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## A Study of /sk/-Metathesis in Old English

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A STUDY OF SK-METATHESIS IN OLD ENGLISH

A Thesis

by

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Submitted to the Graduate College of  
The University of Texas Rio Grande Valley  
In partial fulfillment of the requirements for the degree of

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A STUDY OF SK-METATHESIS IN OLD ENGLISH

A Thesis  
by  
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May 2020



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## ABSTRACT

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Language change is the primary focus of historical linguistics. Some changes, phonological, morphological, or semantic, alter forms and lead to new regularities in a language's lexicon. Linguistic analyses and terminology to describe them have been established to aid in linguistic investigations, though, there remain changes that defy typical explanations.

Metathesis is one change that still intrigues scholars intensely because, since the advent of modern linguistic study with Saussure, we have presumed that languages operate systematically; yet, metathetic change is often seemingly random. Even when it does operate over a period of a generation or two, it may do so erratically, affecting and then not affecting word forms vulnerable to this syntagmatic process of inversion. This investigation addresses the specifics of /sk/-metathesis in Old English in an effort to contribute to the conversation surrounding the hypothesis that metathesis is a conditioned, and thus predictable, change. Results from an analysis of data collected from a corpus of Old English textual materials suggest that this particular instance of metathesis was, under a combination of phonological and analogical conditions, predictable and may be seen as governed by linguistic principles.





## DEDICATION

For my parents for showing me the value in education, and for my husband, Eric, for reminding me of it along the way. I couldn't have finished without either of you.



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## CHAPTER I

### INTRODUCTION

#### **Introductory Remarks**

Metathesis, the reordering of sound units in a word, has long been a topic of debate for linguists of various specialties. What invokes such uncertainty is its sporadic distribution. Unlike most other sound changes (e.g. assimilation, palatalization), which spread gradually through the lexicon, occurring generally in higher frequency words first and reaching unaffected words at different rates or different periods of time, metathesis often occurs intermittently without diffusing through the lexicon or becoming regular, as in a child's pronunciation of *spaghetti* as /pəskəri/. In this case, the error is often corrected with age, and is not a regular occurrence, even in error, in other English words that begin with the /sp/ cluster (e.g. sport > \*/pəsɔrt/; spin > \*/pəsin/). However, some metathesized forms of the English language have become regular to the phonological system, and today they appear as the standard spoken and written forms (e.g. Old English *wæps* > *waspe* 'wasp').

Still unestablished is whether or not metathesis is governed by proximal phonetic environment or perhaps some other force, such as analogy based on word-form frequency. Analyzing data from one or more languages, a number of works have attempted to account for metathesis as a linguistic phenomenon (cf. Silva 1973; Hume 2001), but consensus as regards the causes, or triggering mechanisms involved, is still unrealized. In mainstream linguistic theory, metathesis is typically considered an unconditioned, sporadic phonological change which has



generally defied systematic description. In the context of English historical phonology, several types of metathesis have been examined, and a few potentially conditioning patterns identified, but most of these require additional empirical verification, mainly because significant counter-data are evident, such as the correctable errors mentioned above. A few studies of early English metathesis have been conducted in recent years (cf. Keyser 1975; Hogg 1977; Wełna 2002), but no more. For the most part, pioneering work of earlier generations of scholars has remained authoritative, even though not all of it is based on extensive empirical data. Research on medieval English *r*-metathesis, the type which has received the most attention, partly because it is comparatively widespread and shows certain phonological tendencies, is an exception here since it has been revisited in recent years (cf. Alexandar 1985; Wełna 2002). Types of early English *s*-metathesis, particularly medieval /sk/-metathesis, however, have received little mention and less investigation since those seminal studies were done. In fact, accounts of Old and Middle English *s*-metathesis included in common handbooks (Campbell 1959; Hogg 2011) rely on those pioneering studies to a significant degree, some of them 19<sup>th</sup> century studies conducted by German scholars (cf. Sievers [1885] 1903; Luick 1914-1940; Luick, Wiessner, & Katz 1940).

Consequently, there is no commonly accepted explanation for this particular process. It is clear from the relevant literature, then, that a need for extensive, empirical investigation of medieval English *s*-metathesis persists. Fortunately, powerful tools of corpus linguistics are readily accessible for such investigation today, tools which may even be considered to make empirical linguistic studies like the present one incumbent on researchers. Moreover, in an attempt to account for the apparent lack of real conditioning in cases of metathesis like that of early English *s*-metathesis, inquiry into additional forces of language change such as analogical

targeting is reasonable. In order to contextualize this survey, which will focus on the /sk-/ metathesis change, the following section will present authoritative definitions of several concepts potentially useful to the discussion of metathesis in this thesis.

### **1.1 Definitions**

Uncertainty regarding the predictability and exact domain of metathesis is, in fact, evident in varying definitions offered by scholars. Crystal (2008: 303), a time-honored dictionary of linguistic terminology, states that metathesis is “a term used in linguistics to refer to an alteration in the normal sequence of elements in a sentence—usually of sounds, but sometimes of syllables, words, or other units”. Hartmann and Stork (1972: 141) offer a description that highlights morphology and phonology, specifying that metathesis is “a change either in the arrangement of words in a sentence or in the speech sounds”. Stageberg (1981: 33), focusing on speech sounds, and Montler (1986: 55), focusing on phonemes, both emphasize the phonological level as well. Blevins and Garret (2004: 117) provide a rather general definition regarding the reordering of “segments or features;” however, they do refer specifically to the “phonological string”.

Although such statements differ, they all reference an original form and a metathesized form. For instance, Crystal (2008: 303) uses the word “normal” and Hume (2001: 1) “input” to refer to the original. The latter also offers the generalization, “...where we would expect the ordering to be...xy..., we find instead...yx...”, notably using the word “expect”. Hence, no matter the elements that are affected in this linguistic process, there is a basic supposition that this change applies to an assumed base form. Indeed, most examples of metathesis cited in grammar handbooks show deviation from a supposed original form. This view reflects the larger issue of how linguistic changes are determined and defined. Nevertheless, the focus in this study

will be on the sound change in metathesis of the assumed original base form /sk/ to /ks/ in Old English.

Identifying the classification of a sound change is key to defining metathesis as a process with regularity. From a phonetic standpoint, the abrupt nature of metathesis is apparent in that, especially for consonant modifications such as /sk/ and /ks/, there are no “phonetically intermediate stages” and “all relevant morphemes change simultaneously” (Wang 1969: 14). The consensus on this fact is apparent in the recurrent use of metathesis to exemplify types of phonetic changes that cannot be gradual (cf. Wang 1969: 13; Schourup 1972: 128). This study aims to classify metathesis as predictable and gradual in the sense of lexical diffusion, where change occurs gradually in the lexicon, so “any set of morphemes with dual pronunciation” are available until the process is complete (Wang 1969: 15).

Within the scope of lexical diffusion, we consider the role of analogical modeling based on token frequency in metathetic changes. In contrast to type frequency where occurrence of a form is counted based on its appearance in a certain lexical category, token frequency totals any occurrence of the change throughout a given text. The ‘analogy’ aspect of analogical modeling can be problematic to define given the disagreement over its domain and motivation (see discussion in Hock 2017), but it generally refers to the extension of a sound change by analogy. At times, this change is proportional, where change in a lexical paradigm would model change for another word in the same class, for example, the English ‘speak’/‘spoke’/‘spoken’ (OE *sprec/spræc/gesprecen*) which was remodeled by analogy of the verbs ‘break’/‘broke’/‘broken’ (Campbell 2013: 93). Thus, under analogical modeling, higher frequency forms (identified by token frequency) would model a change and, by analogy, extend the change to lower frequency forms of the same class. The significance of high frequency is explained further in Section 2.3.

Two other terms to be discussed later because of possible interaction with metathesis are palatalization and assibilation. Palatalization refers to a process which is triggered by a front vowel and either brings a consonant's place of articulation to the palatal region or gives a consonant a secondary palatal articulation (Kochetov 2011: 1). Assibilation results in a sibilant and is typically the final process of palatalization. For example, /s/ can palatalize from /s/ > /ʃ/, where the sibilant /ʃ/ is the result.

This section has defined terms that will be used throughout this thesis. The definitions of the term metathesis contextualize the multiple perspectives available and the commonly accepted input/output delineation. Definitions of analogical modeling, token frequency, palatalization, and assibilation provide background for later discussions.

## **1.2 Main Types of Medieval English Metathesis and Contexts of the Diffusion of /sk/-**

### **Metathesis in Old English**

This section discusses the two most common types of metathesis in medieval English, *r*-metathesis and *s*-metathesis, as well as the complicating occurrence of /sk/ palatalization and the historical and dialectal contexts within which /sk/-metathesis spread. The *lipsus lingue* hypothesis is also explained. When possible, examples that occur in more than one time period are presented.

#### **1.2.1 *r*-Metathesis**

Metathesis involving the liquid /r/ has received the most attention to date (cf. Alexander 1985; Campbell 1959: 184-186; Hogg 1977; Hogg 2011: 297; Jordan 1974: 157; Kang 2013). The change includes a combination of /r/ and a vowel (V), and it is widely attested in Old and Middle English:

(1) /r/ + V

- a. OE *brestan* > OE *berstan* ‘burst’
- b. OE *worohte* > ME *wroghote* ‘work’ (past tense)
- c. ME *bridda* > ME *birda* ‘bird’

These representative instances show the evident preference for transposition of /r/ when it occurs before a vowel. The opposite is rare in both Old English and Middle English, and the preferred reversal of /r/ + V is rare in early Old English when the vowel is followed by /d/ (Campbell 1959: 184). Jordan (1974: 319) notes the occurrence of the /r/V to V/r/ transposition in the environment of /d/ later in Middle English (as in 1c. above where <t> reflects a devoiced variant /d/). Nonetheless, the syntagmatic tendency for /r/ to reverse positions with a following vowel supports the view that metathesis can be phonologically triggered. Additional support is found in the case of medieval English *s*-metathesis, which will be considered in the next section.

### 1.2.2 *s*-Metathesis

A second type of metathesis encompasses a small variety of two-consonant clusters. *s*-Metathesis is most often seen with the voiceless obstruents /p/, /t/, /k/ as well voiced bilabial /b/, and these also transpose from, utilizing Hume’s (2001: 1) terminology and notation, input (xy) to output (yx) forms, as in the case of spaghetti (input/xy) to /pəskɛri/ (output/yx). Though early English *s*-metathesis occurs less frequently than the contemporary *r*-metathesis, examples are found in numerous studies (cf. Brunner 1970: 41, Silva 1973: 79-80, Jordan 1974: 338-39, Campbell 1959: 185, Hogg 1977: 166, Wełna 2002: 502, Hogg 2011: 298). It should be noted that many of the authors cited list the same examples of *s*-metathesis. Presumably, these are examples more commonly encountered in extant manuscripts. It may also, however, indicate that a greater tally of examples, like that offered in the present study, is requisite. In addition,

discussions of the possible phonetic triggers in each case are limited. Nevertheless, the known occurrences of medieval English *s*-metathesis suggest that particular input patterns can yield metathesized output patterns. Some of the metathesized forms are found not only in Old English but later in Middle English also. Representative examples are presented below under (2) – (4).

(2) /s/ + /k/

a. /sk/ > /ks/

i. OE *asce* > OE *axe* ‘ask’

ii. OE *fiscas* > OE *fixas* ‘fishes’

b. /ks/ > /sk/

i. OE *dox* > ME *dosc* ‘dusk’

As in the case of *r* + V combinations, instances of *s*-metathesis show syntagmatic constraints. Hogg (2011: 298) states that in Old English /s/ transposes with /k/ thus: from /sk/ to /ks/. Silva (1973: 80) adds to this statement by noting that the reverse occurs in a greater time frame, shown in 2.b.i. Similarly, metathesis affects the pairs /s/ + /p/ and /t/ + /s/ in Old and Middle English times.

(3) *s* + *p*

a. /sp/ > /ps/

i. OE *æspe* > OE *æpse* ‘aspen’

ii. OE *cosp* > OE *cops* ‘fetter’

b. /ps/ > /sp/

i. OE *wæps* > OE *waspe*

(4) *s* + *t*

a. /ts/ > /st/

i. (Goth.) *Prūtsfill* > OE *Prūstfell* ‘leprosy’

ii. OE *bæzere* [bætser?] > OE *bæstere* ‘baptist’

The examples above compose nearly all the instances of *s*-metathesis commonly cited in the literature. As mentioned above, *s*-metathesis is typically discussed secondarily, in passing in studies on *r*-metathesis, or is simply listed without analysis, as in Silva (1973: 79-80).

Much research into medieval English *s*-metathesis remains to be done. This study, focusing on Old English /sk/ to /ks/ metathesis alone, takes a limited approach, but is guided by reasonable parameters intended to provide data which can be used to formulate relatively strong conclusions. It is hoped that this investigation will contribute to the greater study of English *s*-metathesis, a study still deserving extensive attention.

The types of medieval metathesis outlined in this section contextualize the focus on /sk-/ metathesis in this study. The following section will address triggers of metathesis specific to *s*-metathesis.

### 1.3 Slips of The Tongue and Mistypes

Two forces may, to some extent, be responsible for early English *s*-metathesis, but if so, they may also greatly complicate analyses of metathesis as solely a linguistic process. The first is the common occurrence of the slip of the tongue, referred to by Hogg (1977: 174) as a *lapsus linguae*. While errors can be corrected, we must consider the possibility of errors becoming

standardized. The second is, with the rise of print and script and the early history of limited scribes, misprints and mistypes could easily have contributed to the standardization of particular errors. These postulations are often mentioned in passing, and Laing and Lass (2005) provide a thorough study of possible orthographical errors that could have contributed to the change. While consideration of these possibilities is necessary, explaining the standardization of language in general, and even the standardization of English in specific, is beyond the scope of this thesis. Complications and considerations that are manageable and necessary to review are described below.

#### **1.4 Palatalization of /sk/**

Complicating any analysis of early English /sk/-metathesis are the two interlinked phonological processes of palatalization and assibilation. According to Campbell (1959: 177-178), the segment /k/ in the cluster /sk/ palatalized simultaneously with /s/ and assibilated to /ʃ/. Hogg (2011: 257) notes that while /sk/ “eventually developed into /ʃ/ by assibilation, the intermediate stages of the development are obscure”. Still, once the stage of assibilation was reached, /sk/-metathesis was obviously impossible. Thus, word-forms containing palatalized /sk/ as then /ʃ/ were ineligible for /sk/-metathesis. The palatalization was present already in Early Old English (pre-900) in initial position before both front vowels and back vowels (Campbell 1959: 177), and later medially “before all front vowels, even if a back vowel preceded, e.g. *wasce* ‘I wash’ (Campbell 1959: 178). In final position, palatalization occurred after a front vowel, as in *fisc* ‘fish’. However, medially before back vowels and finally after back vowels /sk/ survived and “frequently underwent metathesis,” as in *frosc* – *frox* ‘frog’, *disc* – *dixas* ‘dish, dishes’, etc. (Campbell 1959: 178). This compound hypothesis concerning these latter two phonological environments is tested in the present thesis, and a thorough empirical account is attempted.



We will notice in this analysis that alongside cases where palatalization prevents metathesis, there are cases where the triggering environment exists, but metathesis fails, presumably due to some resistance to this language change. Thus, one aim here is to gather enough data to determine if /sk/-metathesis is measurably regular in Old English and whether or not it is likely that analogical modeling may be partly responsible for such metathesis or the absence of it in particular instances when frequency effects, like high frequency words leading this change or low frequency words lacking this change, are likely.

### **1.5 Historical Contexts**

This is a study in English historical phonology with a focus on /sk/-metathesis, a form of language change which was prevalent in medieval English and is well attested in textual materials of Old and Middle English times. In those times, before Caxton's printing press and the standardization of Modern English orthography, words written were ordinarily "spelled as they were pronounced," except in those cases where scribes (medieval copyists) were more faithfully copying religious and other texts from generations-old originals. This was generally true even in the Late West Saxon dialect of Old English, which extended from approximately 900-1100 and which knew a standard written form emanating from Winchester. The "spelled as pronounced" tradition is fortunate for today's linguists in historical studies because it provides a window on the speech of the past. Finally, the phonological conditions which seem to have allowed for the greatest amount of medieval English /sk/-metathesis began in Old English times and had a fuller presence during that synchronic period in the history of the language than they did in the later Middle English times, approximately 1100-1500. Accordingly, our attention in this thesis will be directed to Old English, and the evidence adduced will derive from Old English documents, materials including religious, historical, medical, literary, and other texts. The most extensive,

reliable source of Old English documents in existence is the corpus of Old English texts compiled at the University of Toronto as attestation evidence for the *Dictionary of Old English* project. As will be detailed below, that corpus is available online today, and it can be searched for orthographic forms of all known Old English words. Thus, it is the best source of evidence for the present study.

### **1.6 Dialectal Contexts**

According to the main authorities on the dialectal presence of Old English /sk/-metathesis (Luick 1914-40: section 693.2a cited in Hogg (2011: 298); Wehna 1978: 57; Hogg 2011: 298), this type of metathesis occurred almost entirely in the West Saxon dialect of Late Old English, used in the southwestern region of 10<sup>th</sup> and 11<sup>th</sup> century England.

However, the midland dialect of Mercian and the northern dialect of Northumbrian also play roles in the history of medieval English /sk/-metathesis. A few instances of /sk/-metathesis are attested in the Mercian *Rushworth Gospels* (e.g. *axsade* ‘asked’) according to Campbell (1959: 178 footnote). Furthermore, dialectally uncertain texts such as the *Blickling Homilies*, which evidence numerous instances of this form of metathesis, seems to represent Mercian as well as West Saxon (Taylor, Warner, Pintzuk, and Beths, 2003). Finally, as mentioned above, the last known instance of English /sk/-metathesis in pre-Modern English times is attested in a text of the Late Middle English Northern dialect, the descendant dialect of Northumbrian. Thus, available evidence suggests that this type of medieval English s-metathesis survived longest in the northern dialect area.

### **1.7 Statement of Purpose**

This thesis seeks to contribute to the discussion of whether or not metathesis is predictable by examining data from Old English. Data collection focuses on instances of /sk/-

metathesis, one type of metathesis which has clearly been understudied empirically. A corpus of words was obtained by means of a search of eligible items in the *Oxford English Dictionary*, and instances of metathesis were collected from the text corpus of the *Dictionary of Old English*, the most comprehensive Old English text corpus compiled to date. Analyzing word forms potentially subject to /sk/-metathesis in order to determine whether or not this type of metathesis was phonologically conditioned and also possibly motivated by analogical targeting based on token frequency are the specific aims here.

### **1.8 Research Questions**

The thesis addresses the following questions:

1. Was Old English /sk/-metathesis conditioned by phonological environment, and thus predictable?
2. Were higher frequency Old English words displaying /sk/-metathesis analogically targeted by lower frequency Old English words which showed phonologically eligible forms?
3. Does analogical targeting based on token frequency explain, in the lexically gradual spread of /sk/-metathesis in Old English, when some eligible items are attested with /sk/-metathesis and when they are not?

## CHAPTER II

### SURVEY OF RESEARCH TO DATE

#### **Introductory Remarks**

Before proceeding to our analysis of /sk/-metathesis in Old English, we will survey the theoretical arguments for unconditioned change and for conditioned change as well as take up certain theoretical suppositions concerning frequency effects and lexical spread of language changes such as metathesis. Before closing, this chapter will review important accounts of medieval English *s*-metathesis. The most closely related theoretical statements will be considered in the subsequent analysis of language data collected.

#### **2.1 Arguments for Unconditioned Change**

The most direct opposition to metathesis as a conditioned change is found in Hogg (1977: 165, 171). He disputes assertions made by Keyser (1975), discussed below, citing Keyser's verbal redactions of the 1975 paper. Certainly, Hogg does not set out simply to disprove Keyser. His objective is to demonstrate that metathesis is not as rule-governed as generative phonologists argue. He claims on this point that some instances of metathesis may be classified as "*lapsus linguae*," stating that "...sound change occurs because of the incorrect perception and/or articulation of the sounds heard during the acquisition of the language concerned" (Hogg 1977: 174). It should be noted that much of his argument is based on conclusions reached in Thompson and Thompson's (1969) synchronic study, which claims is based on "good evidence" that can be used to dispute the claims of generative phonologists. The remainder of his paper, however, is

devoted to the frequent metathesis of  $r\check{V} > \check{V}r$  in Old English. He admits that such relatively high frequency could invoke a rule-based interpretation, like that of synchronic generative phonology, and he attempts to situate metathesis within the interaction of other synchronic rules. Ultimately, Hogg finds that these rules still function in cases where metathesis does not take place, while incorrect forms would occur if the rule were to be applied to each scenario. This randomness is inexplicable for Hogg (1977), who ultimately settles on the *lapsus linguae* argument.

While Hogg (1977) is sufficiently representative of the “unconditioned perspective,” particularly since Hogg himself was a main authority on Old English metathesis, the object of the present investigation, there are other studies that make similar claims. Moskal (2009: 5, 15, 65) calls metathesis a “by-product” of other phonological processes and finds fault in the fact that any account of metathesis needs to appeal to a separate mechanism to give a satisfactory explanation. She states that metathesis is a surface manifestation of other phonological processes, and therefore is not truly a segment reversal: conversely, due to grammatical constraints on surrounding sounds, some segments are not parsed so the segments change position to ensure realization. This is what she calls the “illusion” of metathesis. Moskal’s view therefore errs on the side of sporadic change because she disregards any measure of predictability, citing other phonological processes as the basis of metathesis. Be that as it may, this type of argument may easily unravel into larger questions regarding phonetic universals, as her argument is based solely on the principles of Optimality Theory and Containment Theory.

This section has presented arguments representative of the unconditioned change. The authors cited find metathesis to be random, but more specifically do not find consistency in the change or its possible triggers. Studies disputing these suppositions are presented below.

## 2.2 Arguments for Conditioned Change

Although unconvincing to Hogg (1977), Keyser's paper (1975) does offer a detailed theoretical description of the role metathesis plays alongside other phonological processes that characterize Old English phonology (vowel deletion, *h*-deletion, *i*-deletion, palatalization, and gemination). Accordingly, metathesis is considered to be an underlying pattern that makes way for the other processes listed here, in any given order. Keyser's description outlines where metathesis fits in relation to the other processes and concludes that metathesis is a solution to several problems of Old English analysis (Keyser 1975: 403). The most significant conjecture from his study is the hypothesis that metathesis does not occur in isolation and affects eligible items at different rates once other phonological processes have taken place; furthermore, he gives compelling evidence to show that metathesis can be driven by phonological factors. Although Hogg disputes Keyser's conclusions, he does so with consideration of evidence from Northumbrian and West Saxon, and assuming that because the observed changes are not identical, metathesis is sporadic. However, both his and Keyser's studies adduce seemingly sufficient numbers of data to show that the change is still driven by phonological factors when it does occur, despite the number of times it seems unconditioned. We might also consider the fact that Keyser focuses on only certain grammatical forms, oblique case forms of nouns, contracted forms of verbs, etc., though presumably that is because the phenomenon has shown up there commonly.

Additional opposition to Hogg's assertions has followed, and a brief detailing of such opposition is presented here. Alexander (1985: 38) concludes in his study on *r*-metathesis that V + *r* inversions are rule-governed but not predictable, arguing that it is a "cluster simplification process" of sound movement. Hume (2004: 204) references the "metathesis myth," and presents

data that urge a consideration of speech-processing and the phonetic apparatus of specific languages as motivations for the change. Blevins and Garrett (2004: 120) argue that metathesis can be explained phonetically and classify metathesis into several types: perceptual, compensatory, coarticulatory, and auditory. Each type is defined by natural phonetics and hearer perception of such. Finally, Wójcik (2017) argues for the role of nuclei weakening and consequential licensing abilities of elements and the agents that cause metathesis. These studies may utilize different approaches and methods of data collection, but they are unanimous in the supposition that certain phonological triggers foster metathetic changes.

Another important study to consider is Wełna (2002), which describes the spread of *r*-metathesis in Middle English. He concludes that metathesis is not a uniform change chronologically and dialectally, but rather is scattered and varies according to dialect. Wełna's study of Middle English forms is one of few that have focused on that synchronic period. Of those that have, even fewer have examined *s*-metathesis of that time in any significant measure (cf. Wełna, 2002; Czaplicki, 2013; Kang, 2013). Certainly, subsequent research should detail *s*-metathesis in the Middle English period.

Studies of metathesis in languages other than English have, of course, also been performed. Despite differences in phonological structures, non-English examples offer insight on how the transposing of elements are not necessarily sporadic or erroneous. Silva (1973) lists several examples that demonstrate the prevalence of this phonological change, cross-linguistically. Bailey (1970: 347) shows that “clusters of apical sonorants and yod regularly metathesized in Attic; e.g. \**phánio* > *phaíno*, \**mória* > *moira*” and presents the metathesis rule

identified by Kiparsky (1967: 623):

$$[-\text{consonantal}]_1, \left\{ \begin{array}{c} \text{w} \\ \text{r} \\ \text{l} \\ \text{n} \\ \text{m} \end{array} \right\}_2, \left\{ \begin{array}{c} \text{h} \\ \text{y} \end{array} \right\}_3 \Rightarrow 1, 3, 2$$

Figure 1. Rule for metathesis as defined by Kiparsky (1967) (cited in Bailey 1970: 347).

In this rule, if the preceding vowel is [a] or [o] (a clarification made in a note on the same page), clusters of nondorsals and dorsals metathesize. Hume (2001) does a cross-linguistic comparison between Faroese and Lithuanian to demonstrate that while at first glance the metathesis for each example appears similar, they each have their respective, regular rules, summarized in the table below.

<b>Faroese</b>	<b>Lithuanian</b>
a. [sk] ~ [ks]	a. [coronal fricative] + [k] ~ [k] + [coronal fricative]
b. Following context: before a stop	b. Following context: before any consonant
c. Preceding context: after a vowel or nasal (nasal assimilates to stop), not after a liquid (stop deletes)	c. Preceding context: after a sonorant
d. Stress: only when preceding vowel is stressed.	d. Stress: not relevant

Figure 2. Table from Hume (2001: 15).

These cross-linguistic surveys of metathesis, though not specific to English, demonstrate the



possibility of regularity in metathetic changes. Analyzed alongside the English examples of regularity summarized above, the studies summarized support the perspective of regularity of metathesis. This study, then, in an effort to find systematic patterning in metathesis, proceeds on the assumption that /sk/-metathesis is somehow conditioned, even if that conditioning is influenced partly by the frequency of occurrence of words involved in the change.

### **2.3 The Roles of Linguistic Structure and Frequency**

The varying claims surrounding conditioned metathesis may be tied together by the fact that these changes are not autonomous. Language change is, quite literally, spoken into existence. It is therefore helpful to consider Bybee and Hopper (2001: 3), who emphasize the importance of structure as an “ongoing response to the pressure of discourse”. Phillips (2006: 33) especially finds flaws in studies that lack sufficient evidence in terms of the number of metathesized forms in a language. She references several studies that have shown that metathetic changes often occur in high frequency forms in a language. This same idea has also been taken up by Silva (1973), who recounts studies on sibilant-stop pairs, and concludes that, logistically, misperception of utterances that leads to metathesized forms can only occur if the language already has the phonetic patterning in its sound system. These studies reflect a growing consensus to include individual perception *alongside* phonological tendencies to explain metathesis. That aside, linguistic structure and the role of frequency continues to be more and more relevant in synchronic and cross-linguistic studies (Buckley, 2011; Moskal, 2009; Hume 2004), and there has even been some effort to demonstrate this across specialties in the area of computational linguistics (Chandlee, Athanasopoulou & Heinz, 2012).

Hume (2004), as mentioned above, is another proponent of the role of speech processing alongside phonetic structure that emphasizes the role of form and frequency. Her study explains

the error view as one concerning a conditioned change, considering the phonetic nature of metathesized sounds and speakers' knowledge of their own language structure. She substantiates this using a cross-linguistic analysis of metathesis that accounts for the drastically irregular metathetic changes across languages. Addressing error, she explains that the indeterminacy surrounding the quality of sounds (thus, the phonetic nature of sounds, sound sequences, morphemes, etc.) functions as a trigger. As for the seemingly irregular output, Hume (2004: 209, 210) concludes that "the order of elements opposite to that occurring in the input must be an attested structure in the language" and stating later, "the order inferred from the signal is consistent with that which occurs most frequently in the language". For example, she cites some American dialects' use of the word *chipotle*, a word borrowed from Nahuatl via Mexican Spanish. The stop /t/ occurs before a consonant which, for English, is a weak context for the stop. Hume (2004) explains that both orders happen in English, but in her corpus study, the /t/ order occurs in 67 words and /lt/ occurs in 356 words. This perspective is relevant when analyzing the role of frequency for the spread of *s*-metathesis. Under Hume's view, we might expect metathesis to occur with lexical items, or even consonant clusters themselves, like /sk/ and /ks/, which are common in a language. This idea is also supported by Bybee (2001:113) who finds that high frequency forms appear to lead change and foster analogical targeting. Thus, eligible items may be affected by conditioned change, eligibility depending on phonological environment, and the resultant change may be advanced by frequency.

#### **2.4 The Notion of Lexical Diffusion**

As mentioned previously, *s*-metathesis is complicated by factors such as concurrent palatalization. Regardless of these, when metathesis does appear, we have some evidence for how regular it may be, and why. Wang (1969:10) discusses the spread of concurrent

phonological changes through a lexicon, asserting that “a sound change is regular if no other sound change competes against it”. Additionally, considering the individual’s role in sound change, Wang (1969: 14) reminds us that it is very unlikely for a pronunciation to change “abruptly,” throughout the lexicon, even of a single dialect. Instead, the change would exist alongside other options, in other words, for some time until it is fully adopted into the lexicon:

...during the early phase of the change only a small sector of the relevant morphemes is affected. Some of the affected morphemes may change to the *Y*-pronunciation, fluctuating either randomly or according to some such factor as tempo or style... But the *X*-pronunciation will *gradually* be suppressed in favor of the *Y*-pronunciation (Wang 1969: 15, emphasis added).

Again, with the addition of a competing change, like palatalization of /s/ in the case of *s*-metathesis, fluctuating application and concurrent changes can cause residue, where some lexical items are left untouched by either change for some time (1969: 20). This view also relates to the commonly accepted model of language change as an S-curve (see discussion in Denison 2002). This model shows, when language change is plotted in terms of frequency of new items and time, change occurs slowly at first, then speeds up, then slows down (Denison 2002: 56). The S-curve shows change is not consistent over time, and that lexical items can remain unaltered or change less drastically during these periods of stagnation. The present study employs this perspective to the extent possible, as it attempts to account for items that seem disinclined toward /sk/-metathesis in Old English. Gradual lexical diffusion, with its stages, is a concept that is significant to this study, as this section has attempted to demonstrate.

### **2.5 Early English /sp/- /st/- and /sk/-Metathesis**

Most accounts of early English *s*-metathesis conclude that the relevant changes occur to

some extent in conditioned environments, either in isolation or in relation to other linguistic changes. However, these descriptions are few, and their statements brief, even though the important fact that the phenomenon was common in the West Saxon dialect is, in fact, mentioned in most. Despite their brevity, there are several conclusions specific to *s*-metathesis offered in them. Campbell (1959: 178) highlights three combinations of *s*-clusters that undergo metathesis: /ps/ > /sp/, /sp/ > /ps/, and /ts/ > /st/. Within a discussion of assibilation and palatalization, he gives one of the earliest explanations of /sk/ > /ks/ metathesis (cf. also Luick, Wiessner, & Katz 1940), explaining that throughout the history of English, this type of /s/-metathesis was lost to palatalization first in initial position before front vowels, and it lasted longest when it occurred internally, in medial position, before back vowels and in final position after back vowels if the preceding vowel did not undergo umlaut. These claims will be addressed and readdress in the subsequent analysis below. Additionally, Brunner (1970: 41) finds that /sk/ was metathesized in the Southwestern and Kentish dialects of Middle English, indicating that /sk/-metathesis did not end in Old English times. Palatalization of /sk/, which obliterated the possibility of metathesis, also began in Old English times. Hogg (2011: 256-257) claims that metathesis was secondary to palatalization and occurred only if the cluster had not been fused.

It is evident from these studies that any analysis of metathesis in Old English should consider its interaction with palatalization and assibilation. Campbell's (1959: 178) observation regarding back vowel environments and palatalization (and assibilation) therefore serves as a foundation for the analysis of data gathered in the present study of /sk/-metathesis in Old English. A schematic for the environments described above is offered below:

(1) #sk > (possibly) ʃ (*word-initial /sk/ is palatalized*)

e.g. *scrincan* > 'shrink'

- (2) **VskV[-back]** > (possibly) **f** (*word-medial /sk/ is palatalized before front vowels*)  
 e.g. *asċe* > ‘ashes’
- (3) **V[-back]sk#** > **f** (*word-final /sk/ is palatalized after front vowels*)  
 e.g. *flæsc* > ‘flesh’
- (4) **V[+back]sk#** > **sk** (and possibly > **ks**) (*word-final /sk/ following a back vowel stays /sk/ and possibly metathesizes*)  
 e.g. *husc* > *hux* ‘insult’
- (5) **VskV[+back]** > **sk** (and possibly > **ks**) (*word-medial /sk/ preceding a back vowel stays /sk/ and possibly metathesizes*)  
*discas* > *dixas* ‘dish’

The phonetic environments listed in (4) and (5) provide the phonetic environments that are analyzed in the data presented in Chapter 4.

## 2.6 Closing

Despite its variety of contrasting claims, the literature presented in this chapter offers sufficient background for the analysis in this thesis. Scholars have offered significant observations on lexical diffusion, the role of frequency, and the phonetic environments that may serve as triggers for metathesis. These ideas serve as bases for the analysis conducted in this study.

## CHAPTER III

### DATA COLLECTION

#### **Introductory Remarks**

The goals for this project were to devise a corpus of Old English lexical items potentially subject to /sk/-metathesis according to the hypothetical claims regarding back vowel environments made by Campbell (1959: 177) and other before him, and then to cull data showing non-metathesized and metathesized forms of those Old English words. The back-vowel environment in question is reproduced below:

**V[+back]sk# > sk (and possibly > ks)** (*word-final /sk/ following a back vowel stays /sk/ and possibly metathesizes*)

**e.g. *husc* > *hux* ‘insult’**

**VskV[+back] > sk (and possibly > ks)** (*word-medial /sk/ preceding a back vowel stays /sk/ and possibly metathesizes*)

***discas* > *dixas* ‘dish’**

Afterward, the forms were to be analyzed for relevant patterns and evidence of conditioning by the phonological environment above. Additionally, generalizations were to be made concerning these claims and other possible linguistic forces, such as analogical targeting of high frequency items. Importantly, this study has attempted to make an unprecedented collection of evidence of Old English /sk/-metathesis, introducing attestations absent from existing handbooks and studies. This chapter details the procedures followed to collect and analyze data.

### 3.1 Method of Study

Like any dictionary, based on historical principles or not, the *Oxford English Dictionary* has limits. However, it is the most authoritative source of the historical English lexicon, and an enormously powerful instrument for countless studies on Old English grammar as well as lexis. Thus, it was utilized to establish the corpus of words which were potentially subject to /sk/-metathesis in Old English. This was accomplished by means of the variable word-form search tool under *Advanced Search* at the *Oxford English Dictionary Online* website. The final list results from a search in the *Oxford English Dictionary* quotation corpus for orthographic forms containing the series <sc> as medial and final in Old English words that contained either of the back vowels /u/, /o/, or /a/. The quotation date parameters were those typically assigned to the Old English period, 700-1100. All combinations of graphemes to a maximum of 10 prior and following -sc- (????????sc????????) were searched, where “?” serves as the search variable for preceding and following graphemes. Indicating the depth of the search, very few lexemes were in evidence beyond the range 8 -sc- 8 <????????sc????????>. The search resulted in more than 500 hits.

However, a significant number of those forms represented single lemmas. Also, to avoid suprasegmental complexities of analysis, Old English derivatives, forms containing inflectional or derivational prefixes, and those constituting compounds (e.g. *hornfisc* ‘hornfish’) were deselected. Also deselected were proper nouns and proper adjectives because, when compared to common nouns and adjectives, they tend to resist orthographic changes (and sound changes) disproportionately. Thus, words captured in the search but necessarily deselected include those such as *grascinnen* ‘gray’, *flæsclicra* ‘unfounded’, *Scotta* ‘Scot’, and *Englisc* ‘English’, etc. Other items that are absent from the corpus and these data are /sk/-initial items such as such as

*scip* and *scel*, which are recognized to have featured /sk/ palatalization very early in Old English. Similarly, *biscop*, which according to Hogg (2011: 257) quite possibly contained syllable initial /sk/ through secondary stress, was deselected from the word corpus. Lastly, if an *Oxford English Dictionary* variant spelling search of a form which was culled led to no lexical entry or definitional reference because of its extreme rarity, the form was no longer under consideration. The final corpus includes only Old English lemmas containing <sc> within base forms in medial or final position, and their variant forms with and without inflectional endings.

Considering the possible role of analogical modeling on high frequency words, as discussed above, the *Variant Word/Phrase Search* tool of the *Dictionary of Old English* was instrumental in determining frequencies of corpus words and their various forms. Tokens were gathered for both lemma forms and their variant forms. When necessary, definitions of items not listed or those considered questionable in the *Oxford English Dictionary* were cross-referenced with definitions in the *Dictionary of Old English*, still limited to entries for words beginning with the letters A-I. (Occurrence counts made from that dictionary's corpus were not under the A-I restriction). Dictionary entries were also utilized to find variant spellings of the word corpus. Since items searched are pulled from its corpus of 3060 texts, mostly of Late Old English and the Late West Saxon dialect, the time period and dialect directly relevant to the hypotheses considered in this thesis, the *Dictionary of Old English Corpus* is of the greatest significance here.

### 3.2 Word Corpus

The parameter search in the *Oxford English Dictionary* resulted in a list of 25 lemmas. These constitute the word corpus of the study. Initial findings were first sorted by a lemma, and significations were confirmed, by the methods stated above. Results were then subdivided into



metathesized and non-metathesized forms. Form occurrences were totaled for an initial analysis of frequency. The final list was divided into /sk/-final and /sk/-medial lemmas, and it is analyzed in the following chapter. These words as well number of metathesized and non-metathesized forms, are presented in Table 1 below. Also noted there are the words' respective frequencies, totaled for both lemma and orthographic variants, in the *Dictionary of Old English* corpus.

### **3.3 Closing**

This chapter has explained the methods of compiling a corpus of Old English words most likely to yield relevant data, and of culling such data. As a prelude to the details given in the following chapter, the table below lists the items of the word corpus and summarizes the attestation search results. Frequency is highlighted for initial observations on the relationship between common occurrence in the corpus of texts and number of metathesized forms.

Table 1. Results of the variant word form search in the *DOE*

Lemma (/sk/-Final and /sk/-Medial)	Total frequency of all forms	# of non-metathesized variants	# of metathesized variants
Flæsc ('flesh, meat' n. < Germanic)	x840	14	2
Fisc ('fish' n. < Germanic)	x334	13	21
Æsc ('ash tree; ashen spear, ship, runic letter' n. < Germanic)	x105	16	0
Disc ('dish, plate, vessel, table' n. < Germanic)	x96	8	3
Risc ('rush, marsh plant' n. < unspecified)	x48	7	6
Merisc ('marsh' n. < Germanic)	x43	9	2
Fersc ('fresh' adj. < Germanic)	x31	11	0
Husc ('insult, mockery' n. < unspecified) (Listed in OED and DOE, but unattested)	x8	2	5
Masc ('brewing mash' n. < Germanic)	x7	2	1
Ræsc ('rash, flash of light' n. < unspecified) (Listed in OED and DOE, but unattested)	x4	4	0
Plæsc ('plash, marshy pool' n. < unspecified)	x3	2	0
Ascian ('ask' v. < Germanic)	x664	7	81
Asce ('ashes, powdery residue, dust' n. < Germanic)	x148	6	13
Hnesce ('soft, tender' adj. < Germanic)	x72	15	0
Perscan ('thrash, thresh' v. < Germanic)	x24	15	6
Wæscan ('wash' v. < Germanic)	x24	5	9
Hnescian ('nesh, soften' v. < unspecified) (Listed in OED and DOE, but unattested)	x22	8	5
Flasce ('flask, bottle' n. < Germanic or Latin) (Listed in OED and DOE, but unattested)	x21	4	2
Fiscian ('fish' v. < Germanic)	x17	2	11
Gesca ('yex, hiccup' n. < unspecified)	x16	3	5
Muscelle ('mussel' n. < Latin/French) (Listed in OED and DOE, but unattested)	x16	8	2
Æsce ('enquiry' n. < Germanic)	x10	4	0
Hyscan ('heascen, mock' v. < unspecified) (Listed in OED and DOE, but unattested)	x10	7	2
Æwisce ('shame' n. < unspecified)	x9	4	0
Dwæscan ('extinguish' v. < unspecified)	x6	4	1

## CHAPTER IV

### RESULTS AND DISCUSSION

#### Introductory Remarks

This section will present and discuss the results of the investigation. Totals of lemma-form tokens are given in parentheses after lemma entries. Totals for all forms are listed in the table provided above in Chapter 3. Comments on patterns evident follow the listings and enumerations of non-metathesized and metathesized word forms.

#### 4.1 /sk/-Final Lemmas

##### 4.1.1 *Æsc* (x45) ('ash tree; ashen spear, ship, runic letter' n. < Germanic)

[other non-metathesized forms: *aesc* (x10), *easc* (x1), *esc* (x3), *æsce* (x25), *æscum* (x7), *æscas* (x2), *æsceas* (x1), *æsces* (x3), *æscce* (x2), *ægsce* (x1), *aastc* (x1), *eesh* (x1), *æsca* (x1), *asca* (x1), *aes* (x1)]

[metathesized forms: no data]

*Æsc* shows no signs of metathesis, even in when followed by /u/ or /a/, as in *æscum* and *æscas*.

In total, five eligible tokens do not show metathesis. Notable are the forms *aastc* and *aes*, and perhaps also *eesh*. The first suggests a transition toward palatalization, and the second, and maybe the third, show an advance to assibilation in /ʃ/, which of course eliminates the possibility of metathesis.

##### 4.1.2 *Disc* (x33) ['dish, plate, vessel, table' n. < Germanic]

[other non-metathesized forms: *disce* (x31), *discas* (x7), *disca* (x1), *discys* (x10), *disces*

(x8), discæn (x1), dissce (x1)]

[metathesized forms: dics (x1), dexas (x2), dihsun (x1)]

Several instances of metathesis of *disc* are in evidence. *Dexas* and *dihsun*, which are medial and precede a back vowel are predictable by the relevant hypothesis mentioned, but *dics* is not. That word may have been modeled on the very high frequency *fisc*, which shares the preceding high front vowel. *Dissce* may reveal the onset of palatalization. For other forms that did not metathesize, like *disca*, another possibility is that regardless of the orthographic forms in <a>, the vowels represented had already centered to schwa /ə/, as was happening to final unstressed vowels beginning in Late Old English, according to Jordan (1974: 137).

#### 4.1.3 *Fersc* (x6) ['fresh' adj. < Germanic]

[other non-metathesized forms: ferscra (x2), ferscran (x1), ferscre (x5), ferscum (x5), fersce (x7), ferscne (x1), ferscan (x1), fersces (x1), firesce (x1), ferse (x1)]

[metathesized forms: no data]

No metathesized forms of *fersc* occur in the text corpus. The invasive /r/ in *ferscra*, etc. creates a different and larger consonant cluster, which may have prevented metathesis here.

#### 4.1.4 *Fisc* (x75) ['fish' n. < Germanic]

[other non-metathesized forms: fisc (x1), fises (x29), fisses (x2), fiscæs (x1), fisce (x18), fiscas (x31), fisceas (x1), fiscum (x17), fisca (x15), fiscen (x1), fisceon (x1), fiscana (x7)]

[metathesized forms: fiscsæs (x1), fix (x1), fixc (x1), fixa (x21); fixsa (x1); ficsas (x1); fihsas (x1); fixas (x70), fixxas (x1), fixsas (x1), fixsce (x1), fisxe (x1), fixsces (x1), fixum (x26), fixxum (x1), fixon (x1), fyxum (x1), fixen (x1), fyxan (x1), fyxæs (x1), fixsca (x1)]

There are numerous instances of metathesized *fisc*. In fact, they outnumber those of any other /sk/-final lemma. According to the frequency and analogical modeling theory discussed above, this word should therefore be an analogical target for eligible items of similar phonological structure and, where possible, of similar proximal semantic signification. Supporting the respective back vowel hypothesis in question are various tokens showing metathesis before the back vowels /a/ and /u/. With respect to the grapheme <o>, we might note that according to Cook's Glossary of the Old Northumbrian Gospels (1969), it often replaced <a> in final, unstressed syllables as the vowel was becoming /ə/. If *fixon* contained /ə/, the mid central vowel, then the metathesized form does not support the respective back vowel hypothesis. More than likely, then, the vowel is still /a/ but spelled <o>. *Fixen* and a few others appear to contradict the hypothesis, but it is conceivable that after a point in the frequency of metathesized forms, the back vowel trigger was unnecessary in the process of metathesis. Likely revealing a Late Old English transitional period in the phenomenon are self-canceling pairs like *fiscas* and *fixas*, whose numbers are both high and nearly equal, as well as orthographic forms like *fisceon*, with what Hogg (2011: 267) identifies as a diacritical <e> indicating a preceding /ʃ/, and less certain forms such as *fixsces*, etc.

#### 4.1.5 Flæsc (x461) ['flesh, meat' n. < Germanic].

[other non-metathesized forms: *flaesc* (x1), *flesc* (x19), *flęsc* (x9), *flæsce* (x201), *flæsca* (x4), *flæscun* (x1), *flæscene* (x5); *flæscas* (x1), *fleascæs* (x1), *flesces* (x1), *flæsces* (x126), *flescum* (x1), *flæc* (x3)]

[metathesized and other forms: *flæcs* (x3), *flæc* (x3)]

Though seemingly eligible, the forms of *flæsc* that feature a back vowel in the final syllable do not metathesize. Unlike *fisc*, however, the cluster /sk/ follows a non-high front vowel. This is

seen elsewhere, as in *æscas* (4.1.1), and may be relevant in terms of analogical targeting. *Flæcs*, the only clear case of metathesis, does not support the respective hypothesis, but from the appearance of a few of the other graphemic forms, like *flesc*, the pronunciation of the root vowel was variable. The *Oxford English Dictionary* notes that the form *flæc* was dialectal.

**4.1.6 Husc** (This form is cited beside *hux* in the *OED* but it is unattested.) [**‘insult, mockery’ n. < unspecified**]

[other non-metathesized forms: *husce* (x1)]

[metathesized forms: *huhs* (x1); *hux* (x3); *hucx* (x1); *hucse* (x1); *huxe* (x1)]

*Husc* is an eligible candidate and changes accordingly. These metathesized forms, in word- and syllable-final position following a back vowel, support the respective hypothesis. All metathesized forms maintain the back vowel /u/.

**4.1.7 Masc (x2) [‘brewing mash’ n. < Germanic].**

[other non-metathesized forms: only in the compound *mascwyrte* (x1) (attested in the *OED*)]

[metathesized forms: only in the compound *maxwyrte* (x4) (attested in the *DOE*)]

This word shows evidence as well as counterevidence for the hypothesis in question. The back vowel makes the lemma an eligible candidate, but its metathesized appearance only in a compound word is questionable.

**4.1.8 Merisc (x1) [‘marsh’ n. < Germanic]**

[other non-metathesized forms: *merscum* (x5) *mersc* (x20) *mers* (x1); *mersce* (x7); *mærscce* (x2); *mærscæ* (x1); *mersces* (x3); *mærsces* (x1)]

[metathesized forms: *merix* (x1); *mercs* (x1)]

Both metathesized and non-metathesized forms of *merisc* are evident. *Merscum* fails to support the relevant hypothesis in one direction, and *merix*, with preceding high front vowel, does so in

the other. It may also be noted that the second syllable in *merix* aligns with the first syllable of various forms of metathesized *fisc*.

#### 4.1.9 Plæsc (x1) [**‘plash, marshy pool’ n. < unspecified**].

[other non-metathesized forms: plesc (x2)]

[metathesized forms: no data]

There is no counterevidence in the case of *plæsc*, as no metathesized forms were found and neither of the non-metathesized forms contain the necessary back-vowel environment.

#### 4.1.10 Ræsc (This form is listed in the *OED* but it is unattested.) [**‘rash, flash of light’ n. < unspecified**]

[other non-metathesized forms: **ræscas** (attested x1 in *OED* but not in *DOE*), **ræscum** (x2), resc (x1)]

[metathesized forms: no data]

Two seemingly eligible items do not metathesize, but again we see that the preceding root vowel is not high, as it is in *fisc*, *disc*, and as will be seen immediately below, the relatively high frequency *risc*. Again, we encounter a potentially significant pattern among the forms that contain low /æ/ or mid /e/.

#### 4.1.11 Risc (x26) [**‘rush, marsh plant’ n. < unspecified**]

[other non-metathesized forms: risce (x6), hrisc (x3), hrysc (x1), riscan (x1), riscean (x1), riscæan (x1)]

[metathesized forms: rix (x1); rixa (x2); rixs (x1); rixe (x1); ricsa (x1), rixum (x3)]

*Risc* variants occur comparatively frequently in the data and show metathesis comparatively frequently also among /sk/-final lemmas. Only one form, *riscan*, seems not to support the respective hypothesis, though *rix* also does so in the opposite way, metathesizing without a

following back vowel environment. Clearly, analogical targeting of *fisc* by *risc* is highly probable on grounds of structural similarity. Also, as *fisc* represents an animate water creature of the water and *risc* an animate water plant, semantic association may have been motivating. Further influence may have come from the not infrequent collocation of *rixæ weaxst*, in which the verb features its own /ks/ cluster, invoking the possibility of consonant harmony.

## 4.2 Sk-Medial Lemmas

### 4.2.1 *Æsce* (x2) ['enquiry' n. < Germanic]

[other non-metathesized forms: *æscan* (x6), *æscen* (x1), *æscean* (x1)]

[metathesized forms: no data]

Again, here is an eligible form with a following back vowel (/a/) not metathesizing, but also again a non-high front vowel, /æ/, preceding the cluster /sk/.

### 4.2.2 *Æwisce* (x4) ['shame' n. < unspecified]

[other non-metathesized forms: *æwisc* (x2), *æwiscu* (x1), *æwys* (x2)]

[metathesized forms: no data]

In *æwiscu*, we find a following back vowel but also a preceding front vowel. In this instance, it is high front vowel, as found in various tokens of the high frequency and presumably often targeted *fisc*. Possible explanations are that *æwisce* was simply not frequent enough to have been influenced by metathesizing *fisc*, *risc*, etc., or that it did, on some occasions, metathesize but surviving texts do not record those instances. It should be noted that in an article by the lexicographer Toller (*The Modern Language Review*, 1924), three metathesized forms of the word are cited (*awahxe* (x1), *awahse* (x1), and *awaxe* (x1), all apparently featuring a preceding, and hypothetically causal, back vowel).

### 4.2.3 *Asce* (x1) ['ashes, powdery residue, dust' n. < Germanic]



[other non-metathesized forms: *ascan* (x10), *ascen* (x2), *æscan* (x1), *asca* (x10), *aerce* (x1 alveolar /r/ for /s/)]

[metathesized forms: *axan* (x42), *acse* (x2), *axum* (x10), *axun* (x1), *ahsum* (x1), *ahse* (x1), *axe* (x7); *acxe* (x1), *acsan* (x3), *ahsan* (x44); *axsan* (x5); *acxan* (x5), *axæ* (x1)]

*Asce* occurs relatively often in the present data, so it should theoretically have had some analogical influence. However, as seen immediately below, *ascian* was far more frequently occurring, both in total and in metathesized form. Because *ascian* occurs more frequently than any other /sk/-medial word in the corpus, and because the initial syllable of both words is identical, analogical targeting of *ascian* by *asce* is highly likely. That aside, all of the metathesized forms here contain the preceding back vowel /a/, and almost all a following back vowel as well. The few presumably eligible forms *ascan*, *asca*, and *æscan* show no metathesis. However, potentially significant is the <æ> spelling of the third because it could show an alternate front vowel pronunciation which would prevent metathesis after a back vowel.

#### 4.2.4 *Ascian* (x8) [‘ask’ v. < Germanic].

[other non-metathesized forms: *asca* (x1), *ascade* (x8), *ascode* (x5), *ascað* (x1), *ascige* (x3), *ascienne* (x1)]

[metathesized forms: *acsian* (x24), *acsode* (x56), *acsade* (x5), *acsedon* (x5), *acsadon* (x1), *acsodest* (x3), *acsodost* (x1), *acsodon* (x15), *acsigan* (x2), *acsiað* (x4), *acsað* (x3), *acsiæð* (x1), *acsiæn* (x1), *acsion* (x1), *acsoð* (x1), *acse* (x10), *acsie* (x2), *acsa* (x6), *acsast* (x4), *acsost* (x1), *acsigende* (x1), *acsiende* (x6), *acsiendum* (x1), *ahsian* (x11), *ahsode* (x41), *ahsade* (x3), *ahsude* (x3), *ahsige* (x17), *ahsian* (x11), *ahsien* (x1), *ahsa* (x10), *ahsie* (x1), *ahsast* (x3), *ahsað* (x8), *ahsiað* (x6), *ahsadan* (x1), *ahsodon* (x28), *ahsodan* (x6), *ahsedon* (x2), *ahsadun* (x1), *ahsudon* (x1), *ahxiað* (x1), *ahsiende* (x5), *ahsienne* (x1), *agsode* (x1), *agsode* (x1), *axode* (x154), *axsode*

(x1), axsade (x1), ax sodan (x2), ax sodon (x4), ax sadun (x1), ax sedon (x1), acxode (x1); axodan (x2), axodon (x43), axoden (x7), axedon (x1), æxodon (x1), axede (x1), æxæ (x1), axie (x15), axia (x1), axsa (x4), axað (x5), axaþ (x1), axe (x1), axen (x1), axast (x11), axstast (x2), axiað (x7), axiað (x1), axiaþ (x2), axæþ (x1), axigende (x1), axige (x10), axian (x28), acxian (x1), axiæn (x1), axienne (x5), axianne (x1)]

Tokens of *ascian*, total and metathesized, outnumber not only those of all other /sk/-medial words in the corpus, but all other /sk/-final words as well—even those of *fisc*. Thus, *ascian*, like *fisc*, should theoretically have had real analogical force in the process of /sk/ metathesis in Old English. In fact, by extension those words which targeted and followed these two to a significant extent would also have promoted the phenomenon. Among the tokens of *ascian* are several that should have metathesized but did not, for example *ascade* and *ascode*. Still, the overall balance of forms is so far in favor of the metathesized forms that these few instances are reduced nearly to insignificance. Even in specific cases, like *ascode* (x5) vs. *axode* (x154), there is no comparison.

#### 4.2.5 Dwæscan (x1) ['extinguish' v. < unspecified]

[other non-metathesized forms: dwæscað (x2), dwæsceð (x1), dwæscþ (x1)]

[metathesized and other forms: dwæsta (x1)]

This noun provides no instances of metathesis, but it does include one form which may reveal the transition from /sk/ to /ʃ/. *Dwæsta*, with the cluster /st/, shows not (front)alveolar-(back)velar but alveolar-alveolar, /ʃ/ being post-alveolar. The root vowel in all tokens which might have shown metathesis conditioned by the following back vowel, is evidently the low front vowel /æ/: neither the high front vowel of high frequency *fisc* or the low back vowel of high frequency *ascian*.

#### 4.2.6 Fiscian (x2) ['fish' v. < Germanic].

[other non-metathesized forms: fisciga (x1)]

[metathesized forms: fixian (x2), ficsode (x1), ficsodon (x1), fixodon (x3), fixanne (x1), fixianne (x1), fixie (x1), fixast (x1), fixiæð (x1), fixað (x1), fixoþ (x1)]

This verb, derived from the noun *fisc* according to the *OED*, apparently followed the noun faithfully in its routine metathesizing.

#### 4.2.7 Flasce (This form is listed in the *OED* and the *DOE* but it is unattested.) ['flask, bottle' n. < Germanic or Latin].

[other non-metathesized forms: flasc (x1), flascan (x5), flascena (x1)]

[metathesized forms: flaxe (x2); flaxan (x12)]

Data for *flasce* include metathesized as well as non-metathesized tokens. An inter-syllable shift from onset to coda which would allow metathesis in *flaxan* < *flascan* may have occurred (See section 4.3 below). Another explanation for *flascan* is some measure of form-interference from Latin *flasca/flasco*, the donor language of this loanword, and certainly a prestige language in medieval England.

#### 4.2.8 Gesca (x3) ['yex, hiccup' n. < unspecified].

[other non-metathesized forms: iesca (x2), gescea (x1)]

[metathesized forms: geohsa (x5), geohsan, (x2), geocsa (x1); geoxa (x1); gihsa (x1)]

*Gesca* occurs in both metathesized and non-metathesized forms, the former outnumbering the latter. The two eligible forms which did not metathesize, *gesca* and *iesca*, feature preceding front vowels, displaying the same pattern seen several times above. In fact, in all metathesized tokens but one, the root vowel has evidently taken a retracted form (*geo-*), which may have allowed, or not disallowed, the metathesis.

#### 4.2.9 Hnesce (x1) [‘soft, tender’ adj. < Germanic]

[other non-metathesized forms: *næsc* (x2); *nesc* (x1); *hnesce* (x34); *hnescre* (x4), *hnescan* (x8), *hnescran* (x1), *hnesceum* (x1); *hnescum* (x12); *næscum* (x2), *hnyssce* (x1), *hnescestan* (x2), *hnescost* (x1), *hnesscere* (x1), *hnescean* (x1)]

[metathesized forms: no data]

No metathesized forms of *hnesce* occur in the corpus of text materials. However, four forms were eligible under the following back vowel hypothesis: *hnescan*, *hnescum*, *næscum*, and *hnescost*. All display a root vowel which is neither that of the analogical target *fisc* nor that of the target *ascian*.

#### 4.2.10 Hnescian (This form is listed in the *OED* and the *DOE* but is unattested.)

##### [‘nesh, soften’ v. < unspecified].

[other non-metathesized forms: *hnescen* (x1), *hnescað* (x4), *hnescap* (x1), *hnesceþ* (x2), *hnescige* (x1), *hnescodon* (x4), *hnesce* (x1)]

[metathesized forms: *hnexian* (x4); *hnecxige* (x1), *hnexige* (x1), *hnexodon* (x1), *nexode* (x1)]

Although the adjective *hnesce* (4.2.9), from which this verb is derived according to the *OED*, provides no metathesized tokens, *hnescian* provides quite a few. This fact begets the question of whether or not *hnesce* did undergo metathesis, but the result simply does not appear in the surviving written record. Nevertheless, what remains potentially problematic to the apparent pattern involving non-high front vowels is that eligible forms here exhibit a root mid front vowel before, but then so do the metathesized forms. One possible explanation is an onset to coda shift of the cluster /sk/ accompanying metathesis, from onset /sk/ in *hnescodon* to coda /sk/ in *hnexodon*, similar to *flascan* > *flaxan* in 4.2.7. Clearly, *hnexian*, *hnecxige*, and *hnexige*, with

back vowels evident neither before nor after /ks/ do not support the respective hypotheses, but they may have been subject to the same shift. (See section 4.3 below).

**4.2.11 Hyscan** (This form is listed in the *OED* and the *DOE* but is unattested.) [**‘heascen, mock’ v. < unspecified**].

[other non-metathesized forms: hiscð (x2), hyscð (x1), hyscþ (x2), hyscte (x1), hisctun (x1), hiscendre (x1)]

[metathesized forms: hihsendes (x1), huhsendes (x1)]

*Hyscan* meets eligibility requirements based on the respective hypothesis and displays a small measure of metathesis.

**4.2.12 Muscelle** (This form is listed in the *OED* but is unattested.) [**‘mussel’ n. < Latin/French**].

[other non-metathesized forms: muscellae (x1), muscule (x1), musscel (x1), muscle (x1) musclan (x5), muscellas (x2), muslan (x1)]

[metathesized forms: muxle (x2); mucxle (x2)]

The data for *muscelle* are important because they indicate that medial /sk/ did not metathesize if it occurred in a polysyllabic word as syllable-initial, i.e. in the onset of that syllable. This aligns with the claim that word-initial (syllable initial) /sk/ palatalized and assibilated very early (by 900), preventing metathesis (cf. Campbell 1959: 177). This would account for the lack of metathesis in *muscule*, which contains a following back vowel. Only with syncope, loss of a vowel in the middle of a word, do we find metathesis in this word, as in *muxle*.

**4.2.13 Þerscan** (x3) [**‘thrash, thresh’ v. < Germanic**].

[other non-metathesized forms: ðærsc (x1), þærsc (x1), ðurscon (x1), ðerscað (x1), ðarsca (x1), ðærscende (x1), ðerscende (x1), þirsceð (x1), þerscenne (x1), þersceanne (x1), ðersces (x1), þrescen (x1), geðearsca (x1), ðurscun (x2)]

[metathesized and other forms: þearcs (x1), ðerhsan (x1), þurhsun (x1), ðyrscan (x1), þerce (x1), ðerccedum (x1)]

Despite the lack of balanced distribution between metathesized and non-metathesized tokens, *þerscan*, with /r/ preceding /sk/, exhibits several instances of metathesis. Unless one or the other of the graphemes <c> in the last two items here represented /s/, those tokens are not easily explained, but may indicate a transitional process toward palatalization.

#### 4.2.14 Wæscan (x1) [‘wash’ v. < Germanic].

[other non-metathesized forms: wæsc (x5), weosc (x2), wesc (x1), woosce (x1)]

[metathesized forms: waxe (x1), woxon (x1), wox (x1), wacsan (x1), waxan (x6), waxsian (x1), wahson (x1), wohson (x1), waxen (x1)]

Intriguingly, while the lemma form as well as all of the other unmetathesized forms, except *woosce*, feature a front vowel in the root before /sk/, all of the metathesized forms feature an alternate back vowel pronunciation before /ks/, supporting the respective hypothesis.

### 4.3 Discussion

According to Campbell (1959: 177), as well as others mentioned above, /sk/ palatalized and assibilated to /S/ in initial position, especially before front vowels, earliest, in Early Old English, and in medial and final positions only later, beginning in Late Old English and continuing into Early Middle English. Since it is recognized that metathesis of /sk/ to /ks/ is most evident in the Late West Saxon dialect of Late Old English (Campbell 1959: 178) and the great

majority of texts in the *Dictionary of Old English* corpus are of that dialect and period, the data garnered and presented here should be the most representative of this type of Old English metathesis, especially as certain words less likely to yield useful data were reasonably deselected (see Chapter 3).

Further, we know that vowels in final, unstressed (often inflectional) syllables began to be reduced to the single, mid central vowel schwa /ə/, as in *stanes* from earlier *stanas*, at the close of Old English times. In light of the hypothesis that /sk/ to /ks/ metathesis was permissible medially before back vowels in Old English, and the awareness that the back-vowel environment was lost at that time, we should expect, by the accompanying hypothesis regarding such metathesis finally after back vowels, that this second form of metathesis survived longest in final position. Among the many data which exhibit /sk/ to /ks/ metathesis evidently in accordance with one of the hypotheses concerning back vowel environments, the first that the process took place in final position after a back vowel, and the second that it occurred in medial position before a back vowel (Campbell 1959: 178) are: *dixas*, *fixum*, *hucse*, *ricsa*, *acxan*, *axian*, *fixodon*, *nexode*, *mucxle*, *ðyrcean*, *wohson*.

Looked at from the point of view of syllable structure, there is evidence to support the supposition that /sk/ failed to metathesize earliest (by 900) in initial position (cf. Campbell 1959: 177), that is syllable-initial position therefore also word-initial position, because, especially before /e/, it began to palatalize and assibilate there, in the syllable onset, first. Again, that view in mind, and in consideration of the fact that almost all of the text material in the *Dictionary of Old English* corpus is dated to Late Old English times, /sk/-initial words were of course deselected from the word corpus. Still, one word, *muscelle*, made it through the corpus criteria filter even though its /sk/ cluster occurs in the onset of the second syllable because, after further

analysis, it appeared syncope of the following vowel was possible and, with that, the cluster shifted to coda position and allowed metathesis, as in *muxle*. That form, along with *muscule*, which is otherwise difficult to explain, are evidence in support of the hypothesis in questions. Accounting for such a shift may have been an ease of articulation process (cf. Fulk 2019: 28) led primarily or initially by the highest frequency lemma, *ascian*. In this process the less easily articulated series /a/ (back vowel) before /s/ (front [alveolar] consonant) before /k/ (back consonant) would have been replaced by the more easily articulated series /a/ (back vowel) before /k/ (back consonant) before /s/ (front consonant): thus, *ascian* /askian/ > *axian* /aksian/ as well as *flasca* > *flaxan*, etc. It should also be observed here that Hogg (2011: 257) notes the possibility that an ambisyllabification of /s/ in *perscan*, *discas*, etc. prevented palatalization of /sk/ (and allowed metathesis), perhaps leaving open the similar possibility of an ambisyllabification of the entire cluster /sk/. Related to this shift observation is a possible explanation for certain pairs of polysyllabic forms, one of which supports the preceding back vowel hypothesis or the following back vowel hypothesis, and one of which does not. If a syllable boundary shift also accompanied the metathesis of /sk/ to /ks/ in cases like *discas* to *dixas*, perhaps also led ultimately by frequency and analogical targeting, the metathesized cluster would have occurred in first syllable coda position and the non-metathesized cluster would have remained in second syllable onset position, where, by Late Old English times, it would not have been subject to metathesis. Additional pairs include *fiscas* and *fixas*, *riscan* and *rixan*, *ascan* and *axan*, *ascode* and *axode*, *flasca* and *flaxan*, *hnescodon* and *hnexodon*.

As far as frequency effects and analogical modeling are more generally concerned, if Bybee (2001: 113) is correct, and once change is underway high frequency forms tend to lead change, we should expect that this metathetic change from /sk/ to /ks/, clearly under way in Late



Old English and therefore in the vast majority of our data, would be led by the higher frequency words which exhibit the metathesis with any consistency, and phonological similarities among the words involved should foster the analogical targeting. These data indicate clearly that of the /sk/-final words, *fisc* is most frequent (x334) and exhibits metathesis most frequently (x135), and that of the /sk/-medial words, *ascian* is most frequent (x664) and likewise exhibits metathesis most frequently (x637). Further, showing metathesis in the former group more frequently than the other words is the structurally highly similar *risc* (x48), which, perhaps along with *disc* (x96), seems to have targeted and followed *fisc*. The reason that *risc* may have followed *fisc* more faithfully may have to do with a semantic association: both fishes and rushes live in water, unlike dishes. *Fiscian* (x17), far less frequent but closely aligned with *fisc* in structure and meaning, likely also targeted and followed *fisc*. In a corresponding way, *asce* (x148) must have targeted *ascian* on structural grounds, seeing that the first syllables of both are identical and *asce* shows relatively frequent metathesis. Also, quite clearly under the influence of *ascian* should have been *flasce* and *masc*, both of which show some amount of metathesis.

As is detailed at various points in the data presentation section above, according to the pair of hypotheses concerning the triggering environments of preceding and following back vowels, some number of /sk/-final words should have shown metathesis but did not. An immediate reason is that /sk/ had assibilated, or nearly assibilated, and the possibility of metathesis was already lost. In Old English times, those processes affected some number of forms with internal /sk/ before a front vowel (cf. Campbell 1959: 178). The various transitional forms noted in the data presentation section above suggest that some progress of that sort was occurring, but how much is difficult to establish. If we consider analogical targeting of higher frequency words by lower frequency words in an attempt to explain the reluctant forms, we see

that form proximity is potentially key. Where those back-vowel hypotheses fail to predict metathesis or lack of metathesis, analogical modeling can be informative, and, accordingly, the findings above suggest that the closer the form of a lower frequency word is to either of the two very high frequency, and commonly metathesizing words *fisc* and *ascian*, the more likely it is to show a measure of metathesis. Thus, the evidence argues that *risc* targeted and followed *fisc*, and *asce* targeted and followed *ascian*, and so on. Conversely, forms containing non-high front root vowels /e/ or /æ/, those unlike that of *fisc*, were more likely to show eligible but non-metathesized forms. Exemplifying several of these are: *æscas*, *flescum*, *dwæscað*, *iesca*, *hnescap*. The same may also have been true in the case of forms containing non-low back root vowels, those unlike that of *ascian*, but the evidence is far less, and is split. While *muscelle* exhibits more eligible non-metathesizing forms than the opposite, *husc* displays more eligible metathesizing forms than the opposite. Still, two words, *gesca* and *wæscan*, display metathesized forms which almost exclusively feature alternate low or mid back vowel realizations of their root vowels, back vowel pronunciations which accompanied metathesis, and front vowel pronunciations which did not. *Purhsun*, a metathesized form of *perscan*, and *huhsendes*, a like form of *hyscan*, might be added to them.

The small number of forms which display metathesis but, according to the relevant back vowel hypotheses, should not are noted, and attempts to account for them are made within the data presentation section above. Considerations include variable pronunciation and, perhaps at points, scribal error.

There is no doubt metathesis is a complex process, and in the case of Old English /sk/-metathesis, several forces are at play. Preceding and following back vowel environments evidently condition /sk/ to /ks/ metathesis, but then apparently so do syllable structure

conditions, specifically, in polysyllabic words that allow /sk/ to metathesize to /ks/ if the change was accompanied by a shift of the cluster from onset to coda. In the context of the reduction of unstressed inflectional vowels to the mid central vowel schwa /ə/, some degree of perseverative coarticulation in the form of vowel harmony between mid or low root vowels (/e/, /æ/) and inflectional vowels (in /u/, /o/, or /a/) could also have resulted in unexpected forms, non-metathesized ones, by obliterating the trigger of a following back vowel. Finally, analogical modeling based on comparatively high frequency of occurrence was very likely involved once the process of metathesis was underway in high frequency words like *ascian* and *fisc*, and of course, as the change diffused, the most faithful followers of those words.

## CHAPTER V

### CONCLUSION

This study has addressed the issue of metathesis, reviewing research to date and entering into the debate about how predictable the phenomenon may be by examining one particular type of metathesis, /sk/ to /ks/ metathesis in Old English. The analysis has attempted to test a pair of hypotheses, (1) that this metathesis occurred in word-final position after back vowels and (2) that it occurred in word-medial position before back vowels described previously in the schematic below:

**V[+back]sk# > sk (and possibly > ks)** (*word-final /sk/ following a back vowel stays /sk/ and possibly metathesizes*)

**e.g. *husc* > *hux* ‘insult’**

**VskV[+back] > sk (and possibly > ks)** (*word-medial /sk/ preceding a back vowel stays /sk/ and possibly metathesizes*)

***discas* > *dixas* ‘dish’**

In addition, the analysis attempts to account by means of recourse to analogical modeling theory based on frequency for the various instances in which /sk/ to /ks/ metathesis should have occurred, according to the pair of hypotheses, but did not, as well as those where this form of metathesis should not have occurred, according to those hypotheses, but did. In at least some of these cases, analogical modeling based on comparatively higher frequency of occurrence of

forms, appears to have been causal, though drawing firm conclusions regarding the general predictability of /sk/ to /ks/ metathesis in Old English would be imprudent.

The investigation recognizes that metathesis is still relatively poorly accounted for, that there is ongoing debate over how conditioned or unconditioned a linguistic phenomenon it is, or is in one instance and not another, and that much research remains to be done if we intend to account for this process satisfactorily. Nevertheless, existing studies, detailed in Chapter 2, offer essential postulations and pose unanswered questions still to be considered. Some scholars view metathesis as sporadic, unconditioned change. Hogg (1977: 165, 171), for example, deals with metathesis from a diachronic perspective, and highlights that metathesized forms can emerge intermittently and have no real effect on the lexicon or grammar, though such forms may be construed as erroneous. Moskal (2009) argues that metathesis is simply a by-product of other processes and not one in its own. Conversely, arguments for the conditioned change consider speaker perception as phonetically driven and incapable of ambiguity, yet able to produce simplified or assimilated forms (Alexander 1985; Hume 2004; Blevins and Garret 2004). Wojcik (2017) also considers phonetic features but instead argues that there are structural processes like nuclei weakening that factor into regular changes. Perspectives on conditioned change also consider data across dialects and languages (Welna 2002, Silva 1973, Hume 2001). Some attribute the apparent randomness to the varying transitional forms that occur in the process of lexical diffusion, an observation made in the present study. From this perspective, different items are affected at different times in the context of various language change forces. Lastly, and most relevant to this thesis, previous research identifies the types of metathesis which were most common in Old English (e.g. /ps/ > /sp/, /sp/ > /ps/, /ts/ > /st/, and /sk/ > /ks/). Campbell (1959: 177), for instance, remarking on the change /sk/ > /ks/, highlights the role of back vowel

environments, and claims that this type of metathesis was available to words featuring /sk/ finally after a back vowel and /sk/ medially before a back vowel, but not otherwise, at least by Late Old English times, largely due to front vowel environments of /sk/ which caused palatalization and assibilation of the cluster, making metathesis unavailable. This two-fold hypothesis is one that must be considered in any study focusing on /sk/ metathesis in Medieval English, especially in relation to palatalization, which is known to have operated alongside metathesis in both Old and Middle English (Brunner 1970).

As a study of historical language change, this analysis has focused on word forms known to have been susceptible to /sk/ to /ks/ metathesis in Old English, and a corpus of those words has been compiled by circumspect methodology. The primary instrument for devising the word corpus was devised utilizing the *Oxford English Dictionary*, the most authoritative source for the historical English lexicon. As detailed in Chapter 3, using its Advanced Search tool, words with final and medial <sc> (regularly representing /sk/ in Old English) were searched within the dictionary's corpus of quotations dated to Old English times (700-1100) up to the orthographic limit of 10 graphemes before and after <-sc->, thus [????????sc????????]. That search resulted in more than 500 hits, and very few sub-searches of 8+ variables or more either before or after yielded attested Old English words. It was, demonstrably, a comprehensive search. In order to maximize the catch of metathesized forms, proper nouns, proper adjectives, compounds, and any forms including derivational prefixes were deselected. Once the corpus was devised, attested forms of the words were collected from the most comprehensive source of Old English documents, the text corpus of the *Dictionary of Old English*, which, according to the dictionary's website, contains 3060 texts. Those forms were subsequently divided into lemma forms, according to the *Oxford English Dictionary*, as well as non-metathesized and metathesized

forms, in order to be analyzed for structure and frequency of occurrence.

The findings of the investigation are various. With respect to the pair of hypotheses concerning back vowel environments, patterns evident reveal that many items did evidently metathesized in accordance with one of the hypotheses, for instance, *dixas*, *fixum*, *hucse*, *ricsa*, *acxan*, *axian*, *fixodon*, *nexode*, *mucxle*, *ðyrcean*, *wohson*, etc.. In all, the data argue for a measure of predictability based on the following:

Syllable structure and syllabic shift. Evidence culled and adduced supports the two-fold hypothesis that /sk/ metathesized, or was capable of metathesizing, to /ks/ when it was word (and syllable) final after a back vowel or word-medial before a back vowel (cf. Campbell 1959: 177). The data also suggest the possibility that an ambisyllabification of /sk/ making feasible a shift of the cluster from onset to coda allowed metathesis in polysyllabic forms ineligible by that two-fold hypothesis (see 4.2.12 *muscelle* and 4.1.2 *discas*).

Analogical modeling based on token frequency and similarity of form. According to Bybee (2001:113), high frequency forms appear to lead change and foster analogical targeting. This is evidently relevant to the present study. The corpus word with the highest frequency, both overall and in metathesized form is *ascian*. That the structurally very similar words *asce*, *flasce*, and *masc* also show metathesis comparatively frequently suggests that Bybee is correct and that the tendency she identifies is evident in this case. Likewise, the high incidence of metathesis in *fisc* and, theoretically consequently in *risc*, seem to support the supposition, by which *fisc*, exhibiting the second highest frequency among corpus words, thus was targeted by words like *risc*, which is almost structurally identical in form, and, not incidentally, shows a semantic association. The addition of that

association, based on animacy and environmental context, may also explain why *disc*, just as structurally similar to *fisc* as *risc* though representative of an inanimate object, does not display as much metathesis as *risc* does.

Analogical modeling is conceivably also involved in the reverse in those instances where items eligible by the two-fold back vowel hypothesis do not metathesize. Accordingly, relatively low frequency words which were dissimilar enough from the high frequency words which showed many occurrences of metathesis typically failed to metathesize. Examples here include: *hnescan*, *æwiscu*, *ræscum*, etc. Reluctance may also be explained by:

Early /sk/-assibilation. Following palatalization, assibilation occurred earliest in initial position, but also occurred early, in Early Old English times, in internal /sk/ before a front vowel (cf. Campbell 1959: 178). Campbell (1959: 178) details evidence of word-initial change, as in the change in Old English from *scrēad* to *schrēad* ‘shred’. The data presented in this study emphasizes resistance in syllable-initial position, as discussed regarding *muscelle*, which contains /sk/ in the initial syllable and did not metathesize until syncope occurred and the initial position was lost. Though this assists us in projecting /sk/ metathesis, it is also true that the details of these processes are still not entirely known.

Perseverative coarticulation and inflectional vowel centering. Reflecting progressive assimilation, or perseverative coarticulation, a vowel harmony between the non-high front vowels (/e/, /æ/) and the inflectional back vowels (/u/, /o/, /a/), perhaps in combination with vowel centering to schwa (/ə/), a process advancing in Late Old English, may have operated in some number of corpus words, and in doing so prevented



structurally eligible forms from metathesizing by deleting the following, inflectional back vowel environment.

These findings contribute to research on this phenomenon of language change by detailing a context of one kind of metathesis, and by considering analogical modeling based on token frequency as potentially instrumental in its lexical diffusion. They indicate that in certain segmental and syllabic environments /sk/ to /ks/ metathesis was conditioned in Old English, but also that comparatively high frequency of occurrence of words facilitated the diffusion of that type of metathesis among form-eligible items. Conversely, they suggest that vowel harmony may have confounded metathesis in otherwise eligible forms in some number of cases. Although these findings are restricted, their implications are important to the debate about the predictability of metathesis generally. These conclusions support the supposition that if the right phonological and extra-phonological conditioning factors are considered, metathesis may be projected.

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## BIOGRAPHICAL SKETCH

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