

THE SCANDINAVIAN ELEMENT IN THE DANELAW AND BEYOND: A STUDY OF THE DISTRIBUTION OF LOANWORDS IN LATE MODERN ENGLISH DIALECTS

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Abstract: This study investigates the distribution of Scandinavian loanwords in Late Modern English (LModE) dialects, using Wright's (1898-1905) *English Dialect Dictionary* (EDD) as the primary resource. In the existing literature, the Scandinavian element in regional varieties of English has largely either been ignored or simplified into a presence of loanwords in northern and eastern English dialects, where Scandinavian settlement is argued to have been most dense, and an absence in southern and western varieties. The aim of the present study, therefore, is to use the recently-digitalised *EDD Online 3.0* to investigate whether such a distribution is accurate. Of particular interest is the patterns of Scandinavian loanwords in dialects beyond the Danelaw region, as recent studies have concluded that some Scandinavian loanwords occur exclusively outside the Danelaw (e.g. Bator 2007).

The EDD data corroborates Samuels' (1985) 'focal area' as a region which shows greater evidence for Scandinavian influence than the remainder of the Danelaw. In addition to this focal area, the country shows a general north-south pattern of greater Scandinavian loanwords in more northerly dialects and fewer in southern dialects, especially in the London and South-East region. There are no counties without any localised Scandinavian loanwords, and many non-Danelaw counties show higher frequencies of loanwords than some Danelaw counties. Furthermore, there are thirty loanwords which are only found beyond the Danelaw, offering potential support for Bator (2007)'s proposition. However, as a result of the paucity of historical evidence for many dialects, it is difficult to ascertain the exact history and patterns of diffusion of these loanwords, so the dialects into which they were first borrowed, and the localisation of their use prior to the LModE period, can only remain speculative.

Keywords: Scandinavian, language contact, late modern English, borrowing, dialects, Danelaw, diffusion

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The Scandinavian element in the Danelaw and beyond: A study of the distribution of loanwords in Late Modern English dialects.

1. Introduction

‘Although the foreign element in Standard English has been frequently treated, this is not the case with the dialects, which urgently demand attention from this point of view.’

(Wakelin 1977: 178)

The linguistic contact situation between Old English and Scandinavian¹ in Viking Age England has been the subject of many investigations into historical linguistics and language contact. However, as summarised by Wakelin (1977: 178), the focus of such investigations has often been the Scandinavian element in Standard English, and the geographic variation in dialectal language has either been overlooked or naïvely simplified into a Danelaw/non-Danelaw dichotomy (Dance 2017: 214).

Since Wakelin called ‘urgently’ for analysis of the Scandinavian element in English dialects, progress has been made in terms of detailed enquiries into the Scandinavian element in certain regions (e.g. Dance 2003), and the emerging picture shows Scandinavian influence beyond the Danelaw (Bator 2007). However, a comprehensive review of the distribution of Scandinavian loanwords nationally is still lacking, and is an issue the present study aims to resolve. Thus, Wright’s (1898-1905) *English Dialect Dictionary*, which has recently been digitalised and therefore lends itself to corpus research, is used to explore the distribution of Scandinavian loanwords across the dialects of the Late Modern English (LModE) period, in an investigation of the following research question:

How are Scandinavian loanwords distributed nationally, especially outside of the former Danelaw region?

¹ Throughout this study, ‘Scandinavian’ is used to denote the historical North Germanic language (in any or all of its dialect forms) which later developed into the modern Danish, Swedish, Norwegian, Icelandic and Faroese languages. In philology, this may be termed ‘Old Norse’, but as Old Icelandic is also often labelled Old Norse, ‘Scandinavian’ is used here for clarity, following the terminology of Durkin (2014) and the newest edition of the *Oxford English Dictionary*. Some quotations may use the terms Norse or Old Norse which are left unedited.

The data presented in this study shows that Scandinavian loanwords are found frequently throughout the country – not exclusively in the former Danelaw region. The overall pattern of distribution largely follows Samuels' (1985) 'focal area', in that Yorkshire and Cumbria show the highest frequencies of Scandinavian loanwords within the Danelaw; meanwhile, peripheral Danelaw regions, such as East Anglia, show similar frequencies of Scandinavian loanwords to areas outside the Danelaw. There does not appear to be a hard-and-fast line along Watling Street with Scandinavian loanwords occurring only within the Danelaw and not beyond it; but instead, the frequency of loanwords attributed to each country may be a result of more nuanced sociohistorical and geographic factors, as well as diffusion throughout the country over time.

Furthermore, Bator's proposition that some Scandinavian loanwords occur 'exclusively in the west and south of the country' (2007: 167) is corroborated by data from the EDD which shows thirty loanwords associated only with western and southern non-Danelaw (English) counties. These thirty loanwords raise an interesting question regarding the levels of direct contact that may have occurred between Scandinavian settlers and Anglo-Saxons in areas beyond the Danelaw, but ultimately it is likely that the words were previously used within the Danelaw and areas of recorded Scandinavian settlement before diffusing to the South-West and eventually becoming obsolete elsewhere.

In order to provide the context for the empirical analysis of Scandinavian loanwords in English dialects, §2 is concerned with the background of the study, namely the philological background of Scandinavian and Old English, the sociohistorical background of the language contact situation which occurred during the Viking Age, and the theoretical framework of language contact and loanwords. Then, §3 outlines some of the relevant existing literature on the regional influence of Scandinavian on English and some recent studies which have advocated for Scandinavian influence outside of the traditional Danelaw region (e.g. Bator 2007). Reasoning for the methodology and approach taken by this study is laid out in §4, before the data is analysed and presented in §5. This section first offers a discussion of the overall national patterns shown in the data (§5.1) before evaluating the Scandinavian loanwords present in the Danelaw and non-Danelaw regions in closer detail (§5.2 and §5.3 respectively), leading to the presentation of the study's conclusions in §6.

2. Background

As McIntosh (1994: 137) underlines, the notion of 'languages in contact' may be better thought of as 'language users in contact', and any study of languages in a contact situation, such as English and Scandinavian, must consider the social context of the speakers as a background

for linguistic investigation. The socio-cultural history of the contact between English and Scandinavian will therefore be laid out in this section, beginning in §2.1 with the philological background and resulting typological similarities of the two languages during the Viking Age. A brief history of Scandinavian peoples in Britain and their interactions with the Anglo-Saxons will follow in §2.2, including the eventual (Anglo-)Scandinavian² language death which occurred as populations shifted to speaking English. A summary of the development of English dialects, from the Medieval period through to the present day, is outlined in §2.3; and the linguistic theory of language contact and borrowings, which will be the framework used throughout this research, is summarised in §2.4.

2.1 Philological background

Both Old English (OE) and Scandinavian are languages in the Germanic branch of the Indo-European language family, as illustrated in Figure 1.

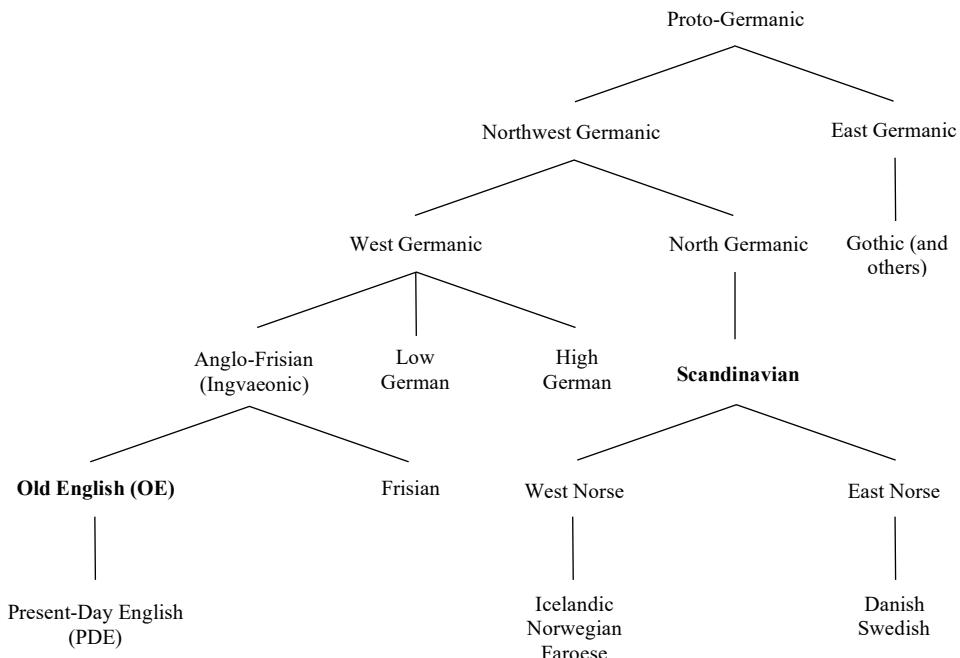


Figure 1: Stammbaum model of the Germanic language family, with the position of Old English and Scandinavian highlighted in bold. Reproduced from Fulk (2008: 147); modified using Herbert (2006: 8). Note that there may be intermediate stages not illustrated, e.g. Old English develops into Middle English and then (Early and Late) Modern English before Present-Day English.

² ‘Anglo-Scandinavian’ is used in this study to refer to the varieties of Scandinavian spoken in England during and after the Viking Age.

As such, both languages have features in common with other Indo-European languages, as well as features characteristic of Germanic languages. For example, both were subject to the Germanic Consonant Shift, fixed the primary stress of words on the first syllable, and developed a morphological system in which ‘weak’ verbs formed the past tense with a dental suffix (Nielsen 1989: 30; Bammesberger 1992: 31). Recent studies (e.g. Hogg 1992; Townend 2002; Lass 2012) postulate a ‘Northwest Germanic dialect group’ (Syrett 1994: 34) or ‘a North-West Germanic “unity”’ (Dance 2017: 204), arguing that there was no dichotomous distinction between the North and West Germanic groups at least at the start of the ‘Age of Migration’ (c.350-550 CE). The implication of this is that North and West Germanic languages, such as Scandinavian and OE, were genealogically closer to each other than to the East Germanic languages (e.g. Gothic) at the time of the migrations to Britain, though the exact unity may be debated (see Townend 2002: 20-3), and the notion of a dialect continuum, in which varieties in close geographical proximity are mutually intelligible and show structural similarities, rather than sharp dialectal boundaries, seems more plausible (Dance 2017: 204; see Chambers and Trudgill 1998: Ch. 1 for an overview of dialect continua).

The Germanic language-group originated in the region of present-day northern Germany and southern Denmark and Sweden; and the predecessors of OE and Scandinavian had originally been ‘direct neighbours and probably mutually intelligible’ (Kastovsky 1992: 329) until c.350-550 CE when the Angles, Saxons and Jutes began to migrate to the British Isles. Arndt (1959: 186-8) notes that ‘the parent dialects of Old English [...] had hardly begun to set themselves off against early Norse [...] when large sections of them were transferred to Britain’. Yet by the time the two language varieties came into contact once again at the beginning of the ‘Viking Age’ (c.700-1100 CE), OE and Scandinavian speakers ‘had been isolated from one another for approximately two hundred to two hundred and fifty years’ (Townend 2002: 41). As a result of this linguistic isolation, the two varieties had developed in slightly different ways. For example, the West Germanic languages, including OE, underwent phonological changes such as the loss of final */z/, the split of */eu/ and development of the new diphthong */iu/, and gemination of consonants (except /r/) when preceded by a short, accented vowel and followed by a liquid or nasal (Lass 2012: 28). Concurrently, the North Germanic languages underwent their own developments and Seip (1955: 22; translated in Townend 2002: 35), for example, claims that in the period 600-800 CE ‘the language in Scandinavia became [...] so greatly changed that no period in Scandinavian linguistic history can compare with it’.

Despite their respective developments, the OE and Scandinavian languages that came into contact in Viking Age Britain are often argued to have been mutually intelligible, at least to some degree (e.g. Strang 1970; Blake 1992; Kastovsky 1992; Baugh and Cable 2002; Durkin 2014). Townend (2002: 181) even posits that ‘their major divergences [were] largely congruent and predictable’, and this predictability may have aided communication between the groups of speakers even when the specifics of the languages differed. Furthermore, as a result of this mutual intelligibility, the language contact situation is often likened to two dialects in contact rather than two completely separate languages (Townend 2002: 60; Dance 2003: 99; 2017: 206). As Trudgill (1986: 1) explains, situations of dialects in contact involve language varieties ‘that are mutually intelligible at least to some degree’. The debate on how one distinguishes between different language varieties being either dialects of one language or separate languages is a complex issue that is beyond the scope of this study. Nevertheless, it seems reasonable to assume a degree of mutual intelligibility between speakers of OE and Scandinavian. This may not have been full intelligibility (as expressed by Gneuss 1993: 130), but instead ‘adequate or pragmatic intelligibility’ (Townend 2002: 183). Naturally, there will have been both synchronic and diachronic variation in the nature and degree of contact between OE and Scandinavian speakers throughout the country and throughout the Viking Age period. With this in mind, some suggest that this period is better viewed as a series of varying language contact situations (e.g. Dance 2003: 21, 2017: 205; Miller 2012: 97), which will be examined in greater detail in the following section.

2.2 Sociohistorical background

The contact between OE and Scandinavian speakers in the Viking Age may be split into three ‘phases’, following Björkman (1900-2), Baugh and Cable (2002) and Miller (2012). The first phase consists of Viking raids and attacks on British towns and monasteries which began in the late 8th century, with the Vikings first mentioned in the Anglo-Saxon Chronicle in the year 787 CE. The first Scandinavian raid on the monastery of Lindisfarne was in 793 CE, and sporadic raids followed into the early 9th century before more regular attacks began in 832 CE. Björkman (1900-2: 264) claims that it is only in the second phase (c.860-990 CE) that the Scandinavians ‘exercised any influence worth mentioning on the development of the English language’; but there are a number of loanwords first attested in the first period which are ‘closely connected with the life and institutions of the invaders’ (Björkman 1900-2: 5-6) and so may be thought of as cultural borrowings (Pons-Sanz 2012: 274-5; Durkin 2014: 47). For

example, there are about a dozen words connected with ships and seafarers (Miller 2012: 109) and another eleven terms in the semantic field of war (Peters 1981: 94; Kastovsky 1992: 333).

The second phase of contact is one of military conquest and settlement (Miller 2012: 93). Viking raiders began to over-winter in this period and began conquering land and settling in England. Significant numbers of Scandinavians arrived in 865 and 871 CE, ‘engaging in invasion and conquest rather than just raiding’ (Durkin 2014: 64); and eventually the invaders conquered the Anglo-Saxon kingdoms of Northumbria, Mercia and East Anglia. Following considerable conflict, King Alfred of Wessex and the Danish leader Guthrum signed the Treaty of Wedmore in 878 CE, in which the terms of peace included Guthrum’s adoption of Christianity and the ceding of the area to the north and east of Watling Street, an old Roman road which ran roughly from London in the south-east to Chester in the north-west, to the Danes. This area of England remained under Danish law (hence ‘Danelaw’) for almost a hundred years, while the Anglo-Saxons maintained rule of the south and west of the country. The extent of the Danelaw at the beginning of the 9th century is shown in Figure 2.

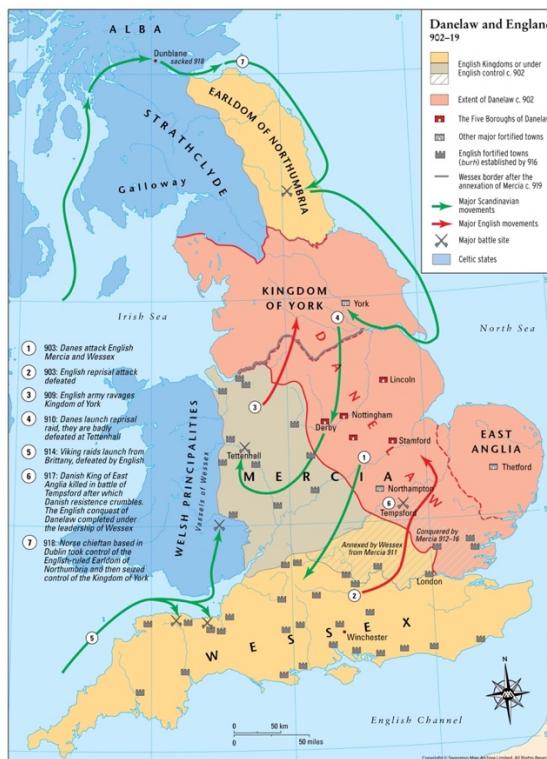


Figure 2: Map showing the extent of the Danelaw in c. 902 in red. From *The Map Archive* at <https://www.themaparchive.com>.

There is some debate over the exact area labelled as the Danelaw (see Holman 2001), but Watling Street will be taken as the (southern) border of the Danelaw for this study, following Björkman (1900-2), Miller (2012) and others.

The ‘fundamental change in character’ (Kolb 1965: 128) of the contact, from raiding and plundering the British land to settling on it, shifted the frequency and style of contact between Scandinavians and Anglo-Saxons, especially in the Danelaw where Anglo-Saxon nobility was often replaced by Danish power, and ‘Scandinavian influence was generally heaviest’ (Durkin 2014: 173). Borrowings such as *eorl* (< Scand. *jarl*) and *law* itself (< Scand. *lagu*) illustrate a change in the nature of the influence, with many more borrowings of a social, and political, nature. Additionally, the long-term shift from Scandinavian to English probably began in this period as Scandinavians in areas of denser English population assimilated to the language and culture they were surrounded by.

Miller (2012: 93) identifies the third phase as a period of political conquest from c.900-1016 CE, culminating in King Cnut ascending to the English throne in 1016 CE. This began a period of 26 years of direct Danish control under Cnut (1016-1035) and his sons Harold and Harthacnut (1035-1042). Björkman (1900-2: 271) suggests that ‘the accession of Cnut to the English throne put an end to the Scandinavian invasions’, though ‘Scandinavian settlements [...] increased during his reign, [...] in a peaceful way’, and this continued influx of waves of Scandinavian settlers continued to influence the English language, alongside the shifting of second- and third-generation Anglo-Scandinavians from Scandinavian to English. As well as more intimate borrowings, this period likely saw the diffusion of some earlier loans, such as *lagu* and *eorl*, beyond the Danelaw region (Lutz 2017).

After the death of Harthacnut in 1042, and the Norman Conquest in 1066, little is heard of Scandinavians in England; from which Björkman (1900-2: 272-3) implies that ‘the amalgamation of English and Scandinavians [...] now went on rapidly’. However, he goes on to suggest that ‘the Scandinavian settlers may have kept on speaking their original tongue [...] for a long time after the conquest’ (*ibid.*: 275). Indeed, throughout the literature, scholars have argued for varying longevity of the Scandinavian language. Certainly, though, the rate at which the Scandinavian language died out varied greatly across the country, depending largely on the proportion of speakers in an area. In regions with fewer Scandinavian settlements, or more intense contact with English speakers, it is likely that Scandinavian speakers shifted to English early on. In areas with greater proportions of Scandinavian speakers, or even closed communities of such speakers, the Scandinavian language survived for longer, and when speakers eventually shifted, their native Scandinavian had a greater influence on the local

English variety (Pons-Sanz 2012: 276). Ekwall (1930) provides evidence for the use of Scandinavian until 1066 CE in Yorkshire and Lincolnshire, and in the North-West until c.1100 CE. Arngart (1947: 77) postulates an even later date, with Scandinavian surviving ‘even into the twelfth century’ in districts of Yorkshire and in the counties of Lancashire, Cumberland and Westmorland. The patterns of regions in which Scandinavian is argued to have been spoken for longest are similar to the patterns of greatest linguistic influence suggested by Samuels (1985), thus highlighting the relationship between time-depth of Scandinavian language use and influence on local dialects. Additionally, in other areas of the British Isles, such as the Northern Isles, Scandinavian languages such as Norn may have survived even into the seventeenth (Baugh and Cable 2002: 96) or nineteenth century (Tulloch 1997: 393-4); as did Scandinavian influence from across the North Sea (*ibid.*). This later use of varieties of Scandinavian in Scotland and the Northern Isles could come to influence modern English even after Viking Age Scandinavian ceased to be spoken in England itself (Chamson 2010: 108).

2.3 Dialects in England

Following Bede’s (*Historia ecclesiastica* I.15) division of the Anglo-Saxon settlers into Angles, Saxons and Jutes; and the correspondence of these tribes with the Anglian, (West) Saxon and Kentish dialects and regions in the Anglo-Saxon Heptarchy³, the origins of English dialectal variation have often been attributed to the variation between these tribes on the continent. While the tribes certainly featured linguistic variation, the significance of this pre-settlement variation has been argued against in modern accounts (e.g. DeCamp 1958; Crowley 1986; Hogg 1992) and, instead, it is now accepted that much of Old English (OE) dialectal variation developed post-migration. The major dialect divisions in the OE period were between West Saxon, Kentish and Anglian, with the latter subdivided further into Northumbrian (north of the Humber) and Mercian (to the south of the Humber). As Toon (1992: 421) points out, however, it should not be assumed that OE dialects were limited to these varieties, but instead there was much greater variation beyond the limited language that has survived in the extant literature.

While much of the focus of OE dialect differences is phonological, Kastovsky (1992: 292) underlines that there were also differences in the vocabulary of the dialects, including basic differences such as in function words (Sauer and Waxenberger 2012: 346). After contact with Scandinavian speakers began in the 8th century, further dialectal differences developed as

³ The Heptarchy is the name given to the traditional division of Anglo-Saxon England into seven kingdoms: Wessex, Essex, Sussex, Kent, East Anglia, Mercia and Northumbria.

dialects in the North and the East of the country were influenced by Scandinavian-speaking settlers. Much of the linguistic evidence for this contact only becomes apparent in later stages of English, such as the Scandinavian-influenced third-person pronoun paradigm *they/their/them* (cp. Old Icelandic *þeir*) which is first attested in early Middle English (ME). The influence from the Scandinavian invasion and settlement has been argued as ‘the greatest single formative influence on the English dialect map’ (Samuels 1985: 280), and it contributed greatly to the further division of the Mercian dialect, which developed into distinct East Midlands and West Midlands varieties by the ME period. The East Midlands varieties, which were influenced by Scandinavian, shared more similarities with the dialects of the North, while those of the West Midlands pattern with southern dialects (van Gelderen 2006: 134).

The processes of selecting and standardising a supralocal English variety also began during the ME period (c.1150-1450 CE), continuing into Modern English. As a result of a number of factors including the increasing significance of London as a centre of trade and government, the prestige and influence of the universities of Oxford and Cambridge, the influence of Chaucer, and the development of printing in England, the varieties associated with London and the (South-)East Midlands developed as supraregional standard languages (Samuels 1963). The use of London/SE Midlands varieties in printing and the book trade, and increasingly in education, during this time devaluated other regional varieties and led to the decreased use of features of other dialects, especially Northern, in written records (Wakelin 1988: 31; Kytö et al. 2007: §4). The resulting lack of extant literature written in regional dialects restricts the present study, as the histories and textual contexts of individual words may provide important information regarding their adoption and diffusion through the language (Dance 2003: 271; Pons-Sanz 2012: 277), and would further the information available for an etymological study of dialect vocabulary significantly.

Though notably absent from the written language, ‘spoken dialect must have been the normal form of everyday communication’ even up to the nineteenth century (Görlach 1999: 28) and dialects ‘remained largely stable until the second half of the twentieth century’ (Chamson 2010: 6). It is often argued that increased urbanisation, and social and geographic mobility, from the eighteenth century onwards caused an ‘acceleration in the pace of dialect change’ (Upton and Widdowson 2006: 1) but the dialects of England have still ‘persisted through the generations’ (*ibid.*: 7) and remain an important aspect of local and regional identity, though a distinction is sometimes made between ‘traditional’ and ‘modern’ dialects (e.g. Trudgill 1990). For ease, the *English Dialect Dictionary* identifies dialects based on political

county boundaries, though in reality the dialects of England form a continuum (Trudgill 1990: 7).

2.4 Theoretical framework of language contact

Although Weinreich (1953) posits that the ‘true locus of language contact is the bilingual individual’ (Matras 2010: 66), more recent views have held that both societal and individual bilingualism can lead to contact-induced language change (e.g. Appel and Muysken 2006). Certainly, Viking Age England featured both societal bilingualism, in which largely-independent speech communities of monolingual Scandinavian speakers and monolingual English speakers lived in close proximity to one another, and individual bilingualism, as these speech communities began to intermix and intermarry.

The processes by which contact situations influence a language may be differentiated into ‘borrowing’ and ‘imposition’, following notation and terminology by van Coetsem (1988, 2000). These distinctions are made on the basis of who the ‘agent’ is in the transfer of linguistic material from a source language, Language A, to a recipient language, Language B. ‘Borrowing’ may be defined as ‘the incorporation of foreign features into a group’s native language by speakers of that language’ (Thomason and Kaufman 1988: 37); that is, native speakers of Language B adopt features from Language A into their language. This is called ‘recipient language agentivity’ as the agents in the process are native speakers of the recipient language. In contrast, ‘imposition’ is when native speakers of Language A impose features from their language onto Language B (‘source language agentivity’), often involving (imperfect) second language learning and/or a large-scale shift in the community from speaking Language A to speaking Language B. In the context of Anglo-Scandinavian England, borrowing is the process by which Scandinavian features were adopted by native English speakers, accounting for many early loans such as *barda* ‘beaked ship’ and other cultural loans and non-basic vocabulary. In contrast, imposition involved the transfer of linguistic material by native Scandinavian speakers as they adopted English when mixing with English speakers, and as the Scandinavian-speaking community shifted to English over time. This shift-based imposition is likely responsible for the transfer of ‘more fundamental components of the lexicon (basic vocabulary and function-words) and morphosyntactic features’ (Dance 2017: 207) from Scandinavian into English, as well as lexical items which clearly retain their Scandinavian phonology (Townend 2002: 204-5). It is probable that there was bidirectional borrowing and imposition between English and Anglo-Scandinavian, as indeed Kolb (1965: 141) and Thomason and Kaufman (1988: 282) postulate, but following the death of the

Scandinavian language in England, only the influence on English can be seen in the language today.

Several scales have been proposed which illustrate the frequency or ease with which different linguistic features are transferred across languages in contact situations, most notably by Thomason and Kaufman (1988). A simplified reproduction of Thomason and Kaufman's (1988) scale of language contact intensity, from Matras (2010: 77), is shown in Table 1. For reference, Thomason and Kaufman's full scale is shown in Appendix A.

Table 1: Simplified version of Thomason and Kaufman's (1988) Scale of Language Contact Intensity, from Matras (2010: 77). See Appendix A for a detailed reproduction of the scale.

 Casual contact	Category 1:	Content words
	Category 2:	Function words, minor phonological features, lexical semantic features
	Category 3:	Adpositions, derivational suffixes, phonemes
	Category 4:	Word order, distinctive features in phonology, inflectional morphology
	Category 5:	Significant typological disruption, phonetic changes
Intense contact		

Key to such scales is the notion of 'intensity': that characteristics such as increased duration of contact, frequency of interactions and levels of bilingualism lead to a more 'intense' situation of language contact, and therefore more extensive influence on the recipient language. On Thomason and Kaufman's (1988) scale, Scandinavian is often argued to have Category 3 influence on English overall (Thomason and Kaufman 1988; van Gelderen 2006), though it must be reiterated that types and intensities of contact varied both geographically throughout the country and diachronically throughout the Viking Age and following centuries (Dance 2012: 205, 2017: 2015; Miller 2012: 97). The intensity of Anglo-Scandinavian contact in the Danelaw was arguably greater than that outside of the Danelaw (Durkin 2014: 173), and so Scandinavian loanwords found in dialects of the Danelaw are more likely to be associated with higher levels on Thomason and Kaufman's (1988) intensity scale, i.e. function words (prepositions, pronouns, determiners, etc.) as well as content words.

3. Literature Review

The existing literature on the Anglo-Scandinavian contact situation largely holds that there was greater influence, including in the lexicon, in areas of denser Scandinavian settlement: the North and East of the country. Some of the key studies which have contributed to this consensus

are highlighted in §3.1. However, as Townend (2002: 9) notes, much of this consensus is based not on independent and unbiased investigations of the evidence, but instead simply echoes conclusions made by earlier writers. In recent years, several studies have re-evaluated the lexical evidence and argued for Scandinavian influence outside of the traditional Danelaw area. These studies have major implications for research into Scandinavian contact and will be discussed in §3.2.

3.1 Scandinavian influence in the Danelaw

Björkman (1900-2) both ‘pioneered the field’ of Scandinavian contact studies and ‘still remains the standard analysis of Norse loans in the later medieval period’ (Townend 2002: 10). Several scholars in the late 19th century had begun to observe the Scandinavian influence on English (e.g. Steenstrup 1876-82; Brate 1884; Wall 1898), but Björkman (1900-2) went beyond these to analyse Scandinavian loanwords in terms of the certainty of their potential Scandinavian etymology and the evidence upon which such origins can be deduced. Indeed, half of the monograph is dedicated to a review of the phonetic criteria of Scandinavian loanwords in English, stating that ‘there are no loan-word tests more reliable than the phonetic ones’ (1900-2: 193). The second half concerns itself with non-phonetic tests and ‘miscellaneous notes’; the latter including an outline of the history of Scandinavian and English contact and the dialectal provenance of loanwords which may be identified as either West Scandinavian (i.e. predominantly Norwegian) or East Scandinavian (i.e. Swedish or Danish). Stating that ‘[s]everal questions involved by [sic] the Scandinavian loanword material cannot be weighed from every point of view without a fair knowledge of the history of the Scandinavian invasion’ (*ibid.*: 263), Björkman takes an approach echoing 20th century philological values and outlines, in great detail, the historical background of the contact between Scandinavian and OE speakers. Björkman emphasises the influence Scandinavian had on English in describing an ‘amalgamation’ of OE and Scandinavian throughout the book, foreshadowing the creolisation hypothesis that would emerge over half a century later (Dominique 1977; Poussa 1982; cf. Görlach 1986; McWhorter 2002).

While Björkman (1900-2) largely does not analyse the distribution of Scandinavian loanwords across (modern) dialects, stating instead that it ‘is very difficult to draw any conclusions from the living English dialects because of the uncertainty concerning sound laws’ (1900-2: 7), he assumes the distribution of loanwords to pattern in a Danelaw/non-Danelaw fashion, thus proposing that loanwords may be identified based on localisation in the East Midland and Northern (i.e. former Danelaw) dialects (*ibid.*: 194). The only explicit dialectal

analysis Björkman undertakes is the suggested differing distribution of East Scandinavian and West Scandinavian loanwords, concluding that West Scandinavian loanwords are most frequent in Northern and Western counties, and less so in the East Midlands (*ibid.*: 288); while suggesting that there is no clear pattern of East Scandinavian loanwords, ‘render[ing] probable the presence of considerable numbers of Danes in all parts of the Scandinavian colonies’ (*ibid.*). Dance (2003: 149) criticises this, in suggesting that ‘such a geographically-delimited polarization no doubt reflects historical reality very badly’, and the validity of this claim is a topic worthy of future investigation.

While the historical existence of the Danelaw is well established throughout factual accounts of Viking contact and settlement in England, Samuels (1985), himself building on Kolb (1965), proposes a ‘Scandinavian Belt’ within the Danelaw; that is: ‘an area of Northern England which appears to show an especially strong form of [Scandinavian influence]: a belt stretching from Cumberland and Westmoreland in the west to the North and East Ridings of Yorkshire in the east, often including part of Lincolnshire but excluding the old kingdom of Bernicia in Durham and Northumberland’ (1985: 269). This Belt is shown in Figure 3 (reproduced from Samuels 1985: 270), where the double hatched area is the ‘focal area’ which has more linguistic evidence of Scandinavian influence than the remainder of the Belt.

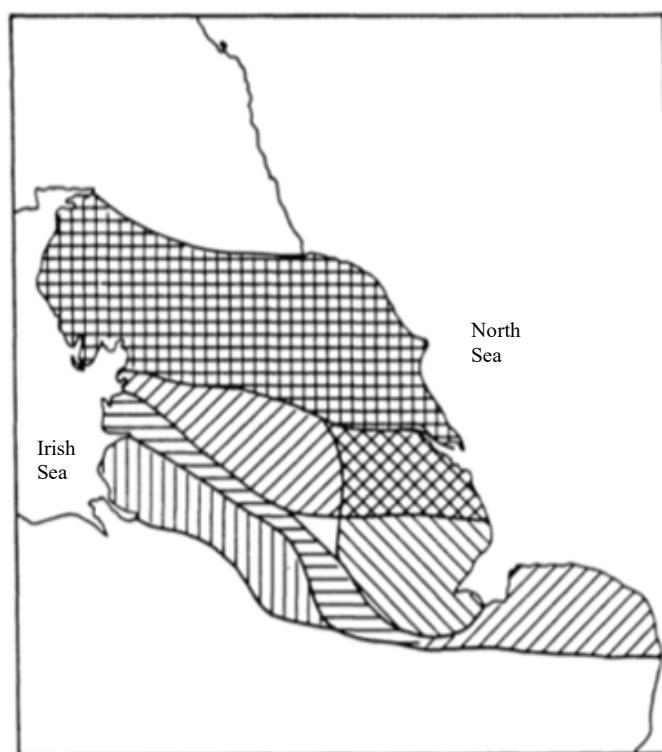


Figure 3: Illustration of the ‘Great Scandinavian Belt’; reproduced from Samuels (1985: 270). The ‘focal area’ is represented in double hatched shading.

Samuels (1985: 271-2) suggests that this deeper influence found within the Belt either results from ‘a deeper linguistic penetration’ or from a longer survival of spoken Scandinavian in this area, and concludes that ‘the greatest single formative influence on the English dialect map was the Scandinavian invasions’ (*ibid.*: 280). Samuels (1985) does suggest varying levels of Scandinavian influence within England, but only within the bounds of the Danelaw, rather than considering any influence on non-Danelaw counties.

3.2 Scandinavian influence beyond the Danelaw

Some of the more recent literature suggests that there is not such a straightforward correlation between Scandinavian loanwords and the Danelaw region as previously thought. As Dance (2003: 286) posits, ‘simplistic assumptions of geographical distribution based solely on the regions in which original contact most probably occurred [...] are once more likely to be naïve’, thus highlighting the role of dialect contact and diffusion.

Moskowich-Spiegel Fandiño (1996) appears to be the first modern quantitative analysis of Scandinavian loanwords, investigating the frequency of Scandinavian loanwords in various dialectal areas of Middle English, as well as in a ‘common core’ of vocabulary from texts that cannot be localised to one specific dialect. She found that ‘it is not in the dialectal area of the Danelaw where the largest number of Scandinavian loans can be found’ (1996: 158); but instead, the greatest frequency of Scandinavian-derived words (38.67% of her corpus) is found in the so-called ‘common core’. This finding is used to suggest a deep penetration of Scandinavian into English, as Scandinavian words do not just feature in northern and eastern varieties, but are used in standard language too. That being said, the ‘Southeast Midland’ and ‘North’ varieties have the second- and third-greatest frequencies of Scandinavian loanwords in her data, which she attributes to ‘a heavy demographic pressure [...] exerted by the Danes’ (1996: 159). While Moskowich-Spiegel Fandiño (1996) provides a good starting point for further analysis of the field, the method used in this study may contribute to misleading results by using frequencies of use of Scandinavian loanwords in a corpus of texts rather than the number of loanwords themselves. While she claims that this ‘ascertain[s] to what a degree [...] the Scandinavian lexical system penetrate[d] into the Anglo-Saxon one’ (*ibid.*: 155); a small number of loanwords being used frequently shows a very different style of influence to a large number of loanwords being used relatively infrequently.

Additionally, using frequencies of loanwords in a corpus does not take into account the differing rates of textual production across the country, and, as she states herself, the Oxford-Cambridge-London triangle produced ‘a larger number of all types of works and texts’ than

anywhere else in England in the ME period (*ibid.*: 159-60). The Scandinavian-derived vocabulary used in texts from this region had been allocated to Moskowich-Spiegel Fandiño's 'common core' which may be a contributing factor in the overwhelming frequency of Scandinavian lexemes in this group. Furthermore, the assumption that the presence of Scandinavian loanwords in the 'common core' implies a 'close relation between the Scandinavian newcomers and the native speakers of English' (*ibid.*: 160-1) ignores the fact that the London/East Midlands dialect had not yet been selected as a standard language during the period in which Scandinavian loans were borrowed. Therefore, while Moskowich-Spiegel Fandiño's process of identifying and comparing Scandinavian loanwords used in different dialect areas is a process this study aims to replicate, it will be done so in terms purely of numbers of loanwords rather than their usage in a corpus.

Dance (2003) develops one of the most in-depth accounts of localised Scandinavian loanwords in the last few decades in a comprehensive study of words of Scandinavian origin in a corpus of late-12th to early-13th century texts attributed to the South-West Midlands (SWM). As opposed to the 'panoramic' (2003: 8) nature of previous studies such as Björkman (1900-2), Dance offers a meticulous analysis of 319 lexemes with probable Scandinavian etymology. He takes care to avoid the 'dangerously circular' (2003: 11) identification of Scandinavian loanwords by localisation, and localisation by provenance of Scandinavian loanwords, which has characterised previous assessments of this contact situation, and instead proposes a 'thorough analysis of the linguistic material' (*ibid.*: 10). While noting the 'unease' with which Scandinavian loanwords in regions outside of the Danelaw have been previously observed (*ibid.*: 1), he explains the appearance of such loanwords in the SWM as resulting from dialect contact with areas closer to the Danelaw, such as the North-East Midlands (*ibid.*: 289). This suggestion is repeated in analyses of other dialect areas, such as Lutz (2017), who also proposes that the spread of Scandinavian loanwords into the London dialect stems from dialect contact during the ME period. Dance (2003: 271) emphasises that a lexical study must explore further than 'merely offering lists of totals and frequencies', as many more factors such as textual context, stylistic tones or semantic relationships influence every given use of a lexeme. However, such a detailed approach may not always be viable given time, or other, constraints; and this study acknowledges the lack of contextual information that can be provided for dialect vocabulary.

Dance (2003) reiterates the link between contact intensity and transfer of function words proposed by Thomason and Kaufman (1988), and applies this to the varying levels of intensity of Scandinavian contact and settlement that occurred throughout England. He

highlights that if Scandinavian lexemes in the SWM result from language contact within the region itself, they are likely to be of a different nature as a result of the differing intensity of contact in this region compared to the settlements within the Danelaw (2003: 289). He suggests that:

‘the extent to which the most ‘fundamental’ level of the English vocabulary (i.e. that containing ‘closed-class or ‘grammatical’ lexemes) has been penetrated by items of Scandinavian origin seems to be relatively very slight in the SWM. In the North and East, a greater variety of Norse-derived lexemes appears with such basic functions, and they appear far more frequently.’ (*ibid.*)

Bator (2007) is the main study upon which this investigation is based, as it offers a concise argument for the existence of Scandinavian loanwords in the non-Danelaw region, suggesting that ‘Scandinavian loanwords not only were also common in the non-Scandinavian parts of England but in some cases occurred exclusively in the west and south of the country’ (2007: 167) and, indeed, that there were higher frequencies of a number of Scandinavian loanwords in ME in the non-Danelaw region than in Samuels’ (1985) ‘Scandinavian Belt’ (Bator 2007: 172). While Dance (2003: 287-9) explains that Scandinavian loanwords diffused into the non-Danelaw SWM by means of dialect contact, Bator explicitly suggests instead that some words may have been borrowed into English within the non-Danelaw region (2007: 168) itself, and ‘only later [were] transferred to the Northern and East Midlands counties’ where they may be found today (*ibid.*: 172).

Bator (2007) provides an in-depth analysis of three lexemes: *graith*, *lug* and *Shere Thursday*, using the attestations of each word to track their diffusion from the non-Danelaw region of England into the eastern and northern regions. For example, she suggests that *graith* was adopted in the south-west of the country where it was first attested at the beginning of the 13th century, before spreading northwards to the West Midlands and then the East Midlands and northern counties, disappearing from its source regions as it spread (2007: 168-70). The verb *lug*, on the other hand, is first recorded in Worcestershire (SWM) and spread eastwards and southwards, with attestations as far as Hampshire and the Isle of Wight, before diffusing northward; with a very different diffusion pattern to its nominal counterpart (2007: 170-1). Furthermore, Bator suggests that *Shere Thursday* ‘never reached the Northern part of the country’ and was only attested in the Danelaw region a handful of times (2007: 171). From these examples, she concludes that ‘Scandinavian settlement was not always a decisive factor

[in the] frequency of Norse-derived loanwords in both Middle and Modern English' (*ibid.*: 172), as the occurrences of her example loanwords in ME dialects did not correlate strongly with Samuels' 'focal area'. However, she later suggests that the distribution of Scandinavian loanwords in Modern English dialects do indeed corroborate Samuels' (1985) focal area, and so this study aims to decisively investigate these contrasting claims.

In contrast with Moskowich-Spiegel Fandiño (1996), and Dance (2003)'s focus on ME texts, the present study will follow the example of Bator (2007) in concentrating on Scandinavian influence on modern dialectal vocabulary, and will do so both in comparison to Samuels' (1985) Scandinavian Belt and to the wider Danelaw region.

The digitalisation of Wright's *English Dialect Dictionary*, which will be outlined in §4.1, provides an excellent opportunity for a review of the distribution of Scandinavian loanwords in regional dialects. As Wakelin highlighted over four decades ago, the Scandinavian element in English dialects 'urgently demand[s] attention' (1977: 178), and while the scholars outlined in this section have made great headway in resolving this paucity, an overview of the national distribution remains unfulfilled. Thus, the present study aims to provide a starting point for further investigation into the Scandinavian element in non-Danelaw regions, especially those beyond border areas such as the West Midlands. As will be outlined in §5, numerous Scandinavian loanwords are attested in counties which are not even in close geographical proximity to areas of dense Scandinavian settlement.

4. Methodology

In order to investigate the prevalence and patterns of Scandinavian loanwords across modern English dialects, and establish the extent of Scandinavian influence beyond the Danelaw, the digitalised *English Dialect Dictionary* (the *EDD Online 3.0*) is used to collect dialectal vocabulary of Scandinavian origin. A brief outline of the *English Dialect Dictionary* (EDD) and reasoning for its use in this study will be laid out in §4.1, followed by a summary in §4.2 of how words, such as those found in the EDD, are established as having Scandinavian origins. Then, the extent of the Danelaw according to modern political and administrative county boundaries will be recapped in §4.3 and the process by which data was collected and presented will be outlined in §4.4.

4.1 The English Dialect Dictionary

Wright's *English Dialect Dictionary* (1898-1905) covers six volumes and over 64,000 entries of dialectal vocabulary collected at the turn of the 20th century from across the British Isles and

colonial Englishes. Wright set out to compile ‘the complete vocabulary of all English dialect words still in use, or known to have been in use during the last two hundred years’ (Vol 1.: v) and, as a result, the EDD is an invaluable resource for investigating dialect vocabulary in the Late Modern English period (1700 to 1900 CE). In the Preface to the EDD, Wright highlights such possibilities of the Dictionary, suggesting that ‘[f]rom the words contained in this volume, it would be easy to give a sketch-map showing clearly those districts in which the Norse element is particularly strong.’ (Vol. 1: vi).

Entries in the EDD cover a wide range of information about the lemma in question, with the most relevant for this study being its geographical distribution and etymology. Although the dictionary ‘was not conceived as an etymological dictionary, [...] Wright considered [etymology] an important part’ (Chamson 2012: 227) and etymological information is often included at the end of entries, following geographical area, citation source and pronunciation. However, this etymological information largely only references lexemes in other languages without elaboration as to how they are related to the lemma. For example, the EDD entry for *hade* is reproduced in Figure 4.

HADE, *sb.¹* *Rut.* *Lei.* *Nhp.* *War.* *Wor.* *Oxf.* Also in forms *aid* *Wor.*; *haid* *Lei.¹* [*ed.*] A ‘headland’ or strip of land at the side of an arable field upon which the plough turns.
Rut.¹ A term in field mensuration. ‘6 rodes with hades at both ends. 2 Landes 4 ro. with hades,’ *Terrier* (1635). *Lei.¹* *Nhp.¹* A small piece of greensward or grass at the head or end of arable land. A word that has gradually fallen into disuse, since the inclosure of open fields. *War.* The word occurs in the Holbech Estate Book (1770). It is still in common use (A.L.M.). *Wor.* (E.S.) *Oxf. Obs.* The description of certeine arable landes some of them hvinge hades of meadow and grasse grounde lieinge in the Southe fielde of Einsham, *Map* (in Corpus Christi Coll. Oxon, 1615).
Hence *Hade-ley*, a ‘headland.’
War. Item one other section of land called a *hade ley*, *Terrier* of *Fenny Compton Glebe* (1587); (A.L.M.) *Lei.¹* The upper ‘land’ in a grass field, the lower one being called the ‘foot-ley.’ Both as a rule run at right angles to the rest of the ‘lands’ in a field. In the New Close a *hadley* and *footeley* butting north and south, the Town Hill furlong west, the Constable’s piece east, *Terrier of Claybrook Glebe* (1638).
[Horses may be teddered vpon leys, balkes, or hades, *FITZHERBERT Husb.* (1534) 15. Norw. dial. *hadd* (pl. *haddir*), a slope, an incline, rising ground, esp. on the side of a hayfield (*AASEN*, s.v. *Hall*); ON. *hallr*, a slope, hill, cp. *halla*, to slope (*VIGFUSSON*); OHG. *haldēn*, ‘inclinare’ (*GRAFF*).]

Figure 4: The entry for *hade* in the original EDD (Vol. III: 10).

The labelling of English counties to illustrate the geographical distribution of *hade* is straightforward, but the etymological comment lacks explanatory detail. The Norwegian dialect term *hadd* is mentioned, as is the Old Norse⁴ *hallr* and Old High German (OHG) *haldēn*,

⁴ It is unclear whether Wright uses the label ‘Old Norse’ in the sense of ‘Scandinavian’, as used in this study; or to mean Old Icelandic.

but there is no clear explanation of the relationship between these words and the English *hade*. While such reference to modern Norwegian and historical Old Norse terms suggests a likely Scandinavian origin for *hade*, and therefore provides enough information for a general enquiry, there is insufficient information in the EDD alone to explain an exact etymology for *hade*. It is unclear whether both *hade* and *hadd* are direct descendants of the Old Norse *hallr*, or perhaps *hade* was borrowed from a German descendant of OHG *haldēn* and the Old Norse and Norwegian lexemes are more distant North Germanic cognates. The EDD comments are sufficient to begin an etymological investigation, and reflect likely historical origins of lemmata, but as Chamson (2010: 118) highlights, ‘it is thus incumbent upon the reader to interpret Wright’s etymological ‘nuggets’’, and so for a more detailed study of individual words, other sources such as the *Oxford English Dictionary* must be consulted.

The *English Dialect Dictionary* has been worked on extensively in recent years by academics at the University of Innsbruck, most notably under Manfred Markus. A free digitalised version of the *EDD* has been developed (at <http://eddonline-proj.uibk.ac.at/edd/>) which facilitates the use of the dictionary as a corpus, as each entry has been digitalised, and each lemma tagged for various parameters such as dialect area, part of speech, morphology, etymology, and usage. This allows users to search either for a specific lemma or for lemmata belonging to a variety of categories. The digitalised entry for *hade* is shown in Figure 5.

HADE, *sb.1* *Rut. Lei. Nhp. War. Wor. Oxf.* Also in forms *aid* *Wor.*; *haid* *Lei.1* [ed.] A ‘headland’ or strip of land at the side of an arable field upon which the plough turns.
Rut.1 A term in field mensuration. ‘6 rodes with hades at both ends. 2 Landes 4 ro. with hades,’ *Terrier* (1635). **Lei.1** **Nhp.1** A small piece of greensward or grass at the head or end of arable land. A word that has gradually fallen into disuse, since the inclosure of open fields. **War.** The word occurs in the Holbech Estate Book (1770). It is still in common use (A.L.M.). **Wor.** (E.S.) **Oxf.** *Obs.* The description of certeine arable landes some of them havinge hades of meadow and grasse grounde lieinge in the Southe fielde of Einsham, *Map* (in *Corpus Christi Coll. Oxon.*, 1615). Hence **Hade-ley**, a ‘headland.’
War. Item one other section of land called a *hade ley*, *Terrier of Fenny Compton Glebe* (1587); (A.L.M.) **Lei.1** The upper ‘land’ in a grass field, the lower one being called the ‘foot-ley.’ Both as a rule run at right angles to the rest of the ‘lands’ in a field. In the New Close a *hadley* and *footeley* butting north and south, the Town Hill furlong west, the Constable’s piece east, *Terrier of Claybrook Glebe* (1638). [Horses may be teddered vpon leys, balkes, or hades, *FITZHERBERT Husb.* (1534) 15. Norw. dial. *hadd* (pl. *haddir*), a slope, an incline, rising ground, esp. on the side of a hayfield (*AASEN*, s.v. *Hall*); ON. *hallr*, a slope, hill, cp. *halla*, to slope (*VIGFUSSON*); OHG. *haldēn*, ‘inclinare’ (*GRAFF*).]

Figure 5: The entry for *hade* in the digitalised *EDD Online 3.0* (<http://eddonline-proj.uibk.ac.at/edd/>).

In terms of tagging EDD entries for their etymology, any mention of another language in an entry renders it searchable under that language tag. This means that a search for lemmata with Norwegian etymology includes results such as *hade* which are not strictly borrowings from the modern language commonly referred to as ‘Norwegian’ (*Nynorsk*). Although there are limitations both to Wright’s EDD and to the *EDD Online 3.0*, there is significant potential for an investigation into the etymology of regional vocabulary and the digitalisation of the Dictionary has considerably increased its value as a research tool.

4.2 Establishing Scandinavian etymology

Due to the shared philological background of Scandinavian and OE (outlined in §2.1), it is often difficult to discern whether a given lexeme is a borrowing from Scandinavian or simply a native OE word, which additionally may show influence or reinforcement from Scandinavian. Moreover, the ‘patchiness of the record of both languages’ both before and during the Viking Age further complicates any clear identification (Dance 2017: 207-8). Despite major developments in the field since Björkman (1900-2) first identified the issues of establishing the origins of Scandinavian loanwords, the area is still subject to numerous debates.

That being said, there are some established criteria by which Scandinavian loanwords may be identified. The most reliable of these is ‘phonological or (definitive) morphological evidence’ (Pons-Sanz 2012: 27), though Pons-Sanz (*ibid.*: 26-7) also draws attention to factors such as textual attestation and cultural evidence. Dance (2011, 2012) posits five criteria which may indicate potential Scandinavian etymology: localisation primarily in the North or the East Midlands (i.e. Samuel’s [1985] Scandinavian Belt), the Scandinavian etymon belonging to a different derivational class to the nearest OE word, the existence of an English cognate, and reference to a Scandinavian ‘cultural artefact’ (Dance 2011: 92). However, as stated in §3.2, the localisation of words to the Danelaw can be ‘dangerously circular’ (Dance 2003: 11). Similarly, identifying a Scandinavian loanword on the basis of the existence of an English cognate may not hold in all cases as many OE lexemes have not survived in the extant literature. Arguably, ‘the most important tool’ in identifying Scandinavian borrowings is ‘consistency in personal point of view and application’ (Dance 2003: 71).

The establishing of lemmata in the EDD (and thus this study) as Scandinavian in origin does not strictly follow the criteria set out by Dance (2011), but instead lexemes are considered Scandinavian-derived or -influenced if they are comparable to a known cognate in either a historical or modern North Germanic language. The EDD often does not explicitly comment upon the origins of the dialect words it presents, and so etymological origins must be inferred

from any cognates mentioned in the entry. However, in the making of the EDD, Wright took a rigorous scientific approach, ‘prefer[ring] to give nothing rather than a mere guess’ (Vol I.: vi), and so it may be assumed that any reference to cognates or etymons of a lemma has involved a careful search and confidence in the validity. This ‘dogmatic’ approach (Liberman 2009: 270) taken by 19th century lexicographers illustrates Dance’s critical ‘consistency in personal point of view and application’ (2003: 71). Indeed, Chamson (2012: 238) summarises that the EDD’s etymological information was ‘carefully researched and cautiously included’. As there is not sufficient time to compare etymologies of all the lemmata in the dataset with resources such as the OED, the etymologies as suggested by Wright’s EDD are assumed to be consistent and correct, though as a result, this study inherits any errors present in the EDD.

4.3 Danelaw and non-Danelaw counties

As detailed in §2.2, there were numerous encampments of Danish armies and settlements of Danish migrants in England from the 9th century onwards, especially in the ‘Danelaw’ region – so-called because the area was subject to Danish law rather than Anglo-Saxon law. The boundary of the Danelaw ran approximately from London to Chester, and the extent of the Danelaw in modern counties is shown in Figure 6⁵.

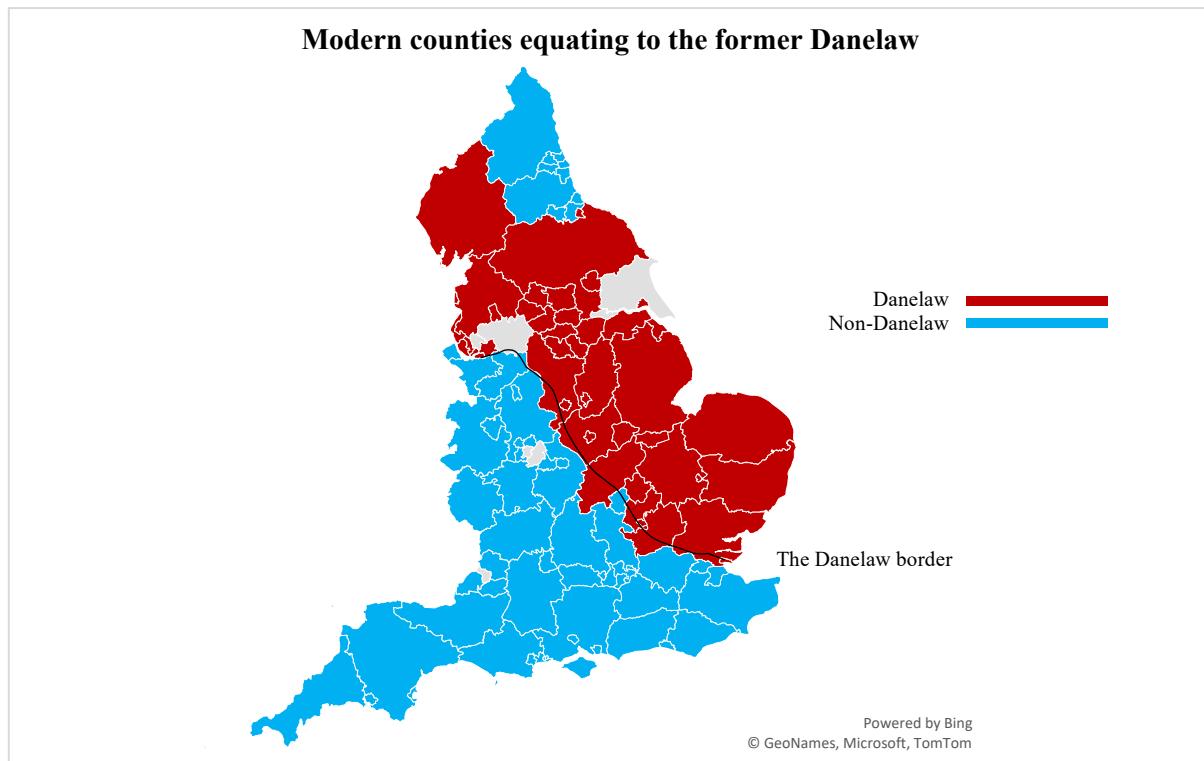


Figure 6: Map showing the modern counties which cover the former Danelaw region (in red) and those outside of the Danelaw (in blue).

⁵ The map presentation issues outlined in §4.4 also apply to Figure 6.

In its recent history, England has undergone numerous local government structure reforms, resulting in a number of changing county boundary lines and the creation of new county boroughs, metropolitan counties and unitary authorities. The counties used as geographical tags in the EDD are reflective of the local government structure of the late 19th century and the historic English counties. The correspondence between the counties used in the EDD and the modern counties used in the presentation of data in this study is outlined in Appendix B. In this study's analysis, the historic counties used by Wright in the EDD are used, with the exception of Cumberland and Westmorland which are analysed as the combined region Cumbria, and London and Middlesex which are analysed jointly as London.

4.4 Method of data collection and presentation

Data from the EDD was selected on the basis of localisation in at least one English county and at least one tag for either a historical or modern North Germanic language in the lemma's etymology, on the assumption that the majority of foreign lexemes mentioned in etymological commentary reference immediate etymons and/or close cognates, thus indicating a probable Scandinavian origin.

Of the historic counties used by Wright, all of the mainland English counties were included in this study, as well as the Isle of Man and the Isle of Wight. These are included due to their geographical proximity to Great Britain, as well as the findings of a preliminary search which indicated several Scandinavian loanwords attributed to the islands. The Channel Islands of Guernsey and Jersey, on the other hand, were excluded, as a search of the EDD found only one lemma with potential Scandinavian etymology (*tod*) attributed to either of the islands.

Data was thus collected from the *EDD Online 3.0* using the search protocol shown in Figure 7. The asterisk indicates selection of any potential string, and the Boolean operators OR and AND select for all lemmata which are attested in at least one of these English counties and which have at least one Scandinavian language tag.

* IN (headword) FOR (Bedfordshire OR Berkshire OR Buckinghamshire OR Cambridgeshire OR Cheshire OR Cornwall OR Cumberland OR Derbyshire OR Devonshire OR Dorsetshire OR Durham OR Essex OR Gloucestershire OR Hampshire OR Herefordshire OR Hertfordshire OR Huntingdonshire OR Isle of Man OR Isle of Wight OR Kent OR Lancashire OR Leicestershire OR Lincolnshire OR London OR Middlesex OR Norfolk OR Northamptonshire OR Northumberland OR Nottinghamshire OR Oxfordshire OR Rutlandshire OR Shropshire OR Somerset OR Staffordshire OR Suffolk OR Surrey OR Sussex OR Warwickshire OR Westmoreland OR Wiltshire OR Worcestershire OR Yorkshire) AND (Danish OR Middle Swedish OR Norse OR Norwegian OR Old Norse (Old Icelandic) OR Old Swedish OR Scandinavian OR Swedish)

Figure 7: Screenshot of search protocol used to collect the total 959 lemmata (taken from: <https://eddonline-proj.uibk.ac.at/edd>).

As well as excluding data from the Channel Islands, some individual lemmata were also excluded. The EDD often lemmatises single phonemes in order to give phonological information (Markus 2012a: 219), and one such lemma which appeared in the results for Scandinavian lexemes was that of *E*, an extract of which is shown in Figure 8. *E* is not a lexeme in the English language, and so despite its inclusion as a lemma in the EDD and its appearance in the search results (due to a phonological comparison with Swedish flagging up this language tag), it was excluded from the data.

E. In the modern dialects there is no longer any distinction between OE. *e* (Germanic *e*) and OE. *ɛ* (arising from i-umlaut).

I. Apart from the influence of neighbouring sounds, the normal development of OE. *e*, *ɛ* in closed syllables is:—

1. *e* (a mid front wide vowel like the *e* in standard Eng. *men*) in Or.I., Arg., Cai. (also *æ*), mn. Lowland Sc. (also *æ*), Kcb. (also *æ*), s.Lowland Sc., Nhb. (see 2), Cum. (see 2), Wm., Yks. (see 2), se.Lan., nw.Der., Glo. (see 2), Brks., Bck. (also *æ*), Hrt. (see 2), Cmb., I.W., w.Dor.
2. *æ* (a low front narrow vowel in quality like the *ə* in Swedish *låra*, see ELLIS *E. E. Pr.* V. 80*, 711) in Sh.I., em., wm., and sm.Lowland Sc., s.Nhb., Dur., parts of Cum., w.Yks. (Doncaster, Huddersfield, Keighley), Lan. (see 1), I.Ma., Chs., Flt., Dnb., Stf., Der. (see 1), Not., Lin., Rut., Lei., Nhp., War., Wor., Shr., Hrf. (also *æ*), parts of Glo., Oxf., Bdf., parts of Hrt., Hnt., Nrf., Suf., Ess., Ken., Sur., Sus., Wil., e.Dor., Som., Dev., Cor.

II. The normal development of OE. *e*, *ɛ* in originally open syllables is:—

1. Long *i* in Kcd. (also *ei*), Frf., Arg., em., wm., sm., and s.Lowland Sc., Nhb. (also *iə*), Dur., Cum. (also *iə*), w. and s.Chs. (also *ē*), Stf. (see 2, 4), Not., Lei. (also *ē*, *iə*), War., Hrf., Hnt. (also *iə*), nw.Nrf., n. and e.Ken., e.Sus. (also *ē*),

Figure 8: Extract from the entry for *E* in the original EDD (Vol. II: 223).

This led to a total sample size of 959 lemmata,⁶ shown in Table 2.

Table 2: Table showing the total number of lemmata collected from the *EDD Online 3.0*, and the number of lemmata tagged for each language.

Language	Tagged lemmata
Scandinavian	3
Old Norse (Old Icelandic)	575
Norse	40
Norwegian	310
Danish	174
Swedish	114
Middle Swedish	4
Old Swedish	2
Total Scandinavian-influenced or -derived lemmata:	959

⁶ Note that, as in *hade* (§4.1) some entries' etymological comments make reference to more than one Scandinavian language. This means that the total number of tags exceeds the total number of lemmata.

Using Microsoft Excel, the distribution of these lexemes was plotted onto a choropleth map of the English counties which is filled using a proportionate 3-point colour scale. Microsoft Excel uses the web mapping service provided by Bing Maps to locate geographic data, which is largely very accurate, but some regions were misrepresented or entirely excluded from the map. The regions which are misrepresented, excluded or shown in grey on Excel are detailed in Table 3.

Table 3: Table showing the modern counties and metropolitan boroughs misrepresented or excluded from Microsoft Excel/Bing Maps.

County	Issue
Isle of Man	Excluded from the map area by Microsoft Excel/Bing Maps.
St Helens	Appears in grey on the map area; data could not be plotted due to an issue in Microsoft Excel/Bing Maps.
The Wirral	Name ‘Merseyside’ is mapped onto the physical locality of The Wirral.
East Riding of Yorkshire	Appears in grey on the map area; data could not be plotted due to an issue in Microsoft Excel/Bing Maps.
Kingston upon Hull	Name ‘East Riding of Yorkshire’ is mapped onto the physical locality of Kingston upon Hull.
Manchester	Appears in grey on the map area; covers two or more historic counties (Lancashire and Cheshire).
Sandwell	Appears in grey on the map area; covers two or more historic counties (Staffordshire and Worcestershire).
West Midlands	Appears in grey on the map area; covers two or more historic counties (Staffordshire, Worcestershire, Warwickshire).
Bristol	Appears in grey on the map area; covers two or more historic counties (Gloucestershire and Somerset). Bristol was a county in and of itself at the time of writing of the EDD, but it was not used as a geographical tag.

5. Data Presentation and Analysis

The overall pattern of Scandinavian loanwords in Late Modern English dialects will be explored in §5.1, including whether there is evidence of Scandinavian influence outside the Danelaw region, as suggested by recent scholars (e.g. Bator 2007). The patterns shown both within the former Danelaw region and outside of the Danelaw will be evaluated in greater detail in §5.2 and §5.3 respectively.

5.1 Overall patterns of Scandinavian lexemes

Figure 9 shows the frequency of Scandinavian-influenced or -derived (henceforth ‘Scandinavian’) lexemes across the modern English counties, based on the number of lemmata in the EDD with a Scandinavian language tag recorded for each county.

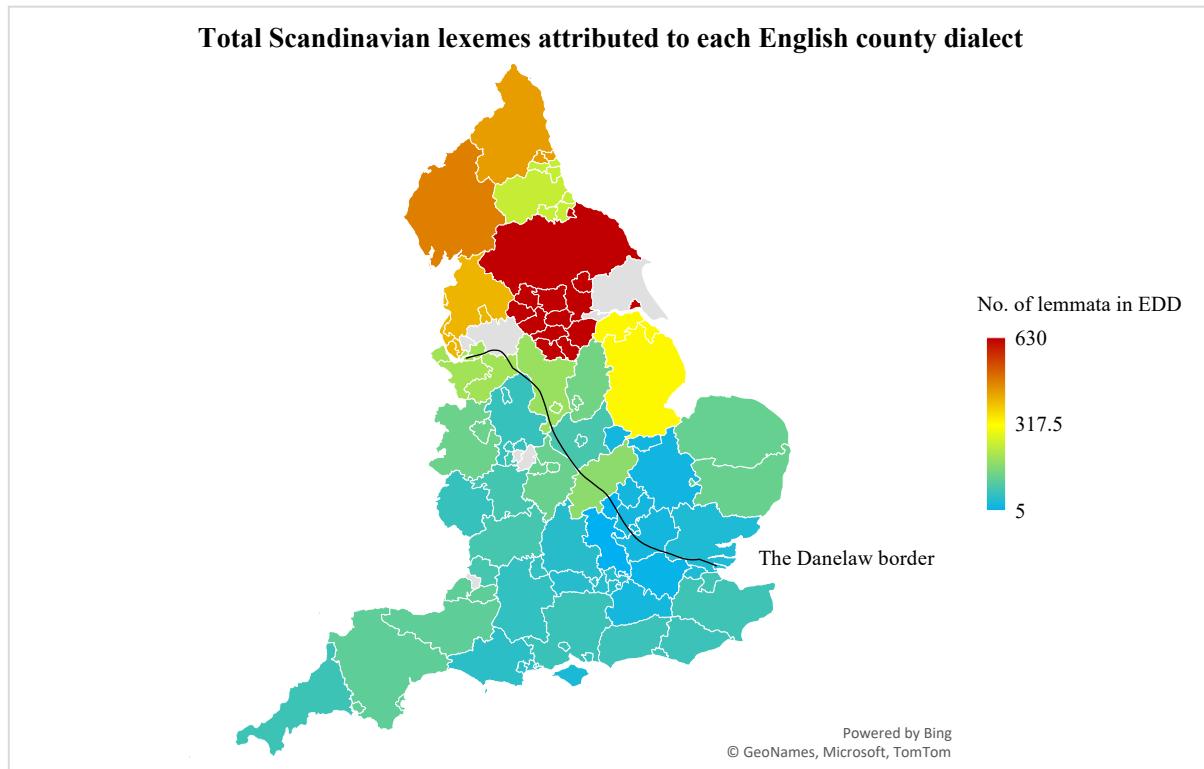


Figure 9: Map showing the frequencies of Scandinavian-influenced or -derived lexemes attributed to each county; as number of EDD lemmata featuring a geographical tag of the county.

A Pearson’s Chi-Squared Statistical Test (shown in Appendix C) was carried out on the number of Scandinavian loanwords attributed to each county. It was found that the observed and expected values from the Chi-Squared Test differed significantly ($\chi^2 = 5824.90$, *d.f.* = 39, $p < 0.001$), suggesting that there is great variability between counties in the number of localised Scandinavian loanwords, and that this distribution is not a result of random chance.

While all English counties show at least some localised Scandinavian loanwords, thus supporting Bator’s (2007: 167) suggestion that Scandinavian loanwords are common in the non-Scandinavian (i.e. non-Danelaw) parts of the country; there is a general pattern that counties in the former Danelaw, especially in the North, are associated with higher frequencies of Scandinavian lexemes, while fewer lexemes are associated with non-Danelaw, and more southerly, counties, especially in London and the South-East. Indeed, the four counties with the

greatest number of Scandinavian lexemes, as shown in Table 4, are in the north of the country⁷, and Yorkshire clearly shows the greatest Scandinavian lexical influence, with 65.69% of the total Scandinavian loanwords recorded in the dictionary attributed to the county. This is just over 16% higher than the county with the next-highest frequency, Cumbria (at 49.43%). With Yorkshire, Cumbria, and Lincolnshire in the top five, the results shown in Table 4 corroborate Miller's (2012: 99) claim that '[i]n various parts of the old Danelaw, especially the FOCAL AREA in Samuels (1985), i.e. Cumberland, Westmoreland, Yorkshire, and part of Lincolnshire, more Nordic loans survive than in English as a whole'.

Table 4: Table showing the five counties with the greatest number of attributed lexemes of Scandinavian origin.

	County	No. of lemmata	% of total (959) lemmata
1.	Yorkshire	630	65.69
2.	Cumbria	474	49.43
3.	Northumberland	439	45.78
4.	Lancashire	408	42.54
5.	Lincolnshire	326	34.00

Beyond the general trend that the further north a county is, the greater the number of Scandinavian lexemes, there does not appear to be much of a correlation with the Danelaw border which ran along Watling Street. There is no hard-and-fast line showing Scandinavian loanwords on one side of the border and none on the other, but, instead, frequencies of Scandinavian lexemes vary throughout the country. This corroborates Dance (2017: 214) who states that in Middle English, too, 'the difference between the Norse-derived words recorded in northern/eastern as opposed to southern/western dialects is one of more versus less, not an absolute matter of presence versus absence'.

Although the high frequencies attributed to Yorkshire and Lincolnshire create the impression of more intense Scandinavian influence in the east of the country, there are other counties in the east (i.e. former Danelaw) which have fewer Scandinavian lexemes than those in the west (i.e. non-Danelaw). The five counties with the least Scandinavian loanwords attributed to them are shown in Table 5. Cambridgeshire lies to the east of Watling Street, for example, yet has the third-lowest frequency of Scandinavian lexemes – substantially fewer

⁷ There are contending definitions of what makes the 'North' of England; for an overview see Montgomery (2015). Some (e.g. Wells 1982; Trudgill 1990) draw the boundary at The Wash, thereby including some or all of Lincolnshire in the North, which would make all of the five counties with the most Scandinavian loanwords northern. More generally, though, Lincolnshire is considered as part of the East Midlands in a tripartite North-Midlands-South distinction.

than many non-Danelaw counties, including Devon, which, at its closest point, is over 120 miles from Watling Street and the Danelaw. Three of the counties with the fewest Scandinavian lexemes (Cambridgeshire, Rutland and Hertfordshire) are within the former Danelaw area and even the remaining two counties are on, or very close to, the border. This is somewhat surprising, as it would be expected that counties further away from the Danelaw in Euclidean distance, such as Cornwall, Devon and Dorset, have fewest Scandinavian lexemes; with the geographical proximity of counties such as London and Buckinghamshire to Scandinavian settlements surely facilitating the diffusion of lexemes to these counties.

Table 5: Table showing the five counties with the fewest number of attributed lexemes of Scandinavian origin.

	County	No. of lemmata	% of total (959) lemmata
1.	Buckinghamshire	5	0.01
2.	London	15	1.56
3.	Cambridgeshire	26	2.71
4.	Rutland	28	2.92
5.	Hertfordshire	29	3.02

Instead, it is the South-East region of England, including London and some of the Home Counties, that shows the fewest attributed Scandinavian lexemes. This is a similar finding to Moskowich-Spiegel Fandiño (1996), in which the ‘dialects showing less loans [...] are the ones covering the South and South East’ (*ibid.*: 159). However, Moskowich-Spiegel Fandiño labels the dialect spoken within the Oxford-Cambridge-London triangle as the ‘common core’ (separate from South/South East dialects) and finds that this ‘common core’ variety shows the greatest number of loans (*ibid.*: 158-60); a finding not replicated in this study. One potential reason for the apparent paucity of Scandinavian loanwords in south-eastern dialects in this data is the standardisation of English, in which the dialects of London and the (South-)East Midlands played an influential role in the formation of Standard English. Between late ME, the period studied in Moskowich-Spiegel Fandiño (1996), and Late Modern English (LMdE), the period in which the EDD was compiled, London ‘emerges as the centre of activity’ and had become the ‘capital of the book trade’ (Nevalainen 2000: 335-6). As a result of the growing cultural and economic prominence of the city, the linguistic variety associated with London and the South-East Midlands underwent supralocalisation and became the model upon which the emerging standard language was based. Thus, Scandinavian loanwords which were used in the South-East region are likely to have been incorporated into Standard English and were subsequently not identified as dialectal vocabulary in the making of the EDD. Lutz (2017: 348)

underlines this notion, in stating that the Scandinavian-derived words which ‘managed to infiltrate late medieval London English [...] became part of the very basic lexis of modern Standard English’. Thorson (1936: 6; in Durkin 2014: 212) gives an alternative view, in suggesting that the paucity of Scandinavian loanwords in this region is a result of the loanwords’ ‘difficulty in surviving’ in competition with the rising literary language. While Standard English may have largely been based on the language of London and the South-East, it may have also had more prestige in this region and therefore suppressed local dialect features.

Instead of a Danelaw/non-Danelaw patterning of Scandinavian lexemes, the LModE dialects show Scandinavian influence in terms of Samuels’ (1985) focal area, which will be discussed further in §5.2.

5.2 Geographical distribution in the former Danelaw

Within the Danelaw, there is significant variability between frequencies of Scandinavian loanwords, and the distribution of loanwords largely patterns Samuels’ (1985) ‘focal area’ (double hatched shading), with Figure 10 showing the highest frequencies of Scandinavian lexemes in Yorkshire and Cumbria⁸.

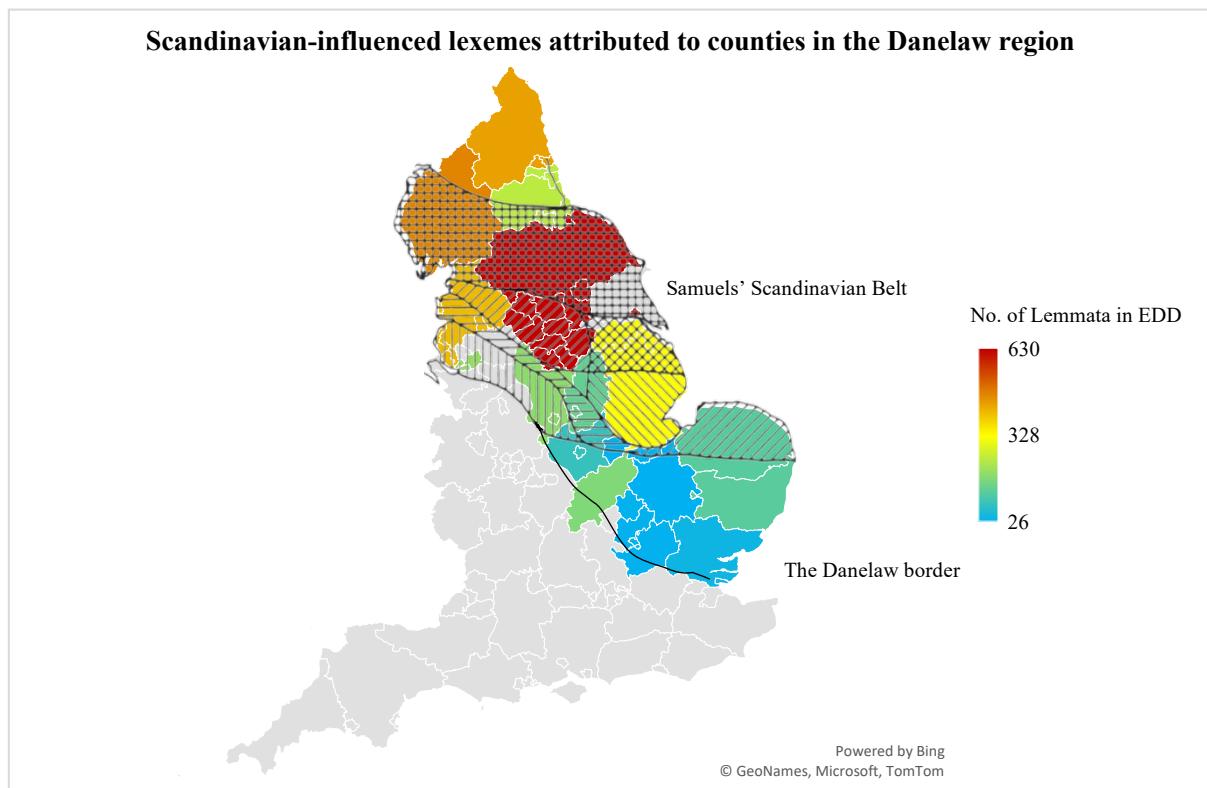


Figure 10: Map showing the frequencies of Scandinavian-influenced or -derived lemmata attributed to each Danelaw county with Samuels’ Scandinavian Belt overlaid (the ‘focal area’ is shown in double hatched shading).

⁸ A copy of this map without the overlay of Samuels’ (1985) Scandinavian Belt may be found in Appendix D.

Beyond the focal area, the notion of the Scandinavian Belt is supported by a relatively high frequency of Scandinavian lexemes in Lancashire and low frequencies in South-East England, but the latter may be a result of the influence of Standard English (as discussed in §5.1) rather than as the region is outside the Belt. Additionally, Northumberland, which was beyond the Belt (and arguably beyond the Danelaw) shows a higher frequency of loanwords than several East Midlands counties within the Belt. Instead of patterning to the Scandinavian Belt, there is a general North-South pattern, with Danelaw counties north of the Humber showing greater frequencies of Scandinavian lexemes than most of those in the Midlands and the South. This supports Samuels (1985: 271) argument that settlements north of the Humber were ‘of a kind that was denser, and brought about a deeper linguistic penetration’ than other Scandinavian settlements in the rest of the Danelaw.

An example loanword which shows evidence of this deeper linguistic penetration is the use of the preposition *at* as an infinitive marker (e.g. ‘Aw wad leyke *at* gan to Carel’ [I would like *at* go to Carel], ascribed to Cumberland in EDD Vol. 1: 85), which Dance (2003: 290) suggests is ‘scarcely to be found beyond the area of the ‘[Scandinavian] Belt’. This is supported by the EDD data as this sense of *at* is only attributed to four counties: Cumberland, Westmorland, Yorkshire and Lincolnshire (shown in Figure 11), despite the preposition being attributed to twenty-one counties overall (see Appendix E).

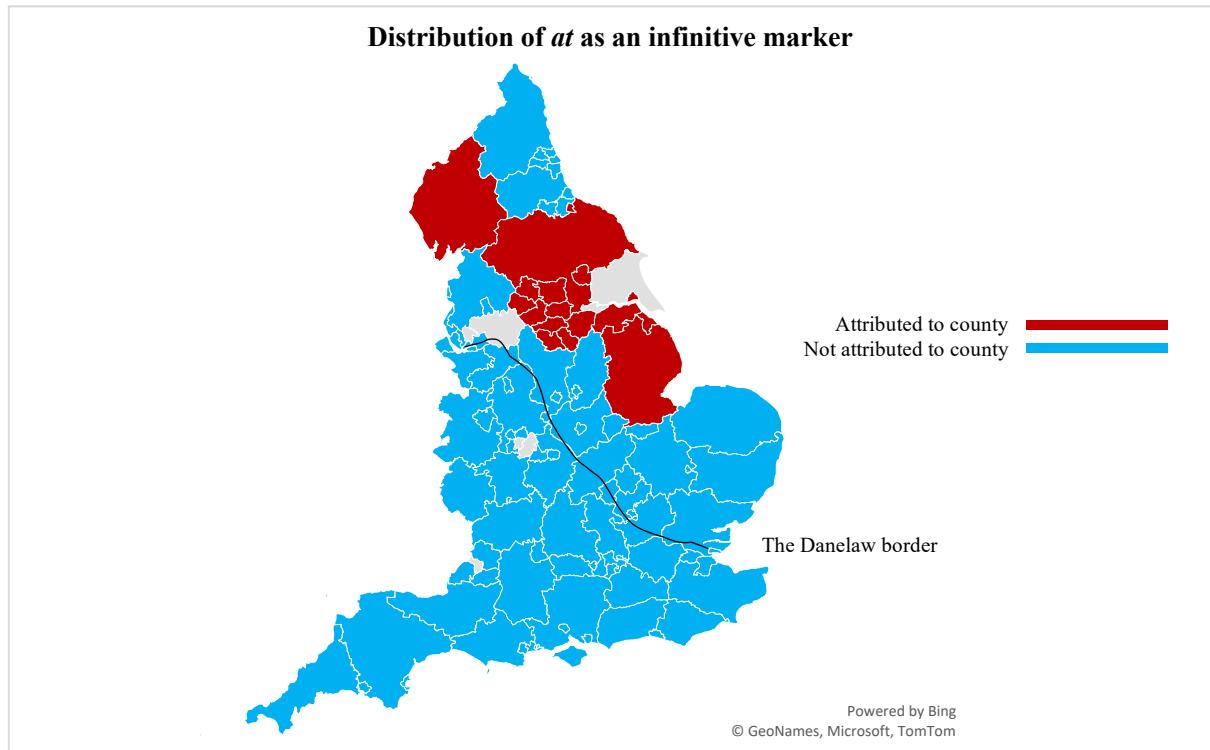


Figure 11: Map showing the distribution of *at* as an infinitive marker (in red).

This example corroborates the greater intensity of Scandinavian language contact which occurred within the counties of Samuels' (1985) focal area, as scales such as Thomason and Kaufman (1988) suggest function words are transferred in situations of greater contact intensity and are largely transferred through imposition (see §2.4). Table 6 shows the breakdown of Part of Speech categories attributed to the Danelaw and non-Danelaw counties, and those only attributed to non-Danelaw counties. The higher numbers of function words attributed to the Danelaw reflects the more intense contact situations which took place in the region.

Table 6: Table showing the frequencies of loanwords in each Part of Speech category for the Danelaw and non-Danelaw regions.

Part of Speech category	Danelaw	Non-Danelaw	Only non-Danelaw
Nouns	690	385	23
Verbs	458	260	11
Adjectives	124	59	3
Adverbs	31	22	0
Prepositions	5	5	0
Interjections	4	2	0
Conjunctions	3	1	0
Pronouns	2	1	0
Total	1,317	735	37

The number of Scandinavian loanwords attributed to each of the modern counties which cover the historic Five Boroughs of the Danelaw are shown in Figures 12 and 13.

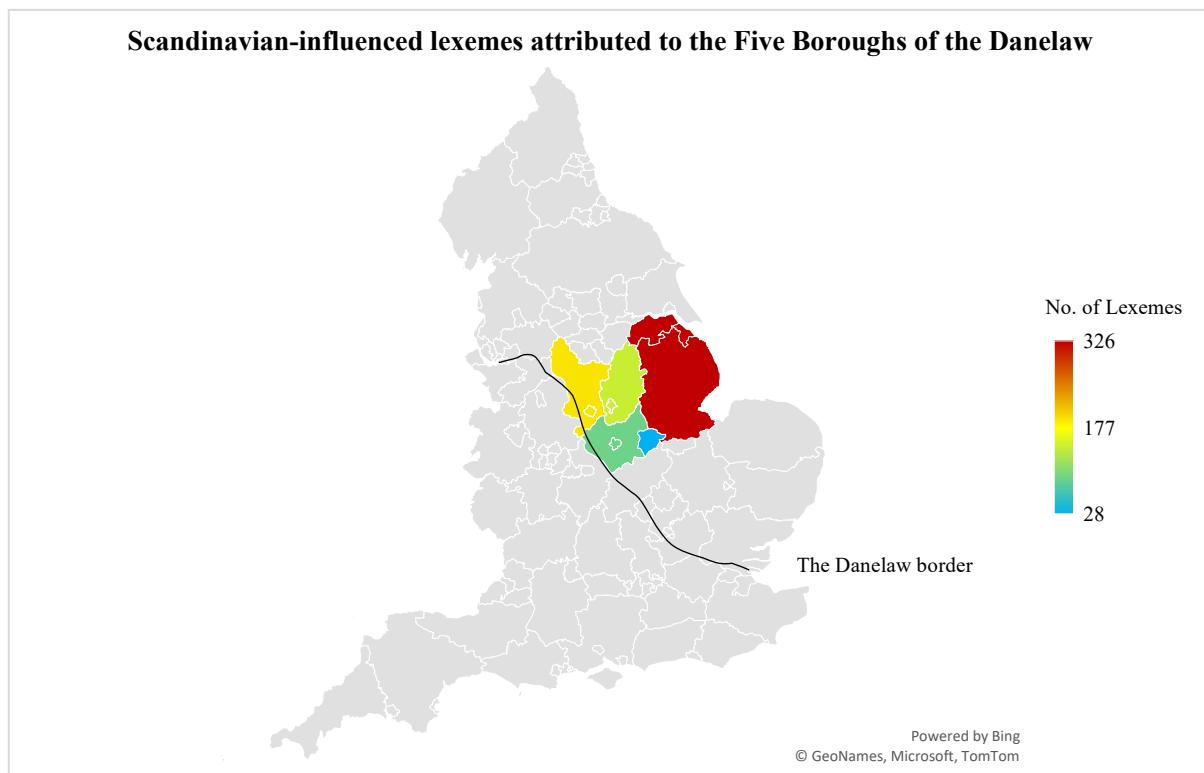


Figure 12: Map showing the frequency of Scandinavian-influenced or -derived lemmata attributed to each county in the Five Boroughs of the Danelaw, shown within the whole of England.

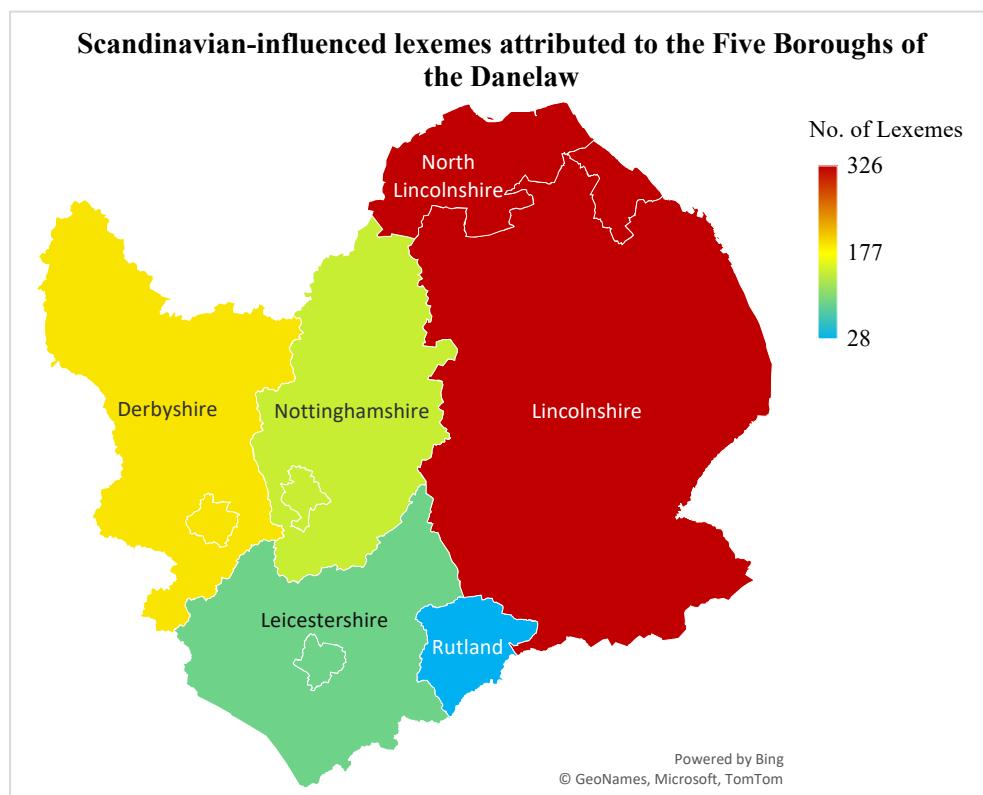


Figure 13: Map showing the frequency of Scandinavian-influenced or -derived lemmata attributed to each county in the Five Boroughs of the Danelaw, shown only in the region.

These counties show varying frequencies of Scandinavian lexemes, with Lincolnshire having the fifth-greatest frequency in the country (see Table 4, §5.1) and Rutland the fourth-lowest (see Table 5, §5.1). With 326 loanwords, Lincolnshire has over eleven times more Scandinavian lexemes than Rutland; a surprising result given the geographical proximity of the counties which even share a direct border. Based on the time-depth since Scandinavian settlements in Lincolnshire, and the processes of geographical diffusion (see Chambers and Trudgill 1998; Trudgill 1983, 1986) one would expect lexemes from the high-frequency county of Lincolnshire to diffuse to Rutland, thereby increasing the number of Scandinavian lexemes found in Rutland, even if there were less Scandinavian speakers initially. In reality, though, this has clearly not been the case. The paucity of Scandinavian lexemes attributed to Rutland may instead be reflective of the geographical and demographic characteristics of the county. The total population of Lincolnshire in 1901 was 492,994, compared to a total population of 20,743 in Rutlandshire in the same year (1901 census data, *A Vision of Britain through time*); thus, when dialect vocabulary was collected for the EDD, there is likely to have been less representation for the county of Rutlandshire than for Lincolnshire, and less speakers of any Rutlandshire dialect. Geographically, Rutland is dominated by a large lake, and the county only has two towns, so the population has remained low. The fewer number of speakers of any Rutland dialect is reflected in the difference between the total number of lexemes attributed to each county in the EDD, shown in Table 7. A comparison of the relative percentages of Scandinavian lexemes attributed to each county shows that the relative influence of Scandinavian on the Lincolnshire dialect may only be greater than that of the Rutland dialect by 0.22%. Thus, the surprising paucity of Scandinavian loanwords in Rutland may be attributed to the smaller population or geography of the county, rather than substantially less Scandinavian influence in the area. This highlights the limitations of the present study, in that the numbers of Scandinavian lexemes attributed to each county may be influenced by factors such as relative populations or data collection methods used in the making of the EDD.

Table 7: Table showing the proportionate frequencies of Scandinavian loanwords in Rutlandshire and Lincolnshire out of total localised lexemes in each county.

	Rutlandshire	Lincolnshire
Scandinavian-influenced or -derived lemmata	28	326
Total attributed lemmata	562	6,266
Percentage	4.98%	5.20%

As the example of Rutland illustrates, counties which are small either in population size or geographic area may be associated with only a low frequency of Scandinavian loanwords as a result of having only a small dialect vocabulary. A Spearman's Rank Correlation Coefficient Test (shown in Appendix F) demonstrates that there is a fairly strong correlation between county area (in km²) and the number of words of probable Scandinavian origin in the EDD attributed to the county ($\rho = 0.63$, $n = 38$, $p < 0.001$). This raises the question of whether counties in Samuels' (1985) focal area show high frequencies of Scandinavian lexemes as a result of their extensive size, as Yorkshire, Lincolnshire and Cumbria are the first-, second- and fourth-largest English counties respectively (1831 census data, *A Vision of Britain through time*), and have the first-, fifth- and second-highest numbers of Scandinavian lexemes. While this may certainly be a contributing factor, it is not decisive, as other large counties such as Devon, which is the second largest by area and is outside the Danelaw, or Norfolk, which is fifth largest and within the Danelaw (but outside of Samuels' focal area), do not have as high numbers of Scandinavian lexemes (at 121 and 130 respectively).

As well as Samuels' Scandinavian Belt and the Five Boroughs, in which there was arguably the greatest concentration of Scandinavian settlements, Hart (1992: Ch. 1; in Pons-Sanz 2012: 8) highlights several other areas in the Danelaw where there were enough Scandinavian speakers 'to leave a significant mark on the local linguistic variety' (Pons-Sanz 2012: 8). For example, Hart labels the counties of Norfolk and Suffolk as the 'Eastern Danelaw', echoing Björkman (1900-2: 21) who claimed that '[t]he territories where the Scandinavian settlers were most numerous were the counties on both sides of the Wash, especially Norfolk, Suffolk and Lincolnshire'. However, in the data presented in Figure 10, the frequencies of Scandinavian loanwords attributed to these East Anglian counties do not show overwhelming support for Scandinavian influence in the region. They do show higher frequencies of Scandinavian loanwords than Cambridgeshire and the neighbouring Home Counties, but when compared with the frequencies of Scandinavian loanwords in non-Danelaw counties (Figure 9), this is not necessarily a result of intense contact in East Anglia, but possible standardisation or suppression of the Scandinavian element in London, the Home Counties and the university counties. Without historical records of dialect vocabulary, it is difficult to identify whether the frequencies of Scandinavian lexemes in 19th century English dialects is reflective of original Scandinavian settlement patterns and subsequent cultural and linguistic assimilation, or of more recent lexical diffusion through dialect contact. For example, Shropshire (in the West Midlands) features 137 Scandinavian loanwords (14.29% of the total Scandinavian dialectal vocabulary), slightly higher than both Norfolk (130, 13.56%) and

Suffolk (131, 13.66%) which are thought to have had extensive Scandinavian settlement based on toponymic evidence (Durkin 2014: 174; cf. Holman 2001: 5). However, the Scandinavian lexemes attributed to Shropshire may be present in the region as a result of contact with Scandinavian-influenced dialects of the North and East Midlands and ensuing lexical diffusion (Dance 2003: 305-16, 328) rather than direct contact with Scandinavian speakers. This corroborates Bator's (2007: 172) suggestion that 'Scandinavian settlement was not always a decisive factor as far as the frequency of Norse-derived loanwords in both Middle and Modern English is concerned', since subsequent dialect contact and diffusion have also contributed to the distribution of Scandinavian loanwords in Modern English dialects.

Furthermore, Durham stands out as having fewer attested lemmata than the neighbouring counties of Yorkshire, Cumbria and Northumberland. This corroborates Samuels' (1985) Scandinavian Belt which included Cumbria, Yorkshire and parts of Lincolnshire, but 'exclud[ed] the old kingdom of Bernicia in Durham and Northumberland' (1985: 269). However, this points to the fact that rather than Durham having fewer lexemes, Northumberland shows a surprisingly high frequency of Scandinavian loanwords, as it would be expected that the dialects of both Durham and Northumberland show fewer Scandinavian loanwords than counties which had denser Scandinavian settlement. Kolb (1965: 152; own translation) highlights that 'Durham was, for a long time, uninhabitable forest and marshland that did not invite settlement' and so the diffusion of Scandinavian dialect words from areas of denser Scandinavian settlement, such as Cumbria, to Northumberland and Durham may have been influenced by geographic and demographic factors, in a similar case to Rutland.

5.3 Geographical distribution beyond the Danelaw

Figure 14 shows the total lexemes attributed to each county to the south and west of Watling Street. Of these counties outside the former Danelaw region, Cheshire shows the greatest frequency of Scandinavian lexemes, followed by the West Midlands counties of Shropshire and Warwickshire. The non-Danelaw counties with the fewest attributed Scandinavian lexemes are Buckinghamshire and London in the South-East (see §5.1 for a discussion of this region). There is a notable difference between the county with the greatest frequency of Scandinavian lexemes in the Danelaw, at 630, and that with the greatest frequency outside the Danelaw, at 204; yet there are many counties outside of the Danelaw which have greater frequencies than some within the Danelaw (corroborating Bator 2007: 172), and there at least some Scandinavian lexemes attributed to all of the non-Danelaw counties. There does not appear to be a pattern with regards to the frequency of Scandinavian lexemes and geographical proximity

to the Danelaw region, as both Cheshire, with the most Scandinavian lexemes of the non-Danelaw counties, and Buckinghamshire, with the least, lie on the border.

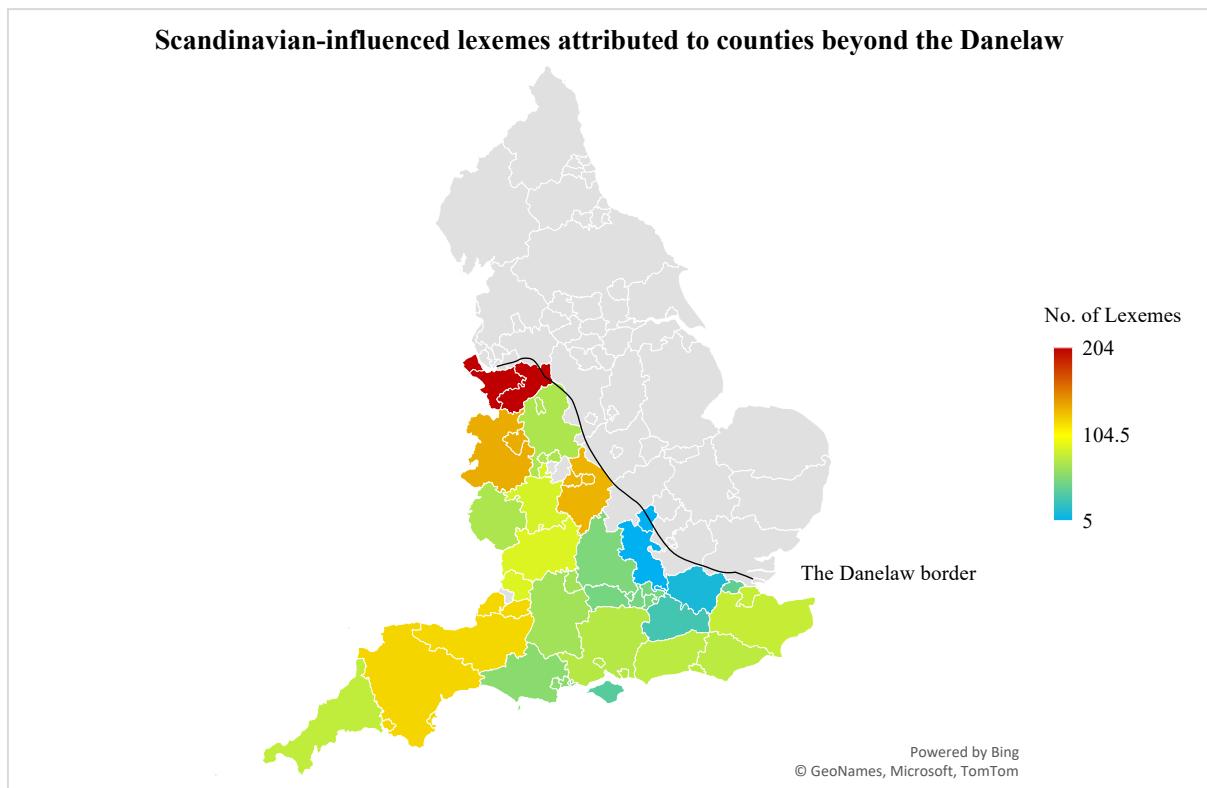


Figure 14: Map showing the total frequency of Scandinavian-influenced and -derived lemmata attributed to non-Danelaw counties.

The high frequency of Scandinavian loanwords in the Cheshire dialect may be a result of numerous Scandinavian settlements in the area, despite the county being outside the formal Danelaw. Dance (2003: 25-7) highlights at least two separate occasions of recorded Scandinavian settlement in Chester (Danish raiders from Essex in 893 CE and Hiberno-Norwegian refugees in 902 CE), as well as underlining the role Chester played in the York-Man-Dublin trade route. York, Dublin, and the Isle of Man were all subject to direct Scandinavian influence and extensive Scandinavian settlements (see Barnes 1993: 74-77 for a discussion of Scandinavian influence in Ireland and Man), and, as a result, Dance concludes that the ‘economy and culture of the coastal areas of Cheshire in the tenth century; was ‘Scandinavian-dominated’ (Dance 2003: 26-7).

The five lexemes attributed to Buckinghamshire, which has the least overall number of Scandinavian loanwords, are shown in Table 8.

Table 8: Table showing the Scandinavian lexemes attributed to Buckinghamshire in the EDD.

Lexeme	Definition	Attributed counties in the EDD
bank, sb.1	<ol style="list-style-type: none"> 1. A hill, a hill-side, a slope; sloping, undulating ground. 2. The road up a steep hill-side. 3. <i>pl.</i> Precipitous rocks, or crags. 4. An ant-hill. 5. A beach; also in <i>pl.</i>, the sea-shore. 6. Any limited area, such as that occupied by farm buildings and homestead; the premises. 7. A section of peat that is being dug. 8. (a) The mouth of a pit-shaft and the adjoining surface; the part of the mine which is above ground. (b) <i>Comb.</i> Bank men, men employed on the surface of a coal-pit. (c) A working place from 3 to 20 yds. wide, <i>gen.</i> driven ‘on the bord’, i.e. at right angles to the cleavage of the coal. 9. A pottery manufactory. 10. <i>Comp.</i> (1) Bank-cress, <i>Barbarea praecox</i>; (2) Bank-manager, in a colliery: a man who is manager on the pit-bank; (3) Bank-rider, see below; (4) Bank-thyme, wild thyme <i>Thymus serpyllum</i>. 	Bedfordshire Berkshire Buckinghamshire Cheshire Durham Gloucestershire Herefordshire Isle of Wight Kent Lancashire Norfolk Northumberland Rutlandshire Shropshire Staffordshire Suffolk Worcestershire Yorkshire (18)
bur(r), sb.1, v.1	<ol style="list-style-type: none"> 1. <i>sb.</i> The prickly seed-vessel or fruit of various plants. In <i>comp.</i> (1) Burr-crowfoot, field crowfoot, <i>Ranunculus arvensis</i>; (2) Burr-docken, burdock, <i>Arctium lappa</i>; (3) Burr-head, see Burrweed; (4) Burrthistle, spear thistle, <i>Carduus lanceolatus</i>; (5) Burr-weed, goose-grass, <i>Galium aparine</i>. 2. The blossom of the hop. 3. A wart-like excrescence on trees. 4. <i>Comp.</i> Bur-knot, an excrescence growing on elm and oak trees. 5. The butt end cut off a tree of fancy wood, valuable because of the curled grain which comes out when it is polished. 6. A pollard. Used <i>attrib.</i> in <i>comp.</i> Bur-oak. 7. The ball or knob of a stag’s horn at its juncture with the skull. 8. The sea-urchin. 9. <i>Fig.</i> A strong, thick-set person of stubborn temper. 10. <i>v.</i> Of hops: to come into blossom. 	Buckinghamshire Cumberland Derbyshire Herefordshire Hertfordshire Isle of Wight Kent Lancashire Norfolk Northamptonshire Shropshire Somerset Surrey Sussex Yorkshire

		(15)
<i>flack</i> , v., <i>sb.2</i>	<p>1. <i>v.</i> To hang loosely; to flap or shake about.</p> <p>2. To flutter, flap the wings.</p> <p>3. To throb as a wound; to palpitate, pulse heavily.</p> <p>4. To beat with a flail.</p> <p>5. To comb.</p> <p>6. With <i>in</i>: to rake hay in a long row.</p> <p>7. <i>sb.</i> A blow with anything soft or pliant; a smart blow with the open hand.</p> <p>8. A throb, beat, pulsation; <i>fig.</i> hurry, haste.</p>	Bedfordshire Buckinghamshire Essex Hertfordshire Huntingdonshire Isle of Wight Leicestershire Northamptonshire Oxfordshire Rutlandshire Suffolk Warwickshire Yorkshire (13)
<i>how</i> , <i>sb.1</i>	A small detached hill or mound, <i>gen.</i> a tumulus or barrow; a hillock, knoll; almost <i>obs.</i> except in place-names; also used <i>attrib.</i>	Bedfordshire Buckinghamshire Cumberland Devon Isle of Man Lancashire Lincolnshire Norfolk Northamptonshire Northumberland Nottinghamshire Somerset Warwickshire Westmorland Yorkshire (15)
<i>mose</i> , v., <i>sb.1</i>	<p>1. <i>v.</i> To smoulder; to burn slowly without flame.</p> <p>2. To rot, become mouldy.</p> <p>3. <i>Fig.</i> with <i>about</i>: to go about in a dull, stupid manner.</p> <p>4. <i>sb.</i> In phr. <i>to be all of a mose</i>, to smoulder.</p> <p>5. Dry rot.</p>	Buckinghamshire Cheshire Gloucestershire Herefordshire Northamptonshire Warwickshire Worcestershire

Four of the five lexemes are also attributed to counties within Samuels' (1985) focal area, but the distribution of *mose* (shown in Figure 15) does not pattern with the Danelaw region and reported areas of most intense Scandinavian influence. *Mose* is instead attributed to several West and South Midlands counties, highlighting that dense Scandinavian settlement is 'not always a decisive factor' in the distribution Scandinavian loanwords (Bator 2007: 172). The etymological comment for the lemma in the EDD gives the Norwegian dialect terms *mosa* (seg) 'to warm oneself' and *mosen* 'warm, close, sultry' as possible etymons for the first sense of *mose*, 'to smoulder; to burn slowly without flame' (EDD). Where historians and philologists have differentiated between West Scandinavian and East Scandinavian languages in Britain (e.g. Björkman 1900-2), the Scandinavians who settled in Ireland and North West England are identified as speaking varieties of West Scandinavian – the branch from which Norwegian developed. It is therefore possible that *mose* entered the English vocabulary in Cheshire, a non-Danelaw county with recorded West Scandinavian settlements and trade; and then spread from Cheshire southwards through the West Midlands. Thus, the distribution of *mose* may corroborate Bator (2007)'s suggestion that some Scandinavian words entered English outside of the Danelaw region, but it is likely *mose* was still transferred to English in an area with at least some Scandinavian settlement, and so does not support the view that some loanwords were borrowed in areas without any Scandinavian settlement. This meaning of *mose* is not attested in the OED, and, as dialect terms are also difficult to trace in extant historical literature, it is impossible to confidently determine where *mose* first entered the English language.

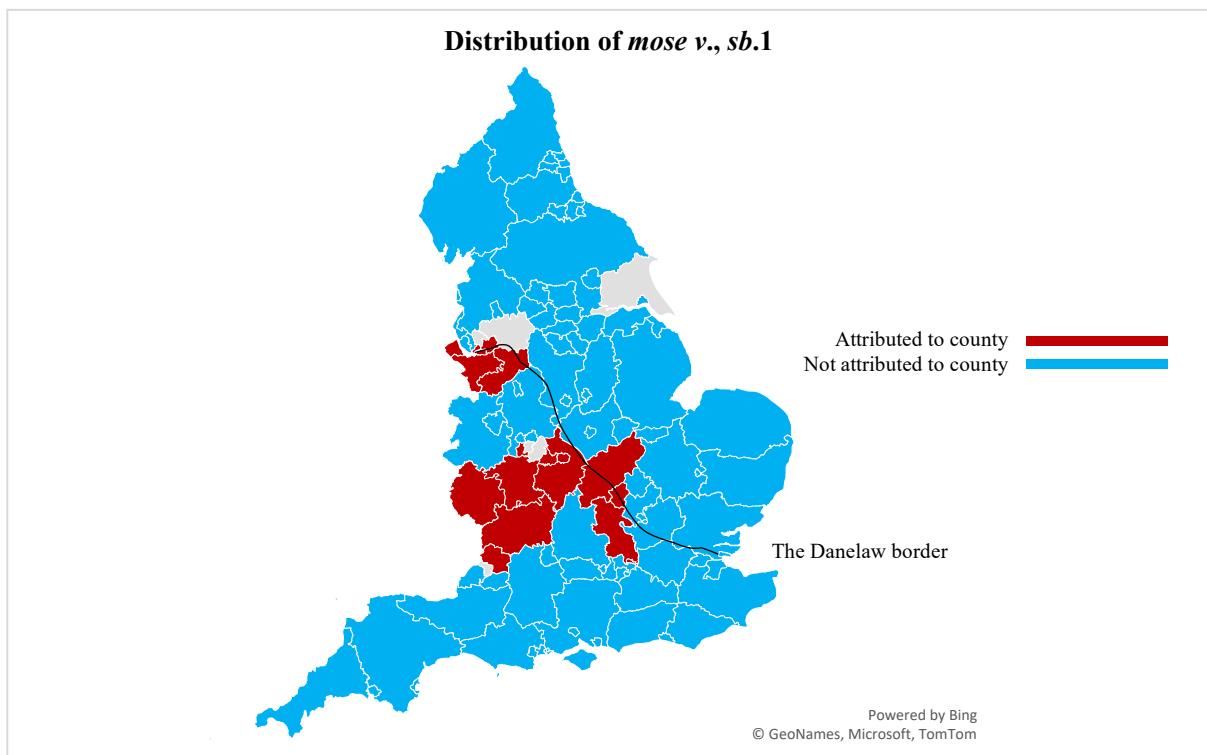


Figure 15: Map showing the distribution of *mose* (in red).

Of the lexemes with a Scandinavian etymological tag, there are thirty which are attested in at least one county to the west or south of Watling Street, but not in any Danelaw counties, thus showing that some Scandinavian borrowings occurred ‘exclusively in the west and south of the country’ (Bator 2007: 167). The distribution of these lexemes is shown in Figure 16 by the number attributed to each non-Danelaw county. The county with the greatest frequency of these Scandinavian lexemes is Somerset, with eight loanwords attributed to it. One lexeme that the EDD attributes to Somerset is the noun *rap*, (1. ‘A thin strip of land; the crop grown on such a strip’, EDD). This sense is attributed only to Somerset and Devon in the EDD and is linked to the Norwegian dialect word *rep* ‘a strip of arable land’ in the etymological comment. The OED also mentions this meaning of *rap* (*n.3* ‘A strip of land, esp. one given over to growing plants or crops.’ OED, 1989), though in the OED it is attributed both to south-western England and Orkney, Scotland.

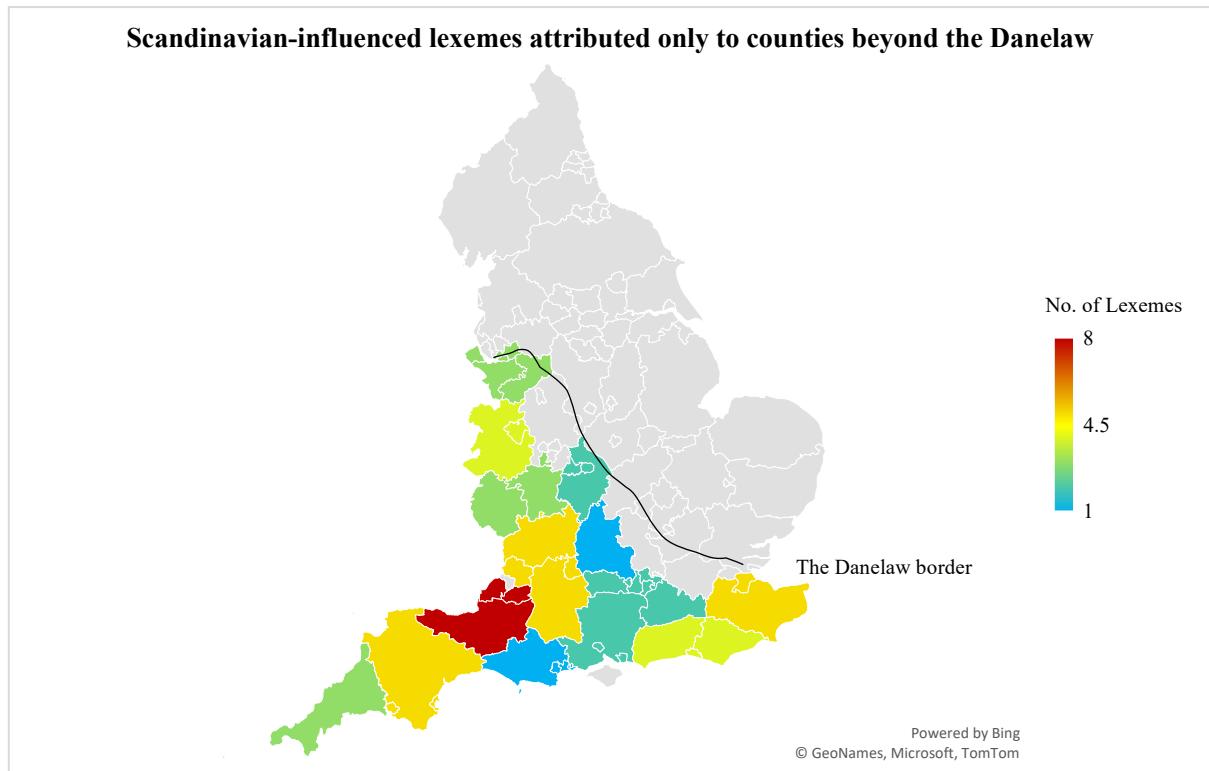


Figure 16: Map showing the distribution of Scandinavian-influenced or -derived lexemes which are only attributed to (southern) non-Danelaw counties.

While the OED doubts a Scandinavian origin of *rap*, as it ‘would not easily explain the early occurrence of the word in the south-west of England’ (*rap*, n.3, OED, 1989) there are nine other lexemes (shown in Table 9) which the EDD attributes to a (southern) non-Danelaw English county as well as to a British county or region outside of England. These pose a particularly interesting case because, as the OED explains for *rap*, there is historical evidence for Scandinavian settlements and contact with speakers in areas in northern Scotland and in Ireland, and, indeed, Norn was spoken in the Northern Isles until the 19th century (Tulloch 1997: 394), but there is much more limited evidence for direct contact with Scandinavian speakers in the south of England, which was well beyond the Danelaw.

Table 9: Table of lexemes attributed to a southern non-Danelaw county as well as a Scottish/Irish/Welsh county in the EDD.

Lexeme	Definition	(Southern) non-Danelaw county	Other (non- English) attributed counties
<i>glam,</i> <i>sb.1</i>	Talk, noise, clamour.	Somerset	Scotland

<i>haggard,</i> <i>sb.</i>	A stack-yard.	Cornwall Devon Dorset Somerset [¶]	Scotland Ireland Camarthen (Wales) Wexford (Ireland) Pembrokeshire (Wales)
<i>hope,</i> <i>sb.2</i>	1. A small bay; a haven. 2. A place of anchorage for ships.	Kent	Scotland
<i>hurr,</i> <i>v.1, sb.1</i>	1. <i>v.</i> To whir round; <i>gen.</i> in <i>prp.</i> 2. <i>sb. Obs.</i> A thin flat piece of wood tied to a string and whirled round in the air.	Gloucestershire	Shetland Isles (Scotland)
<i>pelt, v.2</i>	Rags, rubbish; a piece of thick, dirty dress. Hence Peltin'-pyock <i>sb.</i> a thick, worthless dress or bag.	Kent	Scotland
<i>pilk, v.2</i>	1. To butt or poke with the horns. Cf. pilch, v.2 2. To poke, stab; to scratch.	Devon	Wales (Pembrokeshire)
<i>scaldy,</i> <i>sb.2</i>	1. <i>Obsol.</i> The bare top of the head. 2. An unfledged bird, a fledgeling.	Oxfordshire	Shetland Isles (Scotland) Ireland
<i>slag(g),</i> <i>adj.,</i> <i>sb.2, v.2</i>	1. <i>adj.</i> Soft, moist, wet; in a state of thaw. Hence Slaggy, adj. In a state of thaw; miry; wet, drizzling. 2. <i>sb.</i> Misty rain, sleet. 3. A lump or portion of any soft substance. Hence Slaggie, sb. (1) an unseemly mass or mixture of anything wet or soft; food dirtily mixed; (2) slatternly work, the act of working in a slatternly manner. 4. A quagmire, slough. 5. <i>v.</i> To soften; to besmear; to moisten. 6. with <i>up</i> : to lift in large spoonfuls; to gobble up voraciously.	Cornwall	Scotland
<i>smicker,</i> <i>v.</i>	<i>Obs.</i> To smile, grin, smirk; to smile alluringly and affectedly.	Kent	Scotland Shetland Isles (Scotland) Orkney Isles (Scotland)

[¶]Attributed in the EDD to 'West Country': assumed to mean these counties.

Despite not adhering to the criterion of localisation in the North or East Midlands (Dance 2011: 92), a Scandinavian etymology may be identified for these loanwords based on other, potentially more reliable, criteria. For example, the second sense of the verb *pilk* ('v.2 2. To poke, stab; to scratch.', EDD) is attributed to Devon, in South-West England, but the final [-k], which corresponds to English [-tʃ] in a contrastive couplet (cf. *pilk* with *pilch*) is an established phonological criterion of Scandinavian (Townend 2002: 61) and so, in addition to its semantic similarity to the Norwegian cognate *pilka* 'to scratch, stab, pick', the phonological form of *pilk* suggests it is a borrowing from Scandinavian. However, as the OED notes in the etymology for *pilch*, the pair could also stem from an unattested OE verb **pilcian* formed from **pilian* + the factitive suffix *-c-* (OED, 2006). The first sense of *pilk* ('v.2 1. To butt or poke with the horns.', EDD) is attributed to Pembrokeshire (Wales), and *pilk* ('v.1 1. To pick, pluck; to shell. take [sic] out of the husk or shell. 2. To pilfer, thief.', EDD) is attributed to Scotland, so it is possible that the borrowing was initially widespread across England, including in the Danelaw, before developing these distinct meanings and retreating to the regions of Devon, Pembrokeshire and Scotland.

Furthermore, *glam*, an adjective meaning 'talk, noise, clamour' (EDD), is attributed primarily to Scotland in the EDD, but also to Somerset, and it is suggested to be of Scandinavian origin through comparison with dialectal Norwegian *glam* 'noise' and Scandinavian *glam(m)*. The OED corroborates a Scandinavian origin for *glam*, giving its etymon as Scandinavian *glam(m)* 'noise, din', with cognates of Swedish *glam* 'merriment, loud mirth' and Danish *glam* 'barking of dogs' (OED, 1989). As for the dialectal provenance of the word, the OED only identifies it as 'obsolete exc. dialect' (OED, 1989), but the example quotations given in the OED, and in the Middle English Dictionary (MED), highlight that *glam* had previously been used in the West Midlands region. *Glam* is used twice in the ME poem *Sir Gawain and the Green Knight*, as well as in *Cleanness* and *Patience*, two religious poems in the same manuscript (Cotton MS Nero A.x.). This manuscript reflects the language of the West Midlands, which is some distance from Somerset and even further from Scotland. While the West Midlands are still beyond the extent of the Danelaw, the dialect of the region in ME shows numerous borrowings from Scandinavian (Dance 2003), which are likely to have diffused from areas of Scandinavian settlement in the North and East Midlands (*ibid.*: 287-9). Thus, Scandinavian loanwords, such as *glam*, which are localised to the north (in Scotland) and/or the south (in South-West England) of the former Danelaw may have previously been used in the Danelaw and other areas of the country before diffusing and localising to the dialects they are associated with in the EDD. Again, as many dialect words are excluded from

the extant historical literature, mapping their diffusion is difficult, if not impossible, and beyond the scope of this study. But as this example shows, the county/ies a word is attributed to in the EDD cannot be assumed to be the only area(s) the word has ever been used in.

6. Conclusion

This study set out to identify the national distribution of Scandinavian loanwords across Late Modern English (LModE) dialects, especially with regards to the Danelaw region and Samuels' (1985) 'Scandinavian Belt'. To this end, the research question was the following:

How are Scandinavian loanwords distributed nationally, especially outside of the former Danelaw region?

The data from Wright's *English Dialect Dictionary* demonstrates that Scandinavian loanwords in LModE dialects pattern with Samuels' (1985) focal area, with the counties of Cumbria and Yorkshire showing the highest frequencies of loanwords. Beyond this focal area, Scandinavian influence does not show a strict 'Danelaw presence vs. non-Danelaw absence' (Dance 2017: 214), nor any major difference between the Scandinavian Belt and the rest of the Danelaw, but instead varies across the whole country, including in regions previously thought to have little Scandinavian influence. This may be due to the time-depth since initial Scandinavian contact, as loanwords may have diffused across the country from where they were originally coined. It is too hasty a conclusion to suggest that Scandinavian loanwords attributed to the non-Danelaw region in LModE originally entered English in this region, as suggested by Bator (2007: 168), as they may have diffused across dialects in the centuries following their adoption into English. As a result of the paucity of historical evidence for dialect vocabulary, especially in ME when a London-based standard language developed, the original regions where Scandinavian loanwords were borrowed, and their patterns of diffusion throughout the country, may only remain speculative. Based on existing toponymic evidence, the high frequency of Scandinavian loanwords in areas such as Yorkshire and Cumbria may be the result of dense Scandinavian settlement, but the rest of the country cannot be subject to such assumptions.

While it may be possible to speculate on possible causes for the dialectal distributions of Scandinavian loanwords, it is difficult to ascertain exact reasons without a thorough revision of dialectal and socio-cultural history in England, which is beyond the scope of this study. The present study has begun research into the overall distribution of Scandinavian loanwords in

LMoDE dialects, but the field would benefit from further analysis in this area and there is much more to be obtained from the digitalisation of Wright's EDD.

Appendix A: Thomason and Kaufman's (1988) Language Contact Intensity Scale

Category:	Lexicon:	Structure:
(1) Casual contact: lexical borrowing only.	Content words. For cultural and functional (rather than typological) reasons, non-basic vocabulary will be borrowed before basic vocabulary.	
(2) Slightly more intense contact: slight structural borrowing.	Function words: conjunctions and various adverbial particles.	Minor phonological, syntactic, and lexical semantic features. Phonological borrowing here is likely to be confined to the appearance of new phonemes with new phones, but only in loanwords. Syntactic features borrowed at this stage will probably be restricted to new functions (or functional restrictions) and new orderings that cause little to no typological disruption.
(3) More intense contact: slightly more structural borrowing.	Function words: Adpositions (prepositions and postpositions). At this stage derivational affixes may be abstracted from borrowed words and added to native vocabulary; inflectional affixes may enter the borrowing language attached to, and will remain confined to, borrowed vocabulary items. Personal and demonstrative pronouns and low numerals, which belong to the basic vocabulary, are more likely to be borrowed at this stage than in more casual contact situations.	Slightly less minor structural features than in category (2). In phonology, borrowing will probably include the phonemicization, even in native vocabulary, of previously allophonic alternations. This is especially true of those that exploit distinctive features already present in the borrowing language, and also easily borrowed prosodic and syllable-structure features, such as stress rules and the addition of syllable-final consonants (in loanwords only). In syntax, a complete change from, say, SOV to SVO syntax will not occur here, but a few aspects of such a switch may be found, as, for example, borrowed postpositions in an otherwise prepositional language (or vice versa).
(4) Strong cultural pressure: moderate		Major structural features that cause relatively little typological change. Phonological borrowing at this stage includes introduction of new distinctive

structural borrowing.	features in contrastive sets that are represented in native vocabulary, and perhaps loss of some contrasts; new syllable structure constraints, also in native vocabulary; and a few natural allophonic and automatic morphophonemic rules, such as palatalisation or final obstruent devoicing. Fairly extensive word order changes will occur at this stage, as will other syntactic changes that cause little categorial alteration. In morphology, borrowed inflectional affixes and categories (e.g. new cases) will be added to native words, especially if there is a good typological fit in both category and ordering.
(5) Very strong cultural pressure: heavy structural borrowing.	Major structural features that cause significant typological disruption: added morphophonemic rules; phonetic changes (i.e. subphonemic changes in habits of articulation, including allophonic alternations); loss of phonemic contrasts and of morphophonemic rules; changes in word structure rules (e.g. adding prefixes in a language that was exclusively suffixing or a change from a flexional toward agglutinative morphology); categorial as well as more extensive ordering changes in morphosyntax (e.g. development of ergative morphosyntax); and added concord rules, including bound pronominal elements.

Reproduced from Thomason and Kaufman (1988: 74-6).

Appendix B: Corresponding modern and historic counties

Historic Counties (<i>English Dialect Dictionary</i>)	Modern Metropolitan and Non-Metropolitan Counties (Microsoft Excel/Bing Maps)
Isle of Man	Isle of Man*
Cumberland Westmorland	Cumbria
Northumberland	Newcastle upon Tyne ----- North Tyneside ----- Northumberland
(County) Durham	Gateshead ----- South Tyneside ----- Sunderland ----- Darlington ----- Stockton-on-Tees ----- Hartlepool ----- County Durham
Yorkshire	Middlesbrough ----- Redcar and Cleveland* ----- York ----- Leeds ----- Bradford ----- Wakefield ----- Barnsley ----- Doncaster ----- Sheffield ----- Rotherham ----- Calderdale ----- Kirklees ----- Kingston upon Hull† ----- East Riding of Yorkshire† ----- North Yorkshire ----- West Yorkshire ----- South Yorkshire
Lancashire	St Helens* ----- Blackpool ----- Blackburn with Darwen ----- Knowsley

	Liverpool ----- Sefton ----- Salford* ----- Wigan* ----- Rochdale* ----- Oldham* ----- Bury* ----- Bolton* ----- Lancashire
Lancashire Cheshire	Merseyside [‡]
Lancashire Cheshire	Manchester*
Lancashire Cheshire	Trafford* [‡]
Lancashire Cheshire Derbyshire	Tameside* [‡]
Lancashire (mostly) Cheshire	Stockport* [‡]
Yorkshire Lancashire Cheshire Derbyshire	Greater Manchester* [‡]
Cheshire	The Wirral* ----- Warrington ----- Halton ----- Cheshire West and Chester ----- Cheshire East
Derbyshire	Derby ----- Derbyshire
Staffordshire	Stoke-on-Trent ----- Walsall ----- Wolverhampton ----- Staffordshire
Staffordshire Worcestershire	West Midlands [‡]

Warwickshire	
Staffordshire	
Worcestershire	Birmingham*‡
Warwickshire	
Staffordshire	
Worcestershire	Sandwell‡
Shropshire	Telford and Wrekin

	Shropshire
Lincolnshire	North East Lincolnshire

	North Lincolnshire

	Lincolnshire
Nottinghamshire	Nottingham

	Nottinghamshire
Leicestershire	Leicester

	Leicestershire
Herefordshire	Herefordshire
Worcestershire	Dudley

	Worcestershire
Warwickshire	Coventry

	Solihull

	Warwickshire
Rutlandshire	Rutland
Northamptonshire	Northamptonshire
Huntingdonshire	Huntingdonshire*
Bedfordshire	Luton

	Bedford

	Central Bedfordshire
Cambridgeshire	Peterborough

	Cambridgeshire
Norfolk	Norfolk
Gloucestershire	South Gloucestershire

	Gloucestershire
Oxfordshire	Oxfordshire
Buckinghamshire	Slough

	Milton Keynes

	Buckinghamshire
Hertfordshire	Hertfordshire

Middlesex*	London
London	
Essex	Southend-on-Sea Thurrock Essex
Suffolk	Suffolk
Somerset	Bath and North East Somerset North Somerset Somerset
Gloucestershire Somerset	Bristol ^l
Wiltshire	Swindon Wiltshire
Berkshire	Bracknell Forest Reading Wokingham Windsor and Maidenhead West Berkshire Berkshire*
Hampshire	Southampton Portsmouth Hampshire
Surrey	Surrey
Kent	Medway Kent
Sussex	Brighton and Hove East Sussex West Sussex
Isle of Wight	Isle of Wight
Dorsetshire	Bournemouth Poole Dorset
Devonshire	Torbay Plymouth Devon
Cornwall	Cornwall

* Cannot be plotted using Microsoft Excel/Bing Maps – some areas possibly covered by another named county.

† Incorrectly plotted by Microsoft Excel/Bing Maps.

‡ Covers two or more historic counties - couldn't be plotted accurately using Microsoft Excel/Bing Maps.

§ Covers two or more historic counties - was a county in its own right at the time of writing of the EDD but was not used as a geographical label/tag by Wright so has no attributed lexemes in the EDD which could be plotted.

Appendix C: Chi-Squared Statistical Test

Chi-Squared Statistical Test of the frequency of Scandinavian loanwords attributed to each county.

County	Observed value	Expected value	Observed – Expected	(Observed – Expected) ²	(Observed – Expected) ² / Expected
Bedfordshire	30	130.53	-100.53	10,105.28	77.42
Berkshire	51	130.53	-79.53	6,324.23	48.45
Buckinghamshire	5	130.53	-125.53	15,756.53	120.72
Cambridgeshire	26	130.53	-104.53	10,925.48	83.70
Cheshire	204	130.53	73.48	5,398.58	41.36
Cornwall	8	130.53	-122.53	15,012.38	115.02
Cumbria	474	130.53	343.48	117,975.08	903.85
Derbyshire	193	130.53	62.48	3,903.13	29.90
Devon(shire)	121	130.53	-9.53	90.73	0.70
Dorset(shire)	59	130.53	-71.53	5,115.83	39.19
Durham	248	130.53	117.48	13,800.38	105.73
Essex	43	130.53	-87.53	7,660.63	58.69
Gloucestershire	91	130.53	-39.53	1,562.23	11.97
Hampshire	76	130.53	-54.53	2,972.98	22.78
Herefordshire	72	130.53	-58.53	3,425.18	26.24
Hertfordshire	29	130.53	-101.53	10,307.33	78.97
Huntingdonshire	34	130.53	-96.53	9,317.08	71.38
Isle of Man	34	130.53	-96.53	9317.08	71.38
Isle of Wight	39	130.53	-91.53	8,376.83	64.18
Kent	82	130.53	-48.53	2,354.68	18.04
Lancashire	408	130.53	277.48	76,992.38	589.87
Leicestershire	92	130.53	-38.53	1,484.18	11.37
Lincolnshire	326	130.53	195.48	38,210.48	292.74
London	14	130.53	-116.53	13,578.08	104.03

Norfolk	130	130.53	-0.53	0.28	0.00
Northamptonshire	177	130.53	46.48	2,159.93	16.55
Northumberland	439	130.53	308.48	95,156.83	729.03
Nottinghamshire	145	130.53	14.48	209.53	1.61
Oxfordshire	54	130.53	-76.53	5,856.08	44.87
Rutland(shire)	28	130.53	-102.53	10,511.38	80.53
Shropshire	137	130.53	6.47	41.93	0.32
Somerset	120	130.53	-10.53	110.78	0.85
Staffordshire	72	130.53	-58.53	3,425.18	26.24
Suffolk	131	130.53	0.47	0.23	0.00
Surrey	31	130.53	-99.53	9,905.23	75.89
Sussex	78	130.53	-52.53	2,758.88	21.14
Warwickshire	134	130.53	3.47	12.08	0.09
Wiltshire	68	130.53	-62.53	3,909.38	29.95
Worcestershire	88	130.53	-42.53	1,808.38	13.85
Yorkshire*	630	130.53	499.48	249,475.28	1,911.32
Total	5,221	5,221.00	0.00	775,307.98	5,824.90
$\chi^2 = 5,824.90$ <i>d.f. = 39</i> p < 0.001					

Appendix D: Figure 10 without the overlay of Samuels' (1985) Scandinavian Belt

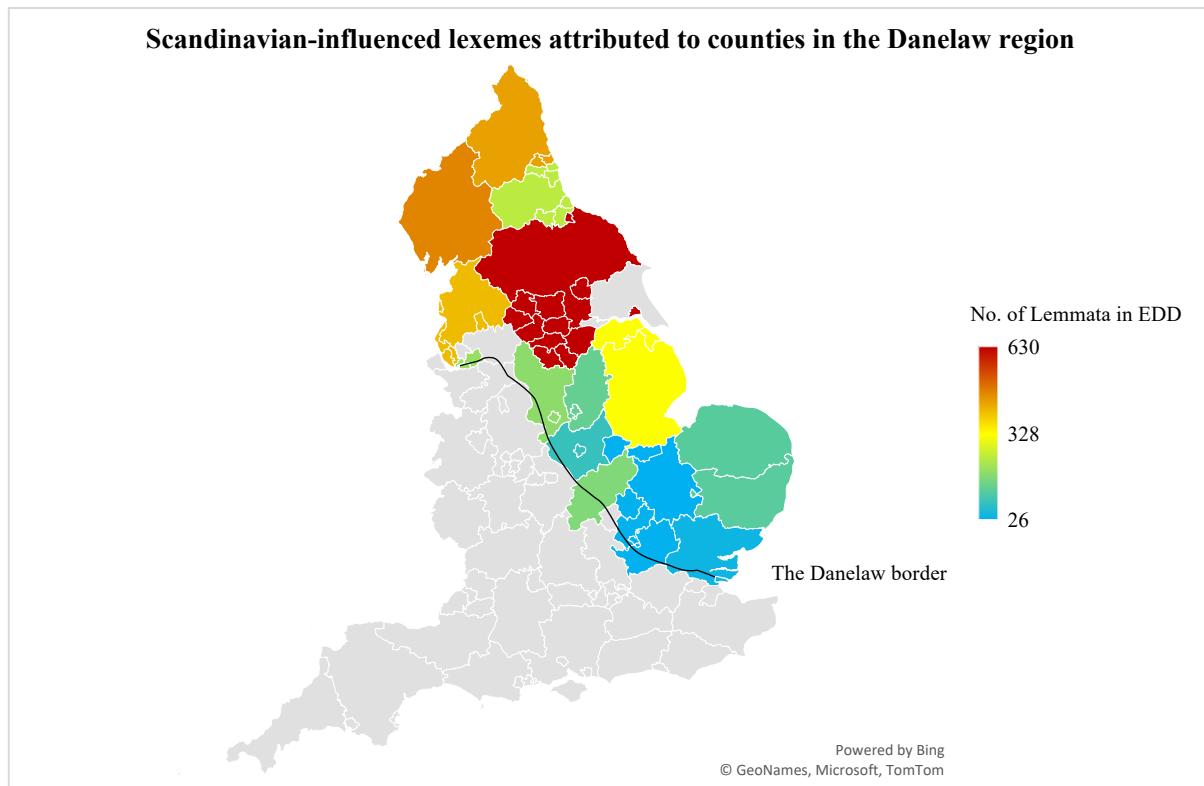


Figure 10: Map showing the frequencies of Scandinavian-influenced or -derived lemmata attributed to each Danelaw county.

Appendix E: Dialectal distribution of Scandinavian function words in the EDD

Word	Meaning	Attributed counties in the EDD
at	<p><i>prep.</i></p> <p>I. <i>Obsol.</i> Used instead of <i>to</i> as the sign of the infinitive.</p> <p>II. Of place or position:</p> <ol style="list-style-type: none"> 1. Used redundantly to denote rest in a place, dwelling, position. In <i>gen.</i> use. 2. Referring a condition or sensation to a particular place: in, about. 3. Phr. <i>to be at.</i> (1) With obj. of person: to demand of, to importune. (2) With obj. of thing: to do, set about, esp. of bad or mischievous acts. (3) With <i>vbl. sb.</i>: in the act of, at the point of. 4. Motion to, arrival at a place or condition. 5. In phr. <i>to come at, go at.</i> (1) With obj. of person: to attack, contend with, compete with; freq. with ellipsis of <i>v.</i> of motion. (2) With obj. of thing: to attack, set about, do. 6. <i>Fig.</i> Of feeling towards a person. <p>III. Of time or occasion.</p> <ol style="list-style-type: none"> 1. Time when; often used redundantly. 2. In phr. (1) <i>at long</i>, finally; (2) <i>at long and at last</i>, in the end; (3) <i>At the first onset</i>, <i>at first</i>; (4) <i>At the long length</i>, at last; (5) <i>At time and time</i>, at various times. <p>IV. Of agent or action.</p> <ol style="list-style-type: none"> 1. Of agent: by. 2. Denoting the person from whom a thing is received: from, at the hands of. 3. With <i>v.</i> of listening, asking, &c., denoting the person or source from which information is received. 4. Phr. <i>to do something at.</i> (1) With obj. of person: to molest, interfere with. (2) With obj. of thing: to see to, mend, alter. <p>V. Of cause, relation, or condition.</p> <ol style="list-style-type: none"> 1. Used <i>advb.</i> denoting reason: for. 	Cheshire Cornwall Cumberland Derbyshire Dorsetshire Hertfordshire Huntingdonshire Isle of Man Lancashire Leicestershire Lincolnshire Northamptonshire Northumberland Nottinghamshire Shropshire Somerset Staffordshire Warwickshire Westmorland Wiltshire Yorkshire (21)

	<p>2. In exchange for, on; <i>at nought</i>, on no account, on no condition.</p> <p>3. Phr. <i>to think at</i>, to think of, about.</p> <p>VI. Phr. (1) <i>at all</i>, used in positive clauses: absolutely, altogether; (2) <i>at all at all</i>, emphatic form of at all; (3) at <i>ane mae wi't</i>, at the last push; (3) at <i>a' will</i>, to the utmost that one could wish; (5) at <i>back on</i>, behind; (6) at <i>gaze</i>, staring; (7) at <i>the head on</i>, in celebration of; (8) at <i>least ways</i>, <i>at least wise</i>, at least; (9) at <i>odds</i>, at variance; (10) at <i>one end of</i>, mixed up in, connected with; (11) at <i>oneself</i>, sound, healthy in mind and body; (12) at <i>outs</i>, at enmity; (13) at <i>play</i>, unoccupied, keeping holiday; (14) at <i>thee, here's at thee</i>, I agree, here you are; (15) at <i>yonder, yont on</i>, beyond.</p>	
at	<p><i>rel. pron.</i></p> <p>1. Who, whom, which, that.</p> <p>2. Followed by the <i>poss. pron.</i>: forming the gen. case, whose.</p>	Cumberland Derbyshire Durham Lancashire Lincolnshire Northumberland Westmorland Yorkshire (8)
at	<p><i>dem. pron.</i></p> <p>That; used after an assertion, and introducing a clause with the construction inverted, giving emphasis to the assertion.</p>	Cumberland Northumberland Yorkshire (3)
at	<p><i>conj.</i></p> <p>1. Introducing a subordinate clause: that.</p> <p>2. In phr. <i>at how</i>, that.</p>	Cumberland Derbyshire Lancashire Northumberland Westmorland Yorkshire (6)

till	<p><i>prep.</i> and <i>conj.</i></p> <p>I. Contracted forms: (1) Till's, to us; (2) Tilly, till I; (3) Till't or Tilt, (a) to it; (b) to the; (4) Tiltos, till thou hast; (5) Tull't or Tult, (a, b) see (3 a, b); (c) used as <i>sb.</i> in <i>comb.</i> with beer, &c.; see below.</p> <p>II. Dial. uses.</p> <ol style="list-style-type: none"> 1. <i>prep.</i> To. 2. At. 3. By. 4. For. 5. Of. 6. Concerning, about; after. 7. <i>obs.</i> Used elliptically, with <i>v.</i> understood. 8. Phr. <i>till</i> time, until. 9. <i>conj.</i> While; during that time. 10. Before; up to the time of. 11. By the time that, 'against'. 12. Than. 	Cheshire Cumberland Derbyshire Devonshire Durham Isle of Man Lancashire Lincolnshire Northamptonshire Northumberland Rutlandshire Shropshire Somerset Staffordshire Westmorland Yorkshire (16)
thwart	<p><i>adj., adv., prep., sb.</i> and <i>v.</i></p> <p>1. <i>adj.</i> and <i>adv.</i> In <i>comb.</i> (1) Thwart-band, (2) Thwart-bauk, a cross-beam in a roof; (3) Thwart-eyed; squint-eyed; (4) Thwart-handled, cross-handled; (5) Thwart-ropes, transverse ropes used in thatching: see below; (6) Thwart-saw, a cross-saw.</p> <p>2. <i>adj.</i> Cross, contrary, ill-tempered; pert, saucy.</p> <p>3. <i>adv.</i> Crosswise, obliquely.</p> <p>4. <i>prep.</i> Athwart, across. See Thwarter, 4.</p> <p>5. <i>sb.</i> A cross, ill-tempered person.</p> <p>6. <i>v.</i> To oppose; to cross.</p> <p>7. To cross-plough; to turn earth which has once been ploughed.</p> <p>8. To cross-cut.</p>	Berkshire Cornwall Devonshire Durham Norfolk Northumberland Oxfordshire Somerset Sussex Wiltshire (10)
endlong	<p><i>prep., adv.</i> and <i>v.</i></p> <p>1. <i>prep.</i> From end to end of, along, by the side of.</p> <p>2. <i>adv.</i> At full length, lengthways along. Also used as <i>adj.</i></p> <p>3. From end to end; right along, directly forward.</p> <p>4. Consecutively, continuously, without intermission or interruption.</p> <p>5. <i>v.</i> To harrow the ridges in a field from end to end.</p>	Cumberland Leicestershire Lincolnshire Warwickshire Yorkshire (5)

anewst	<p><i>prep.</i> and <i>adv.</i></p> <ol style="list-style-type: none"> 1. <i>prep.</i> Of place: near, hard by, over against. 2. Nearly, approximating to, almost. 3. <i>adv.</i> Of manner or degree: nearly, approximately, about. 4. Resembling, like. 5. In phr. <i>anewst of anewstness</i>, ‘much of a muchness’, nearly alike; <i>anewst the matter</i>, nearly right; <i>near anewst</i>. 	Berkshire Dorsetshire Gloucestershire Hampshire Herefordshire Isle of Wight Kent Oxfordshire Somerset Sussex Wiltshire (11)
en	<p><i>conj.</i></p> <p>Than.</p>	Cumberland Nottinghamshire Westmorland (3)
mell	<p><i>prep.</i> and <i>sb.5.</i></p> <ol style="list-style-type: none"> 1. <i>prep.</i> <i>Obsol.</i> Between. 2. <i>Comb.</i> Mell-door(s), the passage between the ‘heck’ and the outer door; the door opening from the ‘hallan’ into the ‘heck’; the double doors enclosing the farm-yard. 3. <i>sb.</i> The middle. 	Cumberland Northumberland Westmorland Yorkshire (4)
tolf	<p><i>num. adj.</i></p> <p>Twelve.</p>	Yorkshire (1)

Appendix F: Spearman's Rank Statistical Test

Spearman's Rank Correlation Coefficient Test of relationship between county area and number of words of Scandinavian origin in the EDD.

County	Area (km ²)	No. of Scandinavian words in EDD	Rank (area)	Rank (no. Scandinavian words)	d	d ²
Bedfordshire	1,204.5	30	35	32	3	9
Berkshire	1,911.2	51	30	28	2	4
Buckinghamshire	1,877.0	5	32	38	-6	36
Cambridgeshire	2,172.6	26	26	35	-9	81
Cheshire	2,626.6	204	21	7	14	196
Cornwall	3,459.1	8	16	37	-21	441
Cumbria	5,890.1	474	4	2	2	4
Derbyshire	2,683.8	193	20	8	12	144
Devon(shire)	6,622.5	121	3	15	-12	144
Dorset(shire)	2,538.3	59	23	26	-3	9
Durham	2,750.0	248	19	6	13	169
Essex	3,960.0	43	9	29	-20	400
Gloucestershire	3,198.9	91	17	18	-1	1
Hampshire	4,121.9	76	8	22	-14	196
Herefordshire	2,201.0	72	25	24	1	1
Hertfordshire	1,620.2	29	34	33	1	1
Huntingdonshire	978.1	34	36	30	6	36
Kent	3,934.5	82	11	20	-9	81
Lancashire	3,954.8	408	10	4	6	36
Leicestershire	2,069.3	92	28	17	11	121
Lincolnshire	6,733.4	326	2	5	-3	9
London	726.8	16	37	36	1	1
Norfolk	5,230.0	130	5	14	-9	81
Northamptonshire	2,617.5	177	22	9	13	169

Northumberland	4,716.3	439	6	3	3	9
Nottinghamshire	2,128.0	145	27	10	17	289
Oxfordshire	1,891.4	54	31	27	4	16
Rutland(shire)	395.0	28	38	34	4	16
Shropshire	3,497.9	137	15	11	4	16
Somerset	4,160.5	120	7	16	-9	81
Staffordshire	2,979.7	72	18	23	-5	25
Suffolk	3,718.1	131	12	13	-1	1
Surrey	1,920.2	31	29	31	-2	4
Sussex	3,674.2	78	13	21	-8	64
Warwickshire	2,298.3	134	24	12	12	144
Wiltshire	3,519.2	68	14	25	-11	121
Worcestershire	1,860.4	88	33	19	14	196
Yorkshire	14,850.0	630	1	1	0	0
Total	126,691.2	5,150	38	38	-1	2434
$\rho = 0.63$ $n = 38$ $p < 0.001$						

County area data from the 1831 census, *A Vision of Britain Through Time* at: www.visionofbritain.org.uk/census/1831.

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