being the expected value following the OE pret. root vowel /eo/.[39]

It is unclear what the relationship in ME was between the varying root vowels attested for *wax*; <a>, <e> and <o> appeared in present, pret. and past ptc. stems. Additionally, <e> was most frequently attested in both present and pret. stems according to Long (1944: 355). The ME attestation shows clear evidence of the possibility of merger of present and past stems. In PDE, *wax* is formed with a dental suffix, though the former past ptc. *waxen* can still be used as an adjective.

Laugh also showed dialectal variation in ME. Two main present stems are attested, one with the root vowel ME /ei/ (> ī), which would have regularly resulted in PDE *lie* /lʌɪ/, and one with ME /au/. According to Long (1944: 327), the latter form was already generalised in late ME. Table 53 shows the different ME variants of *laugh*. The past ptc. is not well attested in ME and generally is spelled with the root *laugh-*.

Table 53 ME variation in laugh

	OE	ME Variant 1	ME Variant 2
Present	*hliehhan* or *hlehhan* or *hlæhhan*	/leiçən/	/lauxən/
Pret. Sg.	*hloh*	/lɔux/	/lɔux/
Pret. Pl.	*hlogon*	/lɔuən/	/lɔuən/
Past Ptc.	/	*/lai/ ?	/lauxən/

The second variant, which eventually is generalised in PDE, is similar to the ME inflection of *draw*, with the difference that *laugh* had the reflex of a geminated velar fricative in the present stem. Phonological similarity occurred between present stem and past participle in variant 2. In the pret. sg. /lɔux/, the same complex phonological processes are expected as in *draw* and *slay*. Analogical forms such as *lew(ch)* like *drew* appeared towards the end of ME. Weak forms are also attested, especially from the second half of the 14th century, according to the OED. These weak forms tend to be spelled with the root of the second variant, the OED lists only a handful of weak forms with the root of the first variant, such as

[39] Counting the 15th century ME attestation in Long (1944: 355), in the present stem there are 32 forms with root vowel <a>; 40 forms with root vowel <e> and one form with root vowel <o>. In the pret. stem, there are 22 forms with root vowel <e>, 14 forms with root vowel <a>, 4 forms with root vowel <o>, one form each with root vowels <i> and <y> and 15 forms with a dental suffix (of which 10 with root vowel <a>, 4 with root vowel <e> and one with root vowel <y>). In the past ptc., there are 10 forms with root vowel <a>, 5 forms with root vowel <e> and 8 forms with root vowel <o> (and no weak forms).

leiʒede. In the present stem, root-final /x/ develops to /f/, to PDE *laugh* /lāf/. In PDE, the past form, *laughed*, has analogically acquired a dental suffix.

In *heave* and *step*, pret. forms with root vowel <o> become less common in ME. Instead, their pret.s are formed with the root vowels <a, e>, both with and without dental suffix. Why the pret. forms with root vowels continuing /ō/ disappear is unclear. Possibly, there is analogical influence from SVs IV (as suggested in Long, 1944: 326) or SVs VII (as suggested by the OED). Whatever the cause of this analogical change, it is probably not phonological similarity.

Apart from the majority SVs VI, other SVs VI raise countless difficulties for the theory argued for here. The most enduring problem is the pret. of those SVs VI whose stem, after ME breaking, ended in pret. sg. /ɔux/, pret. pl. /ɔu/. As has been discussed, there were multiple possible PDE outcomes of ME /ɔux/. However, no SV VI with pret. sg. /ɔux/, pret. pl. /ɔu/, continues any of these possible PDE outcomes in the pret. Instead, either a dental suffix was analogically acquired (as in *flayed, gnawed* and *laughed*), or the pret. root vowel /eu/, common in SVs VII, analogically spread into the pret. (*drew* and *slew*; with an alternative possibility that /eu/ continues ME /ɔu/ following a Scottish sound change). As a consequence of this *required* analogical change to the ME pret. sg. /ɔux/, pret. pl. /ɔu/ (again, excluding the possibility of Scottish sound change), it would be expected that a context of phonological similarity could be found that triggered this analogical change (as in other strong-verb groups). This context of phonological similarity is difficult to find because of the variation in PDE outcomes of /ɔux/.

The Remaining SVs VII

The SVs VII that remain to be discussed (i.e. that were not discussed earlier) are those whose pret. did not become phonologically similar with the present stem. In all of these remaining SVs VII, the present plural and infinitive forms and the past ptc. merged, following the merger of endings, in ME. With a few exceptions, the following analogical changes can be seen in PDE: either the verb has retained the past ptc. ending –(*ə*)*n* in PDE or it has acquired a dental suffix.

SV VII *Verba Pura*

(OE *blowan, flowan, glowan, growan, rowan, spowan, blawan, clawan, cnawan, crawan, mawan, sawan, ðrawan, (wawan)*; PDE *blow, flow, glow, grow, row, know, crow, mow, sow, throw*)

The largest remaining group of SVs VII are so-called verba pura. These verbs do not have a root-final consonant in PGmc. By OE, /w/ had been inserted between the root vowel and the

ending. SV VII verba pura had the root vowel /ā/ or /ō/ in the present and past ptc. stems and /eo/ in the pret. stem. Following ME sound change, present root vowels /ā/ or /ō/ merged before /w/ in /ɔu/. Due to this sound change, the two groups of SVs VII verba pura merged into one. Table 54 shows the phonological development of SV VII verba pura's root vowels.

Table 54 Phonological similarity in SVs VII verba pura

	OE		ME	EModE	PDE
Present	/āw/ *cnawan*	/ōw/ *growan*	/knɔuən/	/nō/	/əʊ/ *know*
Pret.	/eow/ *cneow*	/eow/ *greow*	/kneu/	/niu/[40]	/ū/ *knew*
Past Ptc.	/āw/ *cnawen*	/ōw/ *growen*	/knɔuən/	/nōn/	/əʊ/ *known*

In ME, present plural and infinitive forms merged with the past ptc. in /knɔuən/. The analogical changes in SV VII verba pura followed changes in majority SVs VI. Either the verb retained the past ptc. ending -n (as in *blown*, *grown, known, thrown*) or a dental suffix was acquired in all past forms (as in *flowed, glowed, rowed, crowed, mowed, sowed*).

There are a few further details worth discussing: As already mentioned, the preterite of *flow*, *flew*, became associated with *fly*. *Flow* therefore analogically remodelled its preterite form, acquiring a dental suffix: *flowed*.

As we have seen in a number of verbs, the pret. root vowel /ɛu/ spreads into other SVs: PDE *flew, drew, slew*; ME *lewch* (of *laugh*), *gnew*. It also appears in some weak verbs (pret. *shew* of *show*; pret. *snew* of *snow*).

In some verbs, both options of analogical change remain possible in the past ptc. For *sow* and *mow*, the OED lists *sowed* and *sown*; *mowed* and *mown* as possible past ptc. variants. In Greenwood's (1729: 160) grammar, these two verbs (and also the former weak verb *snow*) are listed in a "mixed" strong – weak paradigm: *sow, sowed, sown* etc. (a paradigm that contains both strong features (the past ptc. *sown*) and weak features (the pret. *sowed*). For *show*, this "mixed" paradigm continues in PDE: *show, showed, shown*. The past ptc. form *showed* is "less commonly" (OED) used. In all of these verbs, the pret. root vowel ME /ɛu/ is not continued.

SVs VII with root-final -lC (SVs VII -lC)

SVs VII -lC had OE root vowel /æɑ/ in the present and past ptc. stems and root vowel /ĕo/ in the pret. stem. This group split in two following HCL. Verbs with root-final -ld were subject to HCL, while verbs with other root-final -lC consonant clusters were not.

With HCL

(OE *fealdan, healdan, wealdan*; PDE *fold, hold*)

[40] The transcription of this vowel follows Lass (2000: 98-100).

Table 55 Phonological similarity in SVs VII -lC with HCL

	OE	ME	EModE	PDE
Present	/ăɑ/ *healdan*	/hɔ̄ldən/	/hɔld/	/ɔ/ *hold*
Pret.	/ĕo/ *heold*	/hēld/	/hɛld/	/ɛ/ *held*
Past Ptc.	/ăɑ/ *healden*	/hɔ̄ldən/	→ /hɛld/	

HCL is later retracted in *fold* and *hold*. A merger again occurred between present and past participle forms in ME. *Hold* remains a strong verb but has generalised its preterite, *held*, to the past participle (the OED lists *holden* as an archaic form; *beholden* continues as a PDE adjective). *Fold* has analogically acquired a dental suffix in the preterite, *folded*. Its strong preterite *feld* merged with the preterite, *felled*, of *fell*.

Without HCL

(OE *feallan, weallan*; PDE *fall*)[41]

Table 56 Phonological Similarity in SVs VII -lC without HCL

	OE	ME	EModE	PDE
Present	/ăɑ/ *feallan*	/fallən/	/fɒ̄l/	/ɔ/ *fall*
Pret.	/ĕo/ *feoll*	/fel/	/fɛl/	/ɛ/ *fell*
Past Ptc.	/ăɑ/ *feallen*	/fallən/	/fɒ̄lən/	/ɔ/ *fallen*

As above, a merger occurred between present and past participle stems in ME. *Fall* retains the past ptc. ending *-en* in PDE (*fallen*).

f. Conclusion

In this chapter, I have attempted a systematic analysis of the phonological development of English strong verbs, with regards to the concept of phonological similarity between present and past forms. Additionally, I have analysed the analogical changes that I argue are triggered by phonological similarity.

Table 57 summarises the results of this chapter. I have included this table to recapitulate the different types of root vowel pairs that are defined as phonologically similar and to clarify which kind of analogical remodelling is triggered.

In the first column of the table, the name of the strong verb group is listed, according to the name given in this chapter. In the second column, the instance of phonological similarity is listed, as well as the period in which phonological similarity occurs. If no phonological similarity occurs, the column remains blank. The third column lists whether phonological similarity spreads into this group from a different group. Columns four and five

[41] *Walk* and *salt* (OE *wealcan* and *sealtan*) are excluded here. OE *wealcan* merges with OE *wealcian* (weak) in ME /walkən/. OE *sealtan* merges with the denominal ME *salten* (from 'salt' OE *sealt*).

list the phonological values that become phonologically similar, the present and past root vowel respectively. This table merely determines the phonological value of the root value. The other important value, that of the ending, is not listed. In the last column, the types of analogical remodelling, as attested in PDE across the group of strong verbs, is listed.
The table summarises the results of phonological similarity between present and past forms of the same strong verb. It does not list those verbs who have analogical remodelled their past form due to merger with the past form of a different strong verb (e.g. *fled* and *flowed*, generating after the merger with *fly*'s pret. *flew*).

For reasons of space, I have not included any examples of strong verbs in the table, but the examples underlying the table are all discussed within chapter 4.

SV Group	Does PS Occur?	PS Spread from another SV Group?	Present Root Vowel	PS Past Root Vowel	PDE Analogical Remodelling
SV II eo-presents	ME Pret. Sg.	ME Pret. Pl. (from SV II ū-presents)	/ē/ /ū/	/ē/ /u/	Past ptc. → Pret. Retain PP -en → DS
SV II ū-presents	ME Pret. Pl.	ME Pret. Sg. (from SV II eo-presents)	/ū/ /ē/	/u/ /ē/	→ DS
Minority SVs II eo-presents (OE <-g>)	ME Pret. Sg.		/ei/	/ei/	→ SVs VII Pret.
Minority SVs II eo-presents (OE <-w>)	ME Pret. Sg.		/eu/	/ɛu/	→ DS
Minority SVs II eo-presents (OE <-(h)>)					
Minority SVs II ū-presents	ME Pret. Pl. EModE Past ptc.		/ū/ /ɔu/	/ū/ /ɔu/	→ DS
SVs VII ea-presents and ǣ-presents	ME all past stems		/ɛ̄/	/ē/ and /ɛ̄/	→ DS → Mixed Weak → Unmarked
Shed	OE/ME all past stems		<e>	<e>	→ Unmarked
Weep	OE/ME Pret.		/ē/	/ē/	→ Mixed Weak
SV III Homorganics					Pret. Pl. → Pret. Sg.
SV III Nasal-Velars					Pret. Sg. → Pret. Pl. Pret. Pl. → Pret. Sg.
SVs III -rC	ME Pret. Sg.	ME Pret. Pl. (from SV II ū-presents)	/a/ /ū/	/a/ /u/	→ DS
SVs III -lC		ME Pret. Pl. (from SV II ū-presents) ME Pret. Sg. (from SVs III -rC)	/ū/ /a/	/u/ /a/	→ DS Past ptc. → Pret. Retain PP -en
Swallow	ME all past stems		<e, a, o>	<e, a, o>	→ DS
Yield	ME Pret. Sg.		/ē/	/ē/	→ DS
Fight					Pret. Sg. → Pret. Pl. (possibly)
Burst	ME all past stems		<a, e, i, u>	<a, e, i, u>	→ Unmarked
Thrash	ME Pret. Sg.		/a/	/a/	→ DS
Braid	ME Pret. Sg.		/ai/	/ai/	→ DS
SVs IV root-final -r, -l	ME Pret. Pl. EModE Pret. Sg.		/ɛ̄/ /ɛ̄/ or /ē/	/ɛ̄/ /ɛ̄/	Past ptc. → Pret. Retain PP -en

SV Group	Does PS Occur?	PS Spread from another SV Group?	Present Root Vowel	PS Past Root Vowel	PDE Analogical Remodelling
Nim					obsolete
Come	ME past. ptc. EModE Pret.		/u/ /u/	/u/ /ū/	→ SVs V Pret.
Majority SVs V	ME pret. pl. and past ptc. EModE Pret. Sg.		/ɛ̄/ /ē/	/ɛ̄/ /ɛ̄/	→ SVs IV Past ptc. Retain PP -en → DS
Eat	ME all past stems		/ɛ̄/	/ɛ̄/	→ SVs V Pret. Retain PP -en
See	ME past ptc.		/ē/	/ē/	Retain PP -en
SVs V -ja-					Retain PP –(e)n
Majority SVs I	ME Pret. Pl. and past ptc.		/ī/	/i/	Pret. Sg. → Pret. Pl. Retain PP -en → DS
Majority SVs I root-final -n	ME Pret. Pl. and past ptc.		/ī/	/i/	Pret. Sg. → Pret. Pl. and Past ptc. → DS
SVs I with short present root vowel	ME Pret. Pl. and past ptc.		/i/	/i/	→ SV III nasal-velars → DS
wry	ME all past forms		/ī/	/ī/	→ DS
Majority SVs VI	ME Past ptc.		/ā/	/ā/	Retain PP -en → DS Pret. → Past ptc.
draw, gnaw	ME Past ptc. ME Pret. Sg.		/au/ /au/	/au/ /ɔu(x)/	→ SVs VII pret. Retain PP -en → DS
slay	ME Past ptc.	ME Pret. Sg. (from *draw, gnaw*)	/ai/ /au/	/ai/ /ɔu(x)/	→ SVs VII pret. Retain PP -en
swear					Retain PP -en
wax	ME all past forms		<a, e>	<a, e>	→ DS
laugh	ME Pret.		/au/	/ɔu(x)/	→ DS
heave, step	ME Pret.		<e>	<e, a>	→ DS
SVs VII verba pura	ME past ptc.		/ɔu/	/ɔu/	Retain PP -en → DS
hold	ME past ptc.		/ɔ̄/	/ɔ̄/	Pret. → Past ptc.
fall	ME past ptc.		/au/	/au/	Retain PP -en

Table 57 Phonological similarity and analogical remodelling in English strong verbs

5. Conclusion

This thesis has sought to provide an explanation for why analogical change happens in English strong verbs. The argumentation was centered on the concept of phonological similarity between present and past forms, similarity which triggered analogical remodelling of past forms. In addition, this analogical remodelling could then spread to other groups with comparable past paradigms where phonological similarity did not occur.

It is important to note that the concept of phonological similarity does not explain all instances of analogical change in English strong verbs. For example, so-called "levelling" phenomena can usually not be explained with phonological similarity. An example of a levelling analogical change is the change of the past ptc. form of *choose*, which changed from ME *coren* /kɔ̄rən/ to *chosen* /t͡ʃɔ̄zən/ (i.e. it analogically acquired the palatalised initial consonant /t͡ʃ/ and the root-final consonant /z/, following the present stem ME /t͡ʃēzən/). Comparing the levelled past ptc. form ME *chosen* /t͡ʃɔ̄zən/ and the unlevelled form ME *coren* /kɔ̄rən/ with the present stem /t͡ʃēzən/, one sees that the levelled form has become more similar to the present stem than the unlevelled form. The analogical change is quite different from analogical change caused by phonological similarity, as the levelled form is more similar to, though not identical with,[42] the present stem than the unlevelled form. This example shows that there are also analogical changes that are not caused by phonological similarity. These types of analogical changes have not been discussed in this thesis.

There are still multiple ways in which the analysis of this thesis could be sharpened, particularly in the analysis of the ME strong verb attestation. I have not been able to take into account all instances of analogical change in strong verbs. In certain strong verbs, the origin of preterite and past participle root vowels remains unclear, both in terms of phonological or analogical change (e.g. verbs with r-methathesis, such as *burst*, SVs VI -ja-, such as *step* and *heave* etc.) I was also not able to adequately take into account ME dialectology and the regional distribution of the strong verb attestation. This is in part due to the way ME strong verbs are listed in modern online dictionaries, such as the OED and the MED, which often do not comment on the origin of their forms (time and place). The MED does list ME sentences in which strong verbs are attested, including their origin, which would be a great source for future research, but given that many strong verbs have 100 attestations or more, an analysis of all of these sentences was beyond the scope of this thesis. For this reason, I hope that the

[42] Or phonologically similar, as defined in this thesis.

result of this thesis could be an outline for an attempt at a more fine-grained analysis of ME strong verbs.

Equally, I believe it would be very profitable to apply the concept of phonological similarity to the strong-verb systems of other Germanic languages and to see if this concept has explanatory power in those languages. As analogical change is also common in the strong verb systems of the other Germanic languages, it would be interesting to investigate whether the same cause of change can be identified.

Now the concept of phonological similarity may remain controversial. It is not usual to develop a theory of analogical change around this concept. Especially including vowel length into the concept of phonological similarity is not backed up by phonological theory. It is also clear that many questions about analogical change in English strong verbs remain open that this thesis has not been able to address.

However, whether or not the theory of phonological similarity is believed, this thesis has uncovered several facts, that I believe cannot be ignored in any analysis of the development of English strong verbs, whether or not the concept of phonological similarity is employed. The most central observation is that the OE pret. root vowels of (most) SVs II, IV and V have disappeared in PDE. Whether SVs II, IV or V acquired a dental suffix or maintain vowel alternation in their past forms, they have had to continue without these pret. root vowels. Secondly, in past ptc. forms which have become phonologically similar/merged with the present, and where the retention of the past ptc. ending was blocked, different types of analogical remodelling have been generalised in PDE as opposed to those verbs where the past ptc. ending -en could be retained (past ptc.s of SVs I *shone, whined* vs *written, driven*; SVs VI *stood* vs. *taken*; SVs VII *held* vs. *fallen*; the exception being past ptc. *come*). Whether or not one agrees with the theory of phonological similarity triggering analogical change, I believe any work on analogical change in English strong verbs must integrate these facts as part of their explanation.

The final Table 58 summarises the findings of this thesis once again. It displays phonological similarity and analogical remodelling of the major SV groups. In the ME/EModE column, the instances where phonological similarity is argued to arise are marked in red. In the PDE column, the types of analogical remodelling are noted (for those strong verbs that maintain vowel alternation). In the pret. column, the origin of the PDE pret. root vowel is listed, while in the past ptc., where all groups except SVs V continue the OE past ptc. root vowel, it is listed whether the past ptc. ending -en is retained. Additionally, analogical changes that are argued to be caused by phonological similarity are highlighted in

blue, while analogical changes that are not argued to be (directly) caused by phonological similarity are highlighted in green.

Table 58 ME/EModE phonological similarity and PDE analogical remodelling

	ME/EModE				**PDE**		
	Pres.	**Pret. Sg.**	**Pret. Pl.**	**Past ptc.**	**Pres.**	**Pret.**	**Past ptc.**
SVs I						Pret. Sg.	-en
SVs II						Past ptc.	-en
SVs III *Homorganics*						Pret. Pl.	
SVs III *Nasal-Velars*						Pret. Sg./Pl.	
SVs III *-lC, -rC*						→ *dental suffix*	
SVs IV						Past ptc.	-en
SVs V						SVs IV Past ptc.	SVs IV Past ptc.
SVs VI							-en
SVs VII *Verba Pura*							-en

Appendix

I list here all OE strong verbs considered in this study. The selection of strong verbs was based on Krygier's strong verb list (1994: 255-267) and Seebold's (1970) dictionary of Germanic strong verbs. Strong verbs are ordered into their Proto-Germanic classes I to VII. Each strong verb is listed in its OE form, followed by the OE meaning of the verb. If the strong verb continues in PDE, the PDE form of the verb is listed after the OE meaning (e.g. *singan* 'sing' / *sing*: *OE strong verb* 'meaning' / *PDE form of that strong verb*). If the strong verb has become obsolete, but another verb derived from the same root as the strong verb continues in PDE, it is listed after the meaning of the OE strong verb.

Within the strong verb classes, strong verbs are separated into different categories with regards to their PDE outcome. There are ten different categories, which I explain here.

+VA, -DS: In PDE, the past forms of the verb are formed with vowel alternation and without dental suffix.
+VA, +DS: In PDE, the past forms of the verb are formed with vowel alternation and with a dental suffix.
-VA, -DS: In PDE, the past forms of the verb are formed without vowel alternation or dental suffix.
-VA, -DS: In PDE, the past forms of the verb are formed without vowel alternation, but with a dental suffix.
Weak after deverbal weak verb (WD Shift): The present stem of the strong verb became phonologically similar to the present stem of a weak verb derived from the same root. This caused the two verbs to merge. The merged lexeme usually forms its past with a dental suffix.
Weak derivative survives, strong verb obsolete (WDS, SVO): By PDE, the strong verb has become obsolete, but a weak verb derived from the same root does continue in PDE. The strong verb and the weak verb never merged.
Obsolete: The strong verb has become obsolete (and weak verbs derived from the same root have also become obsolete). The following three categories are sub-categories of the 'obsolete' category:
Obsolete OE: The strong verb has become obsolete after Old English.
Obsolete ME: The strong verb has become obsolete after Middle English
Obsolete EModE/dialectal: The strong verb has become obsolete after Early Modern English, or it continues very marginally or confined in dialects of PDE.

At the end of each strong verb class, a table lists how many strong verbs of this class fall into the ten categories. Both the number and the percentage within the strong verb class is determined in the table. At the end of the appendix, the combined results of the seven tables from the seven strong verb classes are presented.

SVs I

+VA, -DS 12

a) Pret. Sg. → Pret. Pl. and retain PP *-en*

drifan 'drive' / *drive*; *besmitan* 'contaminate' / *smite*; *writan* 'write' / *write*; *ridan* 'ride' / *ride*; *stridan* 'stride' / *stride*; *risan* 'rise' / *rise*

b) Pret. Pl. → Pret. Sg. (following hide-neo-strong verbs) and possibly retain PP *-en*

bitan 'bite' / *bite*; *slidan* 'slide' / *slide*

c) → SV III nasal-velars

strican 'stroke' / *strike*; *snican* 'crawl' / *sneak*

d) Pret. Sg. → all past forms

bidan 'wait' / (*a*)*bide* (weak past forms also common); *scinan* 'shine' / *shine*

-VA, +DS 4

ripan 'reap' / *reap*; *hwinan* 'make a whistling sound' / *whine*; *glidan* 'glide' / *glide*; *wriðan* 'twist' / *writhe*

weak derivative verb shifts strong verb into weak category 4

clifan 'cleave' / *cleave*; *gripan* 'grasp' / *gripe*; *scitan* 'shit' / *shit* (also pret. *shat* in analogy with *sat*); *spiwan* 'spew' / *spew*

weak derivative survives, strong verb obsolete 7

dwinan 'dwindle' / *dwindle*; *ginan* 'yawn' / *yawn*; *(a)leon* 'lend' / *lend*; *liðan* 'sail' / *lead*; *sniwan* 'snow' / *snow*; *slitan* 'slit' / *slit*; *sican* 'sigh' / *sigh*

Strong verb has become obsolete (and all weak verbs derived from the same root) 35

Obsolete OE 12

cnidan 'beat', *acwinan* 'decline', *behlidan* 'cover', *hnigan* 'bend', *hnitan* 'strike', *nipan* 'grow dark', *scriðan* 'go about', *sniðan* 'cut', *ðinan* 'get moist', *ðwinan* 'be reduced', *wigan* 'fight', *wlitan* 'gaze'

Obsolete ME 7

blican 'shine', *gnidan* 'rub', *migan* 'urinate', *miðan* 'conceal', *teon* 'accuse', *wican* 'yield', *wridan* 'flourish'

gedritan ‘drop excrement’, *flitan* ‘strive’, *hrinan* ‘touch’, *seon* ‘trickle’, *sigan* ‘sink’, *slifan* ‘cut’, *stigan* ‘ascend’, *swifan* ‘sweep’, *ðwitan* ‘cut’, *wreon* ‘cover’, *swican* ‘wander’, *scrifan* ‘appoint’, *cinan* ‘break into chinks’, *grisan* ‘shudder’, *witan* ‘see to’, *ðeon* ‘thrive’

	Number	Percent
+VA, -DS	12	19
-VA, +DS	4	6
Weak after deverbal weak verb	4	6
Weak derivative survives, strong verb obsolete	7	11
Obsolete	35	56
OE	12	
ME	7	
EModE/Dia	16	
Total	62	

SVs II

+VA, -DS 4

a) Past ptc. → Pret.

ceosan ‘choose’ / *choose*; *freosan* ‘freeze’ / *freeze*

b) SVs VII pret. → Pret.

fleogan ‘fly’ / *fly*

c) SVs V pret. → Pret.

beodan ‘command’ / *forbid*

+VA, +DS 3

creopan ‘creep’ / *creep*; *fleon* ‘flee’ / *flee*; *cleofan* ‘cleave’ / *cleave*

-VA, +DS 12

ceowan ‘chew’ / *chew*; *leogan* ‘deceive’ / *lie*; *breowan* ‘brew’ / *brew*; *fneosan* ‘sneeze’ / *sneeze*; *bugan* ‘bow’ / *bow*; *seoðan* ‘seethe’ / *seethe*; *brucan* ‘use’ / *brook*; *supan* ‘take fluid into mouth’ / *sup*; *scufan* ‘shove’ / *shove*; *sucan* ‘suck’ / *suck*; *creodan* ‘crowd’ / *crowd*; *sprutan* ‘sprout’ / *sprout*

weak derivative verb shifts strong verb into weak category 4

sceotan ‘shoot’ / *shoot*; *reocan* ‘reek’ / *reek*; *hreowan* ‘rue’ / *rue*; *forleosan* ‘lose’ / *lose*

weak derivative survives, strong verb obsolete 10

dreopan ‘drop’ / *drop*; *fleotan* ‘float’ / *float*; *hleotan* ‘cast lots’ / *lot*; *smeocan* ‘emit smoke’ / *smoke*; *dufan* ‘dive’ / *dive*; *lucan* ‘lock’ / *lock*; *reofan* ‘break’ / *bereave*; *reodan* ‘redden’ / *redden*; *teon* ‘draw’ / *tug*; *aðreotan* ‘displease’ / *threaten*

Strong verb has become obsolete (and all weak verbs derived from the same root) 18

Obsolete OE 9

breotan ‘bruise’, *breoðan* ‘ruin’, *ahneapan* ‘pluck off’, *gehreodan* ‘adorn’, *neotan* ‘enjoy’, *reotan* ‘make a noise’, *slupan* ‘slip’, *strudan* ‘spoil’, *leodan* ‘spring’

Obsolete ME 4

dreosan ‘rush’, *hreosan* ‘fall’, *smugan* ‘creep’, *ðeotan* ‘howl like a wolf’

Obsolete EModE/Dialectal 5

dreogan ‘work’ / *dree*; *geotan* ‘pour’ / *yet*; *greotan* ‘weep’ / *greet*; *hrutan* ‘snore’, *lutan* ‘bow’

	Number	Percent
+VA, -DS	4	8
+VA, +DS	3	6
-VA, +DS	12	24
Weak after deverbal weak verb	4	8
Weak derivative survives, strong verb obsolete	10	20
Obsolete	18	35
OE	9	
ME	4	
EModE/Dia	5	
Total	51	

SVs III

+VA, -DS 21

a) Pret. Pl. → Pret. Sg.

bindan ‘bind’ / *bind*; *findan* ‘find’ / *find*; *grindan* ‘grind’ / *grind*; *windan* ‘fly’ / *wind*

clingan ‘wither’ / *cling*; *slincan* ‘crawl’ / *slink*; *spinnan* ‘spin’ / *spin*; *springan* ‘leap’ / *spring*; *stingan* ‘sting’ / *sting*; *swingan* ‘flog’ / *swing*; *winnan* ‘work’ / *win*; *wringan* ‘wring’ / *wring*

b) Pret. Sg. → Pret. Pl.

drinkan ‘drink’ / *drink*; *beginnan* ‘begin’ / *begin*; *scrincan* ‘wither away’ / *shrink*; *sincan* ‘sink’ / *sink*; *singan* ‘sing’ / *sing*; *stincan* ‘stink’ / *stink*; *swimman* ‘swim’ / *swim*

irnan ‘run’ / *run*

feohtan ‘fight’ / *fight*

-VA, -DS 1

berstan ‘burst’ / *burst*

-VA, +DS 16

climban ‘climb’ / *climb*; *beorcan* ‘bark’ / *bark*; *ceorfan* ‘carve’ / *carve*; *smeortan* ‘smart’ / *smart*; *sweorfan* ‘rub’ / *swerve*; *steorfan* ‘die’ / *starve*; *weorpan* ‘throw’ / *warp*; *delfan* ‘dig’ / *delve*; *giellan* ‘yell’ / *yell*; *gielpan* ‘boast’ / *yelp*; *helpan* ‘help’ / *help*; *gieldan* ‘yield’ / *yield*; *swelgan* ‘swallow’ / *swallow*; *þerscan* ‘thrash’ / *thrash*; *bregdan* ‘turn into’ / *braid*; *swellan* ‘swell’ / *swell*

weak derivative verb shifts strong verb into weak category 4

beornan ‘burn’ / *burn*; *meltan* ‘melt’ / *melt*; *belgan* ‘be enraged’ / *bellow*; *murnan* ‘mourn’ / *mourn*

weak derivative survives, strong verb obsolete 8

crimman ‘crumble’ / *cram*; *cringan* ‘perish’ / *cringe*; *cwincan* ‘disappear’ / *quench*; *sinnan* ‘care for’ / *send*; *twingan* ‘press’ / *twinge*; *beorgan* ‘save’ / *bury*/*borrow*; *melcan* ‘milk’ / *milk*; *sweltan* ‘die’ / *swelter*

Strong verb has become obsolete (and all weak verbs derived from the same root) 21

Obsolete OE 7

hlimman ‘sound’, *þrintan* ‘swell’, *hweorfan* ‘turn’, *scellan* ‘sound’, *aseolcan* ‘become sluggish’, *fregnan* ‘inquire’, *sceorpan* ‘scrape’

Obsolete ME 7

limpan ‘befall’, *swindan* ‘waste away’, *þindan* ‘swell’, *deorfan* ‘labour’, *scelfan* ‘shake’, *sweorcan* ‘become dark’, *stregdan* ‘strew’

Obsolete EModE/dialectal 7

swincan ‘toil’ / *swink*; *þringan* ‘press’ / *thring*; *weorðan* ‘come to be’, *linnan* ‘cease’, *bellan* ‘bellow’, *feolan* ‘stick’, *-teldan* ‘spread a covering’

	Number	Percent
+VA, -DS	21	30
-VA, -DS	1	1
-VA, +DS	16	23
Weak after deverbal weak verb	4	6
Weak derivative survives, strong verb obsolete	8	11
Obsolete	21	30
OE	7	
ME	7	
EModE/Dia	7	
Total	71	

SVs IV

+VA, -DS 5

a) SVs IV, V Pret. → Pret.

cuman 'come' / *come*

b) Past ptc. → Pret.

beran 'bear' / *bear*; *sceran* 'shear' / *shear*; *teran* 'tear' / *tear*; *stelan* 'steal' / *steal*

weak derivative verb shifts strong verb into weak category 1

helan 'conceal' / *heel*

weak derivative survives, strong verb obsolete 2

dwelan 'be led into error' / *dwell*; *cwelan* 'die' / *kill*

Strong verb has become obsolete (and all weak verbs derived from the same root) 2

Obsolete OE 1

stenan 'roar'

Obsolete EModE/dialectal 1

niman 'take'

	Number	Percent
+VA, -DS	5	50
Weak after deverbal weak verb	1	10
Weak derivative survives, strong verb obsolete	2	20
Obsolete	2	20
OE	1	
ME	0	
EModE/Dia	1	
Total	10	

SVs V

+VA, -DS 11

a) Retaining the past. ptc. ending –(ə)n

giefan 'give' / *give*; *licgan* 'lie' / *lie*; *seon* 'see' / *see*; *biddan* 'ask' / *bid*

b) SVs IV Past ptc. → Past

etan 'eat' / *eat*; *sprecan* 'speak' / *speak*; *tredan* 'tread' / *tread*; *wefan* 'weave' / *weave*; *begietan* 'get' / *get*; *brecan* 'break' / *break*

c) Pret. Sg. → Pret. Pl., Past ptc.

sittan 'sit' / *sit*

-VA, +DS 4

cweðan 'say' / *bequeath*; *cnedan* 'knead' / *knead*; *wrecan* 'drive' / *wreak*; *fretan* 'eat up' / *fret*

weak derivative verb shifts strong verb into weak category 1

wegan 'move, carry' / *weigh*

weak derivative survives, strong verb obsolete 3

fetan 'make' / *fetch*; *pleon* 'risk' / *play*; *screpan* 'scrape' / *scrape*

Strong verb has become obsolete (and all weak verbs derived from the same root) 8

Obsolete OE 2

feon 'rejoice', *nesan* 'be saved from'

Obsolete ME 1

swefan ‘sleep’

Obsolete EModE/dialectal 5

lesan ‘gather’, *metan* ‘measure’, *ðicgan* ‘receive’, *drepan* ‘strike’, *recan* ‘proceed hastily’

	Number	Percent
+VA, -DS	11	41
-VA, +DS	4	15
Weak after deverbal weak verb	1	4
Weak derivative survives, strong verb obsolete	3	11
Obsolete	8	30
OE	2	
ME	1	
EME/Dia	5	
Total	27	

SVs VI

+VA, -DS 7

a) Retain PP ending *–en*

sacan ‘contend’ / (*for*)*sake*; *sceacan* ‘shake’ / *shake*; *tacan* ‘take’ / *take*

swerian ‘swear’ / *swear*

b) Pret. → Past ptc.

standan ‘stand’ / *stand*

c) Pret. → SVs VII pret.

dragan ‘draw’ / *draw*; *slean* ‘strike an object’ / *slay*

-VA, +DS 12

gnagan ‘gnaw’ / *gnaw*; *grafan* ‘dig’ / *engrave*[43]; *flean* ‘flay’ / *flay*; *hlehhan* ‘laugh’ / *laugh*; *gesteppan* ‘step’ / *step*; *bacan* ‘bake’ / *bake*; *acan* ‘ache’ / *ache*; *hebban* ‘lift up’ / *heave*; *wadan* ‘pass’ / *wade*; *weaxan* ‘grow’ / *wax*; *sceafan* ‘shave’ / *shave*; *wæscan* ‘wash’ / *wash*

[43] The PDE verb *engrave* is a loan word from French. However, the French loan (itself a borrowing from Germanic) was influenced by the OE strong verb (OED). Therefore, I include this verb here.

weak derivative verb shifts strong verb into weak category 1

faran ‘go’ / *fare*

weak derivative survives, strong verb obsolete 3

calan ‘be or become cool’ / *cool*; *asceppan* ‘create’ / *shape*; *wæcnan* ‘waken’ / *wake* (after which pret. *woke*)

Strong verb has become obsolete (and all weak verbs derived from the same root) 6

Obsolete OE 2

alan ‘nourish’, *lean* ‘blame’

Obsolete ME 2

ðwean ‘wash’, *spanan* ‘entice’

Obsolete EModE/dialectal 2

galan ‘sing’*, hladan* ‘load’ / *lade*

	Number	Percent
+VA, -DS	7	24
-VA, +DS	12	41
Weak after deverbal weak verb	1	3
Weak derivative survives, strong verb obsolete	3	10
Obsolete	6	21
OE	2	
ME	2	
EME/Dia	2	
Total	29	

SVs VII

+VA, -DS 6

a) Retain PP –(*e*)*n*

feallan ‘fall’ / *fall*; *blawan*, *blowan* ‘blow’ / *blow*; *cnawan* ‘know’ / *know*; *ðrawan* ‘throw’ / *throw*; *growan* ‘grow’ / *grow*

b) Pret. → Past ptc.

healdan ‘hold’ / *hold*

+VA, +DS 3

hleapan ‘leap’ / *leap*; *slæpan* ‘sleep’ / *sleep*; *wepan* ‘weep’ / *weep*

-VA, -DS 2

sceadan ‘separate’ / *shed*; *beatan* ‘beat’ / *beat*

-VA, +DS 9

fealdan ‘fold up’ / *fold*; *ondrædan* ‘dread’ / *dread*; *mawan* ‘mow’ / *mow*; *rowan* ‘go by water’ / *row*; *sawan* ‘sow’ / *sow*; *heawan* ‘hew’ / *hew*; *crawan* ‘crow’ / *crow*; *flowan* ‘flow’ *flow*; *glowan* ‘glow’ / *glow*

weak derivative verb shifts strong verb into weak category 5

eacan ‘be increased’ / *eke*; *sealtan* ‘salt’ / *salt*; *wealcan* ‘roll’ / *walk*; *lætan* ‘let’ / *let*; *rædan* ‘give advice’ / *read*

weak derivative survives, strong verb obsolete 8

blandan ‘blend’ / *blend*; *wealdan* ‘have power over’ / *wield*; *spannan* ‘attach’ / *span*; *hwosan* ‘cough’ / *wheeze*; *weallan* ‘well’ / *well*; *hon* ‘hang’ / *hang* (later the strong form *hung* develops); *clawan* ‘claw’ / *claw*; *swapan* ‘sweep’ / *sweep*

Strong verb has become obsolete (and all weak verbs derived from the same root) 25

Obsolete OE 12

spatan ‘spit’*, deagan* ‘dye’, *eadan* ‘concede, *eawan* ‘manifest’, *heafan* ‘lament’, *stealdan* ‘possess’, *wawan* ‘blow’, *blotan* ‘sacrifice’, *flocan* ‘clap’, *rawan* ‘make a row’, *spowan* ‘succeed’, *buan* ‘dwell’

Obsolete ME 7

bannan ‘summon’, *brædan* ‘roast’, *grædan* ‘cry’, *hropan* ‘shout’, *hwopan* ‘threaten’, *swogan* ‘roar’, *swapan* ‘sweep’

Obsolete EModE/dialectal 6

hatan ‘call’, *lacan* ‘swing’, *fon* ‘grasp’, *gangan* ‘go’, *hlowan* ‘bellow’ / *low*; *wrotan* ‘turn up with the snout’ / *wroot*

	Number	Percent
+VA, -DS	6	10
+VA, +DS	3	5
-VA, -DS	2	3
-VA, +DS	9	16
Weak after deverbal weak verb	5	9
Weak derivative survives, strong verb obsolete	8	14
Obsolete	25	43
OE	12	
ME	7	
EME/Dia	6	
Total	58	

The following tables combine the results of the preceding strong verb classes' tables. The rows show the ten categories of strong verbs' PDE outcomes as explained at the beginning of this appendix. The columns are sorted according to the seven strong verb classes (left the number of strong verbs and right the percentage of strong verbs) and in the final columns, the results of all strong verbs are counted together.

		SVs I		**II**		**III**		**IV**		**V**		**VI**		**VII**		**All SVs**	
1	**+VA, -DS**	12	19	4	8	21	30	5	50	11	41	7	24	6	10	66	21
2	**+VA, +DS**	0	0	3	6	0	0	0	0	0	0	0	0	3	5	6	2
3	**-VA, -DS**	0	0	0	0	1	1	0	0	0	0	0	0	2	3	3	1
4	**-VA, +DS**	4	6	12	24	16	23	0	0	4	15	12	41	9	16	57	19
5	**WD Shift**	4	6	4	8	4	6	1	10	1	4	1	3	5	9	20	6
6	**WDS, SVO**	7	11	10	20	8	11	2	20	3	11	3	10	8	14	41	13
7	**Obs.**	35	56	18	35	21	30	2	20	8	30	6	21	25	43	115	37
8	OE	12		9		7		1		2		2		12		45	15
9	ME	7		4		7		0		1		2		7		28	9
10	EModE/Dia.	16		5		7		1		5		2		6		42	14
11	**Total**	62		51		71		10		27		29		58		308	

According to my analysis, of OE strong verbs, 21% remain +VA, -DS; 1% are unmarked; 27% have acquired a dental suffix (includes the categories +VA, +DS; -VA, +DS and WD shift) and 50 % have become obsolete (includes the categories Obs. and WDS, SVO).
The second table reproduces the same table as above, with the difference that here obsolete strong verbs are excluded (i.e. rows six to ten).

	SVs I		**II**		**III**		**IV**		**V**		**VI**		**VII**		**All**	
+VA, -DS	12	60	4	17	21	50	5	83	11	69	7	35	6	24	66	43
+VA, +DS	0	0	3	13	0	0	0	0	0	0	0	0	3	12	6	4
-VA, -DS	0	0	0	0	1	2	0	0	0	0	0	0	2	8	3	2
-VA, +DS	4	20	12	52	16	38	0	0	4	25	12	60	9	36	57	38
WD Shift	4	20	4	17	4	10	1	17	1	6	1	5	5	20	20	13
Total	20		23		42		6		16		20		25		152	

Of OE strong verbs that continue in PDE: 43% remain +VA, -DS; 2% are unmarked and the remaining 55% have acquired a dental suffix.

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