Weak Segments and Syllable Structure in Middle English[1]

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1 Introduction

The present contribution is a study of the workings of universal ideal syllable structure constraints across word boundaries with a focus on the Middle English (ME) era. The phenomena that will be discussed are located at the crossroads of at least three different but intricately interwoven types of weak segments: variable word-final consonants, final [ə], and word-initial [h]. The chronology of the muting of final [ə] has provided the topic of an insightful book-length treatment in Minkova (1991). The history of initial [h] is elucidated in two of the chapters in the present volume (Crisma, and Schlüter's chapter 8). However, weak and variable word-final consonants constitute a largely unexplored field.

The items that will come under scrutiny include the (somewhat better researched) determiners *my/mine*, *thy/thine* and *no/none*, the prepositions *of/o*, *on/o* and *in/i*, inflectional [n] in verbs, and the items *i/ich*, suffixal *-ly/-lich* and *every/everich*. For in-depth studies of the equally variable indefinite article, see Crisma (this volume) and Schlüter (this volume, chapter 8). Taken together, these represent the most frequent items that varied between consonant-final and vowel-final forms in ME.

Since very little empirical work has so far been done in this field, the purpose of the present contribution is first of all descriptive. The database used is the Middle English part of the *Helsinki Corpus*, which is subdivided into four chronological sections (ME I: 133,000 words; ME II: 102,000 words; ME III: 192,000 words; ME IV: 224,000 words). The findings will be explained with reference to syllable structure constraints and interfering functionally motivated factors, including, above all, the morphological marking of grammatical functions, but also emphasis and frequency considerations.

An important caveat is in place right at the start. The following studies are merely intended as a rough survey of variable final segments in the era under consideration. Note that the phenomena examined are subject to substantial variation between dialects and individual authors or scribes. The ME era

for a long time did not have any supra-regionally acknowledged standard language. Dialectal usage varied as much as did individual scribal practices. Since the analyses in this chapter draw on the *Helsinki Corpus*, which comprises texts of widely differing origins, they should be taken for what they are worth: surveys of the general situation in the era under discussion and starting points for more fine-grained analyses. Specific differences are only mentioned occasionally, when they turn out to be particularly noticeable in the data.

The syllable structure constraints figuring prominently in this contribution are phonological universals. Cross-linguistically, syllables ideally consist of a consonantal onset and a vocalic nucleus and have no coda (Nespor and Vogel 1986: 62; Bell and Bybee Hooper 1987: 8–9; Berg 1998: 79; Crisma this volume). When syllables are concatenated, this structure results in a regular alternation of consonants (Cs) and vowels (Vs). However, the syllable structure of most natural languages diverges from this ideal to a greater or lesser extent. For instance, if a syllable contains a coda C and the following syllable is C-initial, this produces a consonant cluster. On the other hand, if a syllable contains no onset and the preceding syllable has no coda, a hiatus arises. Consonant clusters as well as hiatuses tend to be avoided. Moreover, if one syllable ends in a C, but the following syllable has an empty onset, the C may under certain conditions be resyllabified so as to vacate the coda of the first, and fill the onset of the second, syllable. A supplementary tendency concerns the nature of the C in question. Cs can be more or less prototypical, and the more prototypical ones are preferred in onset slots. Thus, if an onset contains only a weak [h], this may be replaced by a 'better' C, such as an [n], [f] or [tʃ], to list only those figuring in the present study (Lutz 1991: 61, note 115, and the discussion in Schlüter, chapter 8 of this volume).

Languages and different stages and varieties of one and the same language tolerate infractions of ideal syllable structure and resyllabification to different degrees. As for the historical evolution in English, Minkova (2000; 2003) has argued that in Old English (OE), filled onsets were obligatory (at least in stressed syllables). The importance of this constraint was responsible for the emergence of an epenthetic C, the glottal stop [ʔ], in lexemes that otherwise had an empty onset. There was thus no resyllabification across word boundaries (for example *an arm* was realized as [an ʔarm] and *min arm* as [min.ʔarm]). The ME system differed from the OE one in that filled onsets were no longer obligatory, though still preferred (Minkova 2003: 175, 182). As a result, the epenthetic [ʔ] disappeared so that lexemes could now be V-initial. At the same time, resyllabification became an option, and if there was a coda C preceding an empty onset, it was liable to resyllabify on the condition that the prosodic boundary between the first and second word was not too wide (for example *an arm* became [a.narm] and *myn arm* [mi narm]). Thus, ME used a completely different strategy than

OE to achieve the same goal. Arguably, the still very strong preference for filled onsets led to the maintenance of the numerous pairs of variants listed above, and the lack of standardization of ME did nothing to prevent the profusion of forms.

As for the further evolution in Early Modern English (EModE), the freedom characteristic of ME shrank in favour of a fixation of word forms. In many grammatical functions of the words concerned, variable final Cs were ultimately given up so that only a V-final form persisted irrespective of the phonotactic context. Thus, conformity with syllable structure constraints has lost ground to a bi-uniqueness of forms and functions (which is another functionally well-motivated constraint; see Anttila 1972: 181; Paddock 1988: 262). Resyllabification was further constrained (Minkova 2003: 135–191; 2000: 502), though it continues to be possible in Present-Day English (PDE) within close syntactic and prosodic units such as determiner or preposition plus following word (Nespor and Vogel 1986: 65; Allerton 2000: 577). However, the absence of variable final Cs makes hiatuses inevitable (for example *my arm* [maɪ.ɑ:m]). The only item where the effects of resyllabification manifest themselves in the spelling is the indefinite article (for example *an arm* [ə.nɑ:m]). Elsewhere, liaison and intrusive Cs or semi-vowels may jump into the breach, or the weaker of two Vs may be elided (Allerton 2000: 575–6). What is more, Allerton (2000: 581) notes that recent change in standard English shows a general trend towards the less frequent use of liaison consonants like [r], [n], [j], [w]. Taken together, these evolutionary facts suggest that PDE exhibits a strong pull towards the uniformization of word forms, which goes at the expense of ideal syllable structures. This discussion will be pursued in section 6, after the empirical facts have been outlined.

2 Determiners

This section concentrates on final [n], which is known to play a prominent role in the demise of the OE inflectional system of nouns as well as verbs. Final [n] in verbs will be foregrounded again in section 4 of this contribution, but the present section focuses on the weak and disappearing [n] in determiners, where it was not an inflection but part of the stem itself.[2] In the literature on ME, *my/mine, thy/thine* and *no/none* represent well-known instances of variable forms that are sensitive to the following phonotactic context.[3] Like the article (discussed at length by Schlüter in chapter 8), all three forms start out with a stem-final [n], variably followed by [ə], which is the result of the syncretism of several OE inflectional endings. The first detailed quantitative study of how and when the final segments disappeared has most recently been proposed in Crisma (2007) and in Crisma's contribution to the present volume.

To put the cart before the horse, we first consider the final ‹e›. Minkova (1990: 313) shows that the step-by-step loss of final [ə] in English spans three

centuries (c. 1150–1450). While many linguists (Skeat 1894: lxiii; Kerkhof 1966: 150; Barber and Barber 1990: 81, 89, 97; Minkova 1990: 316; 2003: 143; Minkova and Stockwell 1997: 47) concur in that [ə] could probably be elided before Vs and many or all words beginning with ‹h› from the late twelfth century onwards, but was pronounced as [ə] before Cs, opinions diverge on the question of the influence of the waning inflectional system on the distribution of [ə]-containing and [ə]-less variants (see for example Graband 1965: 252; Sandved 1985: 58; Laing, this volume; Crisma, this volume). A supplementary factor, namely frequency, is adduced by Barber and Barber (1991), who claim that in Chaucer's late ME, [ə] was always elided in high-frequency words, including determiners like *mine*, *thine* and *none*. At the end of the ME period, one can assume that final [ə] had become mute in all contexts, but in contrast to the indefinite article, it acquired a new function and was generalized as a length mark for the preceding V in words such as (non-determiner) *mine* and *thine*, which had undergone ME Open Syllable Lengthening (see Horobin and Smith 2002: 64).[4] Thus far, the loss of [ə] in the possessive and negative determiners parallels its loss in the indefinite article.

In about the same period of time,[5] the [n] in *mine*, *thine* and *none* in their determiner functions, unexceptionally present in OE, began to disappear without leaving any traces in standard PDE. This does not of course extend to the syntactically independent counterparts of *mine*, *thine* and *none* in predicative (and postnominal) function. The prosodically motivated retention of [n] in predicative function and the phonotactically motivated loss of [n] in determiner position ultimately resulted in a functional split of [n]-containing and [n]-less forms (Mustanoja 1960: 157; Strang 1970: 262; Görlach 1991: 85–6).

The majority of authors who remark on the loss of final [n] in *mine*, *thine* and *none* differentiate between contexts with a following C, in which [n] disappeared earliest, and contexts with a following V or ‹h› (without any further distinction), where [n] was preserved longest (cf., for instance, Mossé 1952: 58; Mustanoja 1960: 157; Graband 1965: 252; Fisiak 1968: 86; Bähr 1993: 50; Ekwall 1975: 96; Burnley 1983: 16; Wales 1996: 173).[6] Faiß (1989: 166) is the only one to note that ‹h›-initial items 'often' (but not always) behaved like V-initial ones. From the two corpus-based studies of ‹h› contained in the present volume, we now have forceful evidence that ‹h› showed a clearly distinct behaviour at least by the second half of the ME era.

The following three studies involve three weak segments at the boundary between determiner and following lexeme, at least two of which are not consistently tied to their corresponding graphemes: while we can take ‹n› to represent a pronounced [n] with a reasonable degree of certainty, both ‹e› and ‹h› are notorious for having potential zero realizations. The directions of change are known, with [h] waxing and [ə] and [n] waning, but what remains to be clarified are the rates of change and the contingencies between them.

2.1 *Mine* vs. *min* vs. *my*

The following analyses follow the division of the ME section of the *Helsinki Corpus* into four chronological subperiods. Within each period, all spelling variants of the 1st person possessive were searched;[7] those with a final ‹n› will be referred to summarily as *min*, those with a final ‹e› as *mine*, and those lacking both ‹n› and ‹e› as *my*. All non-determiner uses (postnominal, predicative and substantival), invariably represented by ‹n›-containing forms, are excluded, as are uses with an ellipted antecedent. Furthermore, a three-way distinction is drawn between types of initial graphemes in the lexemes following the determiners (nouns, attributive adjectives and a few adverbs modifying attributive adjectives): Vs, Cs and ‹h›.[8]

To start with prevocalic contexts, on the basis of the expected syllable structure effects, these can be predicted to be the most likely to preserve the ‹n›-containing variants of the 1st person possessive determiner. Thus, collocations like (1) ought to show some distinct signs of being preferred to collocations like (2).

(1) Now affter **myn au**toure thus he be-gynnyth:... (Metham: *Phyisognomy*; *HC* ME IV)
(2) Folow þe steppys of hym, **my** own swete son, Ande sey as he seyde in yowr trobyll and aduersyte:... (*Mankind*; *HC* ME IV)

Indeed, the data in table 9.1 display a clear prevalence of the variants *min* and *mine* before V-initial lexemes, with the innovative ‹n›-less variant coming in very late. The first sizeable number of occurrences (12% of the

Table 9.1 The distribution of variants of the 1st person possessive determiner in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*min*	15	60	46	84	45	80	59	62
	mine	10	40	9	16	10	18	25	26
	my	0	0	0	0	1	2	11	12
before ‹h›	*min*	16	89	71	87	20	74	20	24
	mine	2	11	8	10	0	0	4	5
	my	0	0	3	4	7	26	58	71
before C	*min*	23	7	21	5	0	0	16	2
	mine	147	44	40	9	4	1	2	0
	my	166	49	378	86	401	99	986	98

total) appears in the latest subperiod, between 1420 and 1500, while in all subperiods, including the latest one, the dominance of the ‹n›-containing variants *min* and *mine* is unchallenged. This suggests that the ‹n› is retained where it serves to prevent a threatening hiatus. These data can be collated with those for C-initial contexts, which are illustrated in (3) and (4):

(3) ...& ic com to bodienne þe þt **min** drihten me bead. (*History of the Holy Rood-Tree*; *HC* ME I)
(4) Ac ich do þe wel to witene; hær bi mine writ rith. þat **mi** drihliche lond atwa ich habbe ideled. (Layamon's *Brut*; *HC* ME I)

As table 9.1 indicates, in C-initial contexts, ‹n›-less variants are already just as well established (49%) as the outgoing ‹n›-containing variants (51% in total) as early as the first subperiod.[9] This suggests that the loss of the stem-final ‹n› was promoted by the avoidance of filled codas. The balance between old and new forms is rapidly tilted in subperiod II by the almost complete demise of both ‹n›-containing variants. Thus, the loss of the ‹n› is apparent both before V and C, with the significant difference that it is by a long way more advanced in the latter case.

In these data, the status of the final ‹e› in the variant *mine* is in need of some clarification. As is illustrated by examples (5) and (6) from subperiod I, in early ME ‹e› occurs in contexts where it continues OE inflectional endings, that is, in the plural and in the oblique case singular (see Crisma in this volume). A closer analysis would be needed to confirm the impression that it is in (former) dative contexts in particular that ‹e› is preserved. For the present purposes, grammatical distinctions will however be neglected since it turns out that the grapheme ‹e› does not necessarily correspond to [ə] in the pronunciation.[10] A comparison of the data for V- and C-initial contexts in table 9.1 provides a clue as to whether ‹e› is realized as [ə] in examples like (5) and (6):

(5) Hlauerd, opene **mine** eiȝene and liht his mid þe soðe lihte, ... (*Vices and Virtues*; *HC* ME I)
(6) ...and heo scal habbe þat beste del; of **mine** drih-lichen lond. (Layamon's *Brut*; *HC* ME I)

Keeping in mind that in subperiod I the innovative variant *my* is already well established before C, but strictly avoided in hiatus contexts (that is before V), final ‹e› is unlikely to be realized before V since this would likewise create a hiatus. Instead, it seems most likely that [ə] is elided when it precedes another V. Thus, while the distribution of ‹e›-spellings is morphologically determined, the distribution of [ə]-pronunciations is guided by phonotactic factors as early as subperiod I. In principle, this argument applies to all individual subperiods, but the general loss of final [ə], presumably completed

by 1450 (Minkova 1990: 313), has to be reckoned with. While the data in table 9.1 provide no evidence as to the exact time when elision before V gave way to a general muting across all contexts, they do permit further speculation. Since the unmistakably C-final variant *min*, which clearly dominates in V-initial contexts, is almost categorically absent in C-initial contexts as early as subperiod I, one can conclude that consonant clusters are consistently avoided. If that is the case, then the variants spelled with a final ‹e›, which account for no less than 44% of the cases preceding C-initial lexemes in period I have to be assumed to be V-final, that is, the final [ə] has to be realized, if only weakly. Put differently, final ‹e› has to be pronounceable and pronounced before C if the high incidence of the form *mine* in subperiod I is to be explained. Taking the argument one step further, the marked decline of the form *mine* in subperiod II may well be due to the loss of the option to pronounce the final ‹e›, leading to the wholesale abandonment of the form in this context. In sum, the evidence examined strongly suggests that at the beginning of the period investigated (1150–1250), final [ə] in the 1st person possessive determiner was elided before V, but pronounced before C, and that as early as the mid-thirteenth century, the latter option had been cut. The C-initial contexts, which frequently selected *mine* (with a pronounced final ‹e›) in period I, show evidence of a more or less direct transition to the variant *my*, without the intermediate stage of *min* (with final [n], but without final [ə]), which would have produced consonant clusters. Thus, the speed of the erosion of final [ə] depended on the phonotactic context and was guided by syllable structure constraints, with following Vs speeding up the loss of [ə] and following Cs retarding it.

Another interesting issue is provided by the status of initial ‹h›, which has so far been excluded from the discussion. Three examples are provided in (7)-(9).

(7) Ich cried in alle **myn hert**; Lord, her me, y shal sechen þy riȝtinges. (The Earliest Complete English Prose Psalter; *HC* ME II)
(8) Dame, whom so Ich euere serue, Of **myne honde** he shal sterue. (*Kyng Alisaunder*; *HC* ME II)
(9) Ha **my helper**, y shal synge to þe, for þat þou, God, art my taker, my God, my mercy. (The Earliest Complete English Prose Psalter; *HC* ME II)

Seeing that in the case of the indefinite article, ‹h›-initial contexts began to detach themselves from V-initial ones in the second half of the ME period (see Crisma, this volume, and Schlüter in chapter 8 of this volume), a similar behaviour of ‹h› is to be expected in the case of the possessive determiner.[11] If we compare the evolution of the 1st person possessives before ‹h›-initial lexemes to that before V- and C-initial ones, we find that it is exactly intermediate between these two. Since the ‹e›-less and ‹e›-final variants *min* and *mine*, illustrated in (7) and (8), are presumably phonologically equal before

V, elision of [ə] similarly occurs before ‹h› in the earlier subperiods of ME. Hence, we can neglect this distinction and focus on the establishment of the innovative variant *my*, exemplified in (9). It is obvious that this establishment has already progressed further before ‹h› in subperiod III (26%) than before V even in the later subperiod IV (12%).[12] In contrast, ‹h›-initial contexts lag behind C-initial ones throughout the time span considered and reach the level that C-initial contexts occupy in subperiod I only at the end of the fourteenth century.[13]

The intermediate status of ‹h›-initial contexts can be interpreted as a sign of the articulatory weakness of initial [h]. This in turn leads to a probabilistic treatment of ‹h›-initial words as either V- or C-initial and to a correspondingly probabilistic selection of V- and C-final variants of the determiner (for detailed discussions, see Crisma, this volume, and Schlüter in chapter 8 of this volume). This account does not assume any fundamental change to have taken place in the phonetic quality of the [h], but it does imply that an increase in the realization strength of [h] and a corresponding reinterpretation of [h] as a consonantal onset have occurred. That the strength of [h] is sensitive to additional factors such as differences in etymological origin, the stress level and vowel quantity of the initial syllable, and the frequency and entrenchment of ‹h›-initial words has been shown in Schlüter (chapter 8 of this volume).

Moreover, the case of the 1st person possessive determiner suggests that ‹h›-initial contexts are highly sensitive indicators of the strength or weakness of the C in the coda of the preceding syllable. Long before V-initial contexts show any symptoms of giving up the weakening [n] of the outgoing variants *min* or *mine*, ‹h›-initial contexts anticipate this development and perform their switchover to the ‹n›-less form *my* around the turn of the fifteenth century. This also happens much earlier than the demise of the *an*-variant of the indefinite article before ‹h›-initial words (again, see Schlüter in chapter 8 of this volume). The time lag results from the fact that the *an*-variant, unlike the ‹n›-containing forms of the possessive, was not under pressure of extinction in ME.

2.2 *Thine* vs. *thin* vs. *thy*

Most of what has been said about the 1st person possessive determiner applies equally to its 2nd person counterpart. In the ME section of the *Helsinki Corpus*, a picture emerges that is quite similar to that obtained for the 1st person possessive. Some illustrative examples are given in (10) to (12). The count summarized in table 9.2 follows the same principles as detailed in connection with table 9.1.

(10) Gretunge keiser walde wel bicume þe for **þin hehnesse**. (*Katherine*; *HC* ME I)

(11) Ga to **þine** feder burinesse oðer þer eni of **þine** cunne lið in. (Lambeth Homilies; *HC* ME I)

(12) ne ich ne cnawe **þi** cun ne hwucche men þu hauest ihaued hiderto to meistres. (*Katherine*; *HC* ME I)

As far as V-initial following contexts are concerned, we can again assume that final [ə] is elided, so that the *thin-* and *thine*-variants are phonologically equal in this context. Neglecting this distinction and focusing on the competing innovative form *thy* instead, we see that the first noteworthy exponents before V appear only in subsection IV. The five instances, necessarily involving a hiatus, amount to no more than 6% of the total for their time and are thus even less represented than the 1st person form *my* before V, which runs to 12%.

From this relatively constant state of affairs in the predictably most conservative context, we turn to C-initial contexts, which spearhead the replacement of *thine* by *thy*. As in the case of the 1st person possessive determiner, the ‹n›-less variant already accounts for half of the occurrences before C in the earliest corpus subsection. The further establishment of the form takes place at about the same speed; it is only in subperiod II that it seems to be a little delayed in comparison to its 1st person counterpart, before it takes over completely by the mid-1fourteenth century (subperiod III). Since the unambiguously C-final form *thin* is already largely suppressed before C, but still well established before V and ‹h›, we can conclude that consonant clusters are avoided so rigorously that the *thine*-variant has to be realized with final [ə] as long as this is available before C. The disappearance of the variant by subperiod III indicates that the V-final pronunciation is no longer feasible. As in the case of the 1st person equivalent *mine*, we thus

Table 9.2 The distribution of variants of the 2nd person possessive determiner in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*thin*	38	54	43	91	146	97	72	83
	thine	32	45	3	6	4	3	10	11
	thy	1	1	1	2	1	1	5	6
before ‹h›	*thin*	39	76	42	68	45	78	14	45
	thine	12	24	17	27	2	3	2	6
	thy	0	0	3	5	11	19	15	48
before C	*thin*	53	13	49	9	7	1	3	1
	thine	147	36	59	11	1	0	0	0
	thy	210	51	434	80	610	99	408	99

find substantial evidence that C-initial contexts made a direct transition from one V-final variant (*thine* with a pronounced [ə]) to another V-final variant (*thy*), thus consistently avoiding any filled syllable codas.

The most interesting context in the study is afforded by ‹h›-initial lexemes. Table 9.2 shows that, while the percentages for the *thine*- and *thin*-variants exhibit some diachronic vacillation, the *thy*-variant, which is definitely V-final, begins to establish itself at a speed intermediate between the conservative V-initial and the progressive C-initial contexts. At the beginning of the ME period, V-initial and ‹h›-initial contexts behave identically, with C-initial ones far ahead.[14] At the end of the period, ‹h›-initial contexts have left V-initial contexts behind and moved half-way across to the C-initial ones, which have already completed the changeover to the innovative *thy*-variant.[15] This is further proof that the realization strength of initial [h] increases in the course of the ME period and raises the probability with which the sound is perceived as a C by different writers or in different discourse contexts. The preference for an ideal syllable structure results in a time lag of over four centuries between the contexts which are the first and the last to accommodate the novel ‹n›-less variants.

A close comparison of the data for the establishment of the ‹n›-less variants *my* and *thy* in the related tables 9.1 and 9.2 reveals an interesting time lag in 2nd as opposed to 1st person possessives. This is particularly visible in the data for C-initial contexts in subperiod II and for V-initial and ‹h›-initial contexts in subperiod IV.[16] This contrast suggests that the contexts in which *thy* and *thine* occur are on average somewhat more conservative than those in which *my* and *mine* are used. A likely explanation hinges on the replacement of the original singular pronouns *thou, thee* and *thy/thine* by the erstwhile plural forms *ye, you* and *your,* which has been dated to the thirteenth to seventeenth centuries Baugh and Cable 1993: 237; Graband 1965: 255; Faiß 1989: 155–6; Busse 2002: 244). As a consequence, the original singular forms became increasingly marked as old-fashioned, so that texts employing these forms at all tended to be distinctly conservative in character and thus inclined towards the obsolescent *thine*-form as well. This development was not shared by the corresponding 1st person pronouns, which explains the faster rate of change found in this case.

2.3 *None* vs. *non* vs. *no*

None and its shortened form *no* derive from a contraction of the negator *ne* plus the numeral *ān* 'one' (cf. *OED*: s.v. *none,* pron., a., adv.). That *no* and *none* could alternate depending on the following phonotactic context has occasionally been noted in the literature (Burnley 1983: 61; Kerkhof 1966: 193). The following analysis of the ME section of the *Helsinki Corpus* employs the same criteria as detailed above. In addition to spelling variants of the determiner, amalgamated forms like *nothing, nobody, nowhit, nowight* and so on were included, as were hyphenated or two-word combinations like *no(-)thing,*

no(-)body, no(-)whit and *no(-)wight*. In subperiod I in particular, these occasionally combined with *non(e)*, as can be seen in example (13). In contrast, fully lexicalized items like *nought* > *not, natheless* > *nonetheless* and the etymologically distinct item *nowhere*, all of which have no alternants with *non(e)*, were discounted. Special attention was paid to combinations of *no/non(e)* with comparatives: where the comparative functioned as an attribute as in example (14), these occurrences were included, but where the whole expression represented an adverbial phrase (for instance *no better, no longer, no more*), they were not. Table 9.3 presents the results of the count.

(13) ... ðæt he **nan þing** iseon ne mihte ac him þe licame al toblawen wæs. (*History of the Holy Rood-Tree*; *HC* ME I)
(14) Barow told me that þer ware **no b**etter evydens in Inglond þan þe Lord Moleynys hathe of þe maner of Gressam. (Private letters; *HC* ME IV)

The data in table 9.3 show a by now familiar pattern. Before V-initial lexemes, where the loss of the final [n] would lead to a hiatus, the form *no* comes in very slowly in the fourth subperiod and reaches no more than 8%. The ‹e›-final variant gains ground on the ‹n›-final one more rapidly than in the case of the two possessive determiners, but since final [ə] is presumably elided when it precedes a stronger lexeme-initial V, this difference is negligible from the point of view of the pronunciation. C-initial contexts, on the other hand, are particularly progressive: the form *no* is already established in 60% of the cases before initial C in the 1150–1250 subcorpus, thus leaving initial V more than four centuries behind. As in the cases of *mine* and *thine*, the ‹e›-final variant *none* before C virtually disappears after

Table 9.3 The distribution of variants of the negative determiner in the *Helsinki Corpus*, ME section

		1150–1250		1250–1350		1350–1420		1420–1500	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*non*	49	86	32	91	56	72	43	55
	none	8	14	3	9	22	28	29	37
	no	0	0	0	0	0	0	6	8
before <h>	*non*	2	100	3	43	12	75	5	26
	none	0	0	4	57	1	6	3	16
	no	0	0	0	0	3	19	11	58
before C	*non*	82	28	12	7	11	2	10	2
	none	33	11	25	14	10	2	6	1
	no	176	60	136	79	456	96	540	97

subperiod II, while before V this spelling increasingly imposes itself. Once more, we may draw the conclusion that ‹e› between two Cs was obligatorily pronounced, but was given up as soon as final [ə] was no longer a viable option for the negative determiner. In other words, final [ə] had presumably already been elided before V from early ME on, whereas before C it had a longer lease of life that expired around the mid-fourteenth century. From then on, a different V-final form, the incoming variant *no* has prevailed almost unexceptionally.[17]

As for ‹h›-initial contexts, the data in the earlier two corpus sections are so scant that little can be said about the distribution of the two ‹n›-containing variants. Yet, the rise of the incoming ‹n›-less variant *no* delineates a gradual spread from 0 to 19% in the third subperiod and to 58% in the fourth subperiod.[18] Thus, the rise takes off about a century earlier than before V, and in the course of another one and a half centuries reaches levels occupied by C-initial contexts in the earliest ME subperiod.

Collating all data from the *Helsinki Corpus* presented in sections 2.1–2.3, the gradual introduction of the innovative variant of the negative determiner is, in sum, intermediate in speed between the relatively progressive 1st person possessive and the more conservative 2nd person possessive. The differences manifest themselves in the steepness of the rise in the fourth subperiod, but they are minor and statistically insignificant. The conservatism of *thy/thine* has tentatively been accounted for in the previous section. If the negative determiner is now also a little slower than the 1st person possessive to give up the final *n*, this may be due to a higher degree of prosodic and pragmatic prominence that attaches to the negator and to its lower overall frequency (considering that high-frequency items are generally more liable to undergo phonological reduction).

2.4 Comparison with *ane* vs. *an* vs. *a*

Surveying the three determiners studied so far, we find a large amount of overlap, but also some differences with regard to the case of the indefinite article (see Schlüter in chapter 8 of this volume). In all four cases, we are dealing with syntactically and prosodically close-knit units that allow for resyllabification across the boundary between determiner and following lexeme. What differentiates the two possessives and the negative determiner from the indefinite article is that in the former three cases, the variability which made the forms adaptable to the phonotactic context was given up in favour of a single form. This process of option cutting is functionally well motivated since it reduces the number of allomorphs. The indefinite article, in contrast, has kept its final [n] in prevocalic position to the present day and thereby still conforms to the equally well motivated tendency to idealize the structure of syllables. This prompts the question of why the development of the determiners followed two such contrary pathways (at least in standard English; dialectal usage tells a wholly different story). Crisma (this

volume) assumes that the contrast hinges on the status of *my/mine, thy/thine* (and, by extension, *no/none*) as prosodic words of their own, whereas *a/an* is merely a clitic and thus part of the same prosodic word as the following lexeme. According to Crisma, resyllabification of [n] across a prosodic word boundary became increasingly dispreferred in the change under consideration, so that prosodic-word-final [n] became dispensable, being no longer able to fill an empty onset position in the following word. In a similar vein, Nespor and Vogel (1986: 65) adduce the particular weakness of the article as a reason for its ability to resyllabify.

While a corpus-based description of the distribution of ‹n› will ultimately be inadequate to decide the issue, two other facts may be brought to bear that clearly differentiate between *a/an* on the one hand and *my/mine, thy/thine* and *no/none* on the other: For one thing, the indefinite article is clearly more frequent than any of the other determiners (about 2.5 times as frequent as the possessive determiners and about 3.7 times as frequent as the negative determiner in the ME section of the *Helsinki Corpus*). High frequency is known as a conservative force in the maintenance of irregular paradigms Berg 1998: 16; Bybee 2002: 269–71; Krug 2003: 18), and the availability of two phonotactically different forms of a morpheme (even in the spelling) can certainly be considered as an irregularity. For another, the quality of the nuclear Vs may play a part: While [ɪ(:)] (or later [aɪ]) as in *my* and *thy* and [ɔ(:)] (or later [əʊ]) as in *no* can be separated from a following V through the introduction of the epenthetic glides [j] or [w], [ə] as in the indefinite article does not lend itself to such a hiatus-avoidance strategy. This lack of an alternative bypass may have motivated the variable retention of [n] in its coda.[19] Thus, there are at least four relevant differences between the indefinite article and the longer determiners that conspire to explain their divergence, namely the width of the boundary with the following element, the prosodic strength of the determiner, its frequency and the quality of its nuclear V.

As a consequence, before ‹h›-initial lexemes the ‹n›-less form of the article takes much longer to establish itself than the ‹n›-less forms of the possessive and negative determiners. This is explained by the absence of pressure on the *an*-variant, which is not undergoing elimination but has remained in the language to the present day. For a while, the [n] resyllabified from the article (but not from the other determiners) continued to be preferred over the re-emerging [h] as an onset C in ‹h›-initial lexemes. This can be taken to indicate that [h] is a less prototypical C than [n]: If there is a choice, then the [n] tends to be favoured in onset position. However, the [h] progressively imposed itself so that the [n] ultimately became redundant in the onset and *an* disappeared before ‹h›-initial words.

The history of the determiners does of course not end at the close of the ME era: As tables 9.1–9.3 show, the rivalry between [n]-containing and [n]-less forms has not settled into a stable pattern yet. There is solid

evidence that stylistic considerations and the frequency of the string 'determiner + V-/‹h›-initial lexeme' play an important part in the EModE period (see Schendl 1993: 117–19; 1997: 187–8; Rohdenburg and Schlüter 2000: 469–78; Busse 2002: 233). Further discussion of the final stages of the demise of *mine, thine* and *none* is however beyond the scope of this contribution (for *a* and *an* after 1500, see Schlüter in chapter 8 of this volume).

3 Prepositions

Like determiners, prepositions are function words that usually have a low degree of prosodic prominence and a narrow prosodic boundary with the following word. This is doubtless the reason why a corpus of ME provides many instances in which the final consonantal segment of a preposition is omitted (cf. Mustanoja 1960: 395). The prepositions *of, on* and *in* are typical in this respect.[20]

In contrast to the analyses presented in section 2, all of which deal with reductive phonological change leading to a more or less complete abandonment of final [n], the variable segments to be discussed in section 3 have all been restored in the standard (though not in some dialects and in fixed collocations).

3.1 *Of* vs. *o*

The first preposition to come under scrutiny here is *of*, along with its reduced form *o* (cf. *OED*: s.v. *o*, prep.[2]). One problem of the analysis consists in the fact that *on* as well can be shortened to yield the same reduced form and that, moreover, *o* is one possible realization of the indefinite article (Crisma this volume).[21] However, a short look at the instances of *o* is enough to disambiguate the function of each item. Mustanoja (1960: 352) remarks that *of* and *on* are often interchangeable in ME, an effect that he ascribes to the 'rather common and early reduction of both prepositions to *o* (*a*)'. This loss of distinctiveness is particularly prominent in the *Cursor Mundi*, which has instances of both, *o* 'of' and *o* 'on'. Some examples of the former are given in (15) to (17), and table 9.4 presents the results culled from the four subperiods of the ME part of the *Helsinki Corpus*.

(15) Vs tells **of** adam his stori; **O** suns þat he had thirtti, ... (*Cursor Mundi*; *HC* ME III)
(16) A man **o** þair gains an **of** vr, ... (*Cursor Mundi*; *HC* ME III)
(17) Fild i am **of** buxumnes, **O** mikel reuth and **o** suetnes, ... (*Cursor Mundi*; *HC* ME III)

The data given in table 9.4 can hardly be interpreted as indicative of a continuous diachronic evolution since instances of the ‹f›-less form *o* are

Table 9.4 The distribution of variants of the preposition *of* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*of*	290	100	365	100	1068	100	1140	100
	o	0	0	0	0	1	0	0	0
before ‹h›	*of*	399	100	439	100	888	100	850	100
	o	0	0	0	0	1	0	0	0
before C	*of*	1198	100	1740	100	5327	98	5823	100
	o	1	0	2	0	132	2	1	0

simply too scarce when seen against the overwhelming majority of full forms. Disregarding the period from 1350 to 1420, we only find isolated instances of *o*. That these are, however, not due to errors on the part of ME scribes (or modern editors) is suggested by their restriction to contexts with a following C, a pattern that has also been described for modern dialects (cf. *OED*: s.v. *o*, prep.[2]). Beyond that, the low overall incidence of *o* seems to be owed to a sampling bias. In effect, the third subperiod displays an apparent rise in the numbers of *o*, which is however exclusively due to two texts, the *Cursor Mundi* and the *Benedictine Rule*. Unlike examples (15) and (16), the first instance in example (17) illustrates the fact that the former does however not present a complementary distribution. Rather, the *Cursor Mundi* uses *o* in 86% of the preconsonantal uses (that is in 118 out of 137 instances), and has one exceptional instance of *o* each before V and ‹h›. All other instances of *o* come from the *Benedictine Rule*, which uses it in 25% of the cases before C (14 out of 57 instances). Together, these two deviant texts raise the total for all text samples in subperiod III to 2%. We may thus conclude that loss of [f] in *of* is by no means a pervasive feature in written ME, but it reaches high levels in individual texts. Where it alternates with the full form *of*, the reduced form occurs significantly more often before C than before V or ‹h›. This indicates that the [f] can be resyllabified to fill an empty onset in the following word and vacate its original coda slot, thereby optimizing the structure of the syllables involved.

3.2 *On* vs. *o*

Like *of*, the preposition *on* can reduce to *o*, which is, according to Mustanoja (1960: 399) 'not uncommon before a consonant' (see also Jordan 1974: 161). According to the *OED* (s.v. *on*, prep.), this reduction happened 'before 1200'. It actually appears to be more widespread than the reduction of *of*, and has given rise to the familiar use of *a-* as a proclitic (for example in *around, alive,*

asleep, a-hunting and so on; cf. *OED*: s.v. *on*, prep.). A few revealing examples are quoted in (18) and (19):

(18) Acc hihht & hope **o** Drihhtin Godd & **onn** hiss mildheorrtnesse, ... (*Ormulum*; *HC* ME I)
(19) Hwa-se þencheð **on al** þis. & **o mare** þt ter is. (*Hali Meidhad*; *HC* ME I)

Table 9.5 provides the results of the analysis of the *Helsinki Corpus* according to chronological subsections. Note that the count includes *vp-o(n)* and its spelling variants, but excludes items like *abutan, a-heuen, a-bouen, a-liue* and so on, although they are derived from the preposition under consideration. However, in these items, the preposition had been worn down to *a-* and fixed as early as OE.[22]

Not surprisingly, the reduced form *o* is virtually restricted to C-initial contexts, but unlike the data for *of/o*, table 9.5 shows a constant decline in the use of *o* from 23% before C in early ME to 0% at the end of the period. Apart from the *Cursor Mundi*, which furnishes five of the six instances of *o* in the third subperiod, there is thus practically no risk of confusion within one and the same text between *o* meaning 'of' and *o* meaning 'on'. In the absence of quantified corpus data for OE, it is impossible to tell whether the reduced form of *on* had already seen its heyday in OE or whether the period from 1150 to 1250 constitutes the peak of the evolution that was obviously reversed in the later course of the ME era. It is clear, however, that *o* in the sense of 'on' was quite common in the first subperiod, with examples coming from 13 out of the 17 texts in this subcorpus. The *Ormulum* even boasts a complementary distribution: *o* consistently occurs before C and *onn* before V and ‹h›. Unfortunately, the data presented in table 9.5 are inconclusive with regard to the intermediate status of ‹h› since on the one hand, ‹h›

Table 9.5 The distribution of variants of the preposition *on* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	**%**	**tokens**	**%**	**tokens**	**%**	**tokens**	**%**
before V	*on*	298	100	78	100	110	100	78	100
	o	0	0	0	0	0	0	0	0
before ‹h›	*on*	286	100	104	100	89	100	85	100
	o	1	0	0	0	0	0	0	0
before C	*on*	722	77	202	86	326	98	427	100
	o	221	23	32	14	6	2	1	0

showed a V-like behaviour in the early ME period, and on the other, *o* 'on' had fallen out of use in the later stages.

3.3 *Ine* vs. *in* vs. *i*

This brings us to a largely parallel case involving a different preposition. In the *OED* (s.v. *in*, prep.) and occasionally in the literature on ME, it is pointed out that the preposition *in* may likewise shed its final [n] (see Jespersen 1949: 32; Mustanoja 1960: 386; Jordan 1974: 161). The *OED* furthermore informs us that the short form *i* is never used in OE texts, but figures in some early ME dialects as a more or less regular variant of *in* before C. It also draws attention to the fact that the situation is in some cases complicated by the presence of a final ‹e› in the spelling, but does not address the question as to whether this letter should be pronounced or mute. The form *ine* is of uncertain origin, being either an extension of *in* with inorganic ‹e› or a reduced form of the adverb and preposition *inne* (cf. *OED*: s.v. *ine*, prep.).

Again, two example quotations may serve to illustrate the data summarized in table 9.6. In addition, the corpus contains a few occurrences where the reduced *i* is amalgamated (for example *iþe lufte* 'in the air'), which have not been retrieved for the present count:

(20) ...ȝif we þis doð þenne wunet god almihti **in us**. (Lambeth Homilies; *HC* ME I)

(21) ...leuen **i** godd feader & **in** his deorwurðe sune. & **i** þe hali gast... (*Juliane*; *HC* ME I)

Table 9.6 The distribution of variants of the preposition *in* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*in*	129	97	215	87	487	100	71	100
	ine	4	3	33	13	0	0	0	0
	i	0	0	0	0	0	0	0	0
before ‹h›	*in*	164	96	192	79	435	100	532	100
	ine	7	4	52	21	0	0	0	0
	i	0	0	0	0	0	0	0	0
before C	*in*	241	38	977	84	2920	100	3429	100
	ine	34	5	180	15	0	0	0	0
	i	367	57	13	1	0	0	0	0

Considering the reduced variant *i* first, table 9.6 shows that it is extremely frequent in the period from 1150 to 1250, from which examples (20) and (21) are drawn.[23] It accounts for more than half of the total number of examples before C and occurs in 8 out of the 14 texts included for this period. This figure drops abruptly in the second subperiod. In line with our expectations for this early time, ‹h›-initial lexemes behave like V-initial ones in their retention of the full form *in*. As is the case with *onn* and *o*, *inn* and *i* are in complementary distribution in the *Ormulum*, whereas all the other texts exhibit some degree of variation (cf. also the *OED*: s.v. *in*, prep.[1]).

The *OED*'s suggestion (s.v. *in*, prep.[1]) to the effect that *i* combines particularly often with determiner uses of the definite article and demonstratives has been verified on the basis of the data from 1150 to 1250: as many as 187 out of the 367 occurrences before C (that is 49%) involve combinations like *i þe*, *i þis*, *i þat* and so on.[24] To account for this effect, frequency can be adduced once more: for obvious reasons, a preposition like *in/i* is extremely often followed by one of these determiners, and the repeated adjacency of these items gives rise to an articulatory simplification through omission of the coda C. This phonological erosion is counterbalanced by the high degree of givenness of the combination (see Kiparsky 1988: 373; Berg 1998: 241, 244; Bybee and Scheibman 1999: 578–9; Bybee 2002: 268; Krug 2003: 8–23).

Concerning the peculiar form *ine*, which is present in the earliest subperiod and peaks in the second subperiod, we may assume that its final ‹e› was from the start elided before V and ‹h›, in line with the determiners treated in section 2. In contrast, the arguments marshalled in section 2 have suggested that before C, it was often pronounced as [ə] up to and including the second subperiod, becoming mute thereafter. In our data, the muting coincides with the loss of the corresponding ‹e› in the spelling. Unlike the case of the determiners, there is however no evidence for a direct transition from one V-final form ([inə]) to another ([i]) since the *i*-variant has disappeared by the mid-fourteenth century.

By way of a summary to section 3, prepositions possessing phonotactically distinct variants have turned out to be a more heterogeneous field than the determiners surveyed in section 2. Reasons for this can be found in the different points in time at which prepositions were variable (*of/o* in late, *on/o* and *in/i* in early ME), the frequent reversals of their trajectories of change and text-specific practices in their selection. An additional factor playing a role in connection with prepositions is the fact that they are paired with homophonous adverbs, which have a greater prosodic independence and therefore are more likely to resist the erosion of final segments. Above and beyond these problems, all analyses have uncovered important syllable structure effects, with C-initial contexts representing the most favourable environment for the loss of coda Cs in the prepositions investigated.

4 Verbal endings

The set of corpus studies to be described in section 4 once more focuses on the [n] in final position. Like stem-final [n] in the determiners discussed in section 2, the [n] playing a part in many verbal endings was subject to phonetic erosion in ME, beginning in the North as early as the OE period and reaching the South at the end of the fourteenth century (see Fisiak 1968: 95; for an earlier dating of [n]-loss in the South cf. Jordan 1974: 160). The loss of endings extended to the [ə] preceding the [n] in originally disyllabic or longer verbs like *loven, given* and so on. For the present study, I however concentrate on monosyllabic verbs with a long stem V, in particular *been, doon, goon, seen* and *sayn*. In these cases, loss of [n] directly results in a form ending in a strong, invariable V.

In the literature, two sorts of factors have been adduced that play a role in accelerating or retarding the loss of [n]. One group of factors is represented by the functionally motivated conservation of distinctive grammatical endings. In a pioneering study, Moore (1925) finds that the [n] was very unstable in singular inflections of adjectives and nouns, more persistent in their plural inflections, and generally more stable in verbs than in the other two word classes. In verbs, the [n]-ending in OE and early ME was characteristic of the infinitive, the plural forms of the indicative and subjunctive and the past participle of strong verbs (cf. Fisiak 1968: 95), but in Modern English only participles continue to be marked by [n] (in addition to the corresponding ablaut grade). It has been claimed that while [n] was being eroded, it was retained longer than expected where it served to disambiguate certain grammatical functions (cf. Paddock 1988). Fisiak (1968: 95) singles out the infinitive and past participle as particularly conservative verb forms, while Jordan (1974: 160) mentions the past participle and all plural forms in this respect. A quantitative corpus study should provide more clarity on this subject.

The second type of factor that is known to interfere with a generalized loss of [n] is the specific phonotactic environment. Moore (1925), Dobson (1972: cxxxvii, writing on the early ME *Ancrene Riwle*) and Jordan (1974: 160) remark that final [n] was first lost before Cs, but preserved longer where it preceded V or ‹h› and avoided the collision of two Vs. This claim, too, will have to be tested, one difficulty being that verbs are usually not as closely linked to the following element as are determiners and prepositions. Therefore, the intervening syntactic and prosodic boundary is wider and resyllabification across this boundary is obstructed. We should thus reckon with diminished syllable structure effects, if indeed these can be expected at all.

The following four analyses concentrate in turn on infinitives, indicative and subjunctive plural forms and past participles. In addition, V-initial, ‹h›-initial and C-initial context words will be distinguished so as to separate the effects of grammatical and phonotactic constraints on the use or omission of inflectional ‹n›. The data for the five high-frequency verbs *been,*

doon, goon, seen and *sayn* are lumped together so as to increase the empirical basis of the analyses. Suffice it to say that there are only gradual differences between these verbs, but the general profile of the variation is identical. In the data, the problem of the realization of final ‹e› arises once again: across all subperiods, spellings like *be(e)ne, do(o)ne, go(o)ne, se(e)ne* and *sayne/seyne* crop up. In this respect, Barney (1993: 95) surmises that the final ‹e› is an unetymological addition and has never been pronounced. Yet, spellings ending in ‹e› have been kept separate in the following tables and deserve some comment since they occur quite systematically in infinitives in the early corpus sections and in participles in the later ones.

4.1 Infinitive

Table 9.7 presents the results of the verb forms that were categorized as infinitives. The label '*-n*-variants' refers to forms like *be(e)n, do(o)n, go(o)n, se(e)n, sayn/seyn* and further spelling variants; '*-ne*-variants' are *be(e)ne, do(o) ne, go(o)ne, se(e)ne, sayne/seyne* and so on, and '*-Ø*-variants' are *be(e), do(o), go(o), se(e), say/sey* and other variants. All instances preceding a punctuation mark or a verse break were discarded from the concordances. A selection of typical examples is given in (22) to (24):

(22) ...he ras forr ure god Þe þridde daȝȝ off dæþe, & let te posstless **sen himm** wel Inn hiss mennisske kinde... (*Ormulum*; *HC* ME I)
(23) Ðeo andetnes is to **donne bi** alle þam synnum þe man æȝhwær þurhtihð, ððe on þohte, ... (Bodley Homilies; *HC* ME I)
(24) ...al mi nestfalde cun. þt schulde **beo me** best freond; beoð me meast feondes. (*Juliane*; *HC* ME I)

The data for infinitives given in table 9.7 are more ample than those for plural verb forms or participles given in tables 9.8 to 9.10 below, so their interpretation can serve as a foil for the following studies. In all three phonotactic contexts distinguished, a clear decrease of *-n*-variants and an equally clear increase of -Ø-variants can be observed. In this respect, V- and ‹h›-contexts pattern alike, starting out with a very low level of -Ø-variants and ending up with almost 90% in ME IV. In comparison, C-contexts are more progressive, beginning with 24% of -Ø-variants and finishing with 94%. Thus, despite the presumably wide prosodic and syntactic boundary between the infinitives and following words, there is statistically highly significant evidence in favour of an optimization of syllable structures across this boundary.[25]

In table 9.7, there is no evidence of an expansion of pronounced [h] in the third and fourth subperiods, a finding that runs counter to those described in sections 2 and 3. This can however be explained with reference to the special prosodic status of many of the ‹h›-initial items concerned. As is illustrated in example (22), the verbs in question are often followed by an object

Table 9.7 The distribution of variants of the infinitives of *be, do, go, see* and *say* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	**%**	**tokens**	**%**	**tokens**	**%**	**tokens**	**%**
before V	*-n*-variants	107	98	55	66	97	31	44	12
	-ne-variants	0	0	2	2	10	3	0	0
	-Ø-variants	2	2	26	31	209	66	317	88
before ‹h›	*-n*-variants	33	89	24	65	23	29	11	10
	-ne-variants	1	3	2	5	6	8	1	1
	-Ø-variants	3	8	11	30	49	63	100	89
before C	*-n*-variants	166	72	77	31	119	12	67	5
	-ne-variants	9	4	5	2	14	1	5	0
	-Ø-variants	55	24	167	67	900	87	1200	94

case pronoun, in particular *him, hir, hit* or *hem*, or by a full object noun phrase introduced by a possessive determiner like *his* or *hir*. Auxiliary uses of *be*, moreover, often precede the past participle *had(de)*. These ‹h›-initial words all belong to the class of function words which (both on account of their high frequency and their low degree of prosodic prominence) have remained [h]-less even in standard spoken usage (see Gimson 1994: 175).

Finally, consider the distribution of forms ending in ‹e›. Final ‹e› is the regular OE inflection of infinitives (which at this time had a more nominal character) occurring in the dative case, in particular after the preposition *to*. An example is provided in (23) above. It is striking that in the early corpus sections in table 9.7, final ‹e› appears relatively often before a consonantal onset, but is already absent in other phonotactic contexts. As has been argued above (section 1), final ‹e› was still pronounceable in the first half of the ME era. We may conclude that it was actually pronounced in a number of cases before C and that it represents a relic of the OE system rather than an unetymological addition. The instances of final ‹e› manifesting themselves in greater numbers in ME III, irrespective of the phonotactic context, may however be seen as an excrescent grapheme, possibly anticipating the redeployment of final ‹e› as a length marker for the preceding V.

4.2 Indicative plural

Turning now to finite verb forms, I first concentrate on the indicative plural. Two quotations, (25) and (26), may suffice to illustrate the situation in ME. The results of the count are summarized in table 9.8.

(25) Also for these causes aforsaid, John Taillour, Richard Colcok and John Clerc...aren avoided and **go oute** of the forsaid lordship for euere more,... (Usk: *Appeal(s)*; *HC* ME III)

(26) First, whan men bi opun synne **ben** not kyndeli to Crist, as alle synful men **done** for tyme þat þer wille is turned amys. (English Wycliffite sermons; *HC* ME III)

While it seems that C-initial contexts have an initial advantage of 18% of innovative -Ø-variants compared to V- and ‹h›-initial environments, this contrast is not perpetuated in corpus sections II to IV. Rather, the phonotactic context fails to produce an effect on the distribution of indicative plural inflections. Therefore, the only interesting conclusion that can be drawn from table 9.8 is that the demise of inflectional ‹n› and the concomitant rise of uninflected indicative forms happened at a markedly slower pace than the corresponding developments in infinitives. Thus, at the end of the ME period, the average quota of innovative ‹n›-less forms still hovers around 41% to 48% for indicatives, while it has soared to between 88% and 94% for infinitives. Yet, in PDE both verb forms have arrived at 100% of uninflected forms.

4.3 Subjunctive plural

In ME, the subjunctive played a considerably more important role in the verb system than in later periods, occurring in optative, exhortative, irrealis main and subordinate clauses as well as in conditional, concessive and comparative subordinate clauses (Fischer 1992: 248, 349–57). Even so, the mode showed the first unmistakable signs of disintegration, which also involved a loss of distinctiveness of its forms compared to the indicative (Burnley 1983: 32). Examples (27) and (28) illustrate forms figuring in traditional subjunctive contexts, and table 9.9 presents the scant findings for the verb forms under consideration.

(27) lokið þt te parlures **beo** on eauer euch half feaste & wel itachet. (*Ancrene Riwle*; *HC* ME I)
(28) Bland ðies folces hierte, þat hie ne **sien** ne understande ðe rihte weiȝe to heuene riche. (*Vices and Virtues*; *HC* ME I)

Due to the low number of examples of subjunctives in each of the three contexts in table 9.9, little can be said about a phonotactically motivated distribution. Very broadly speaking and in line with the findings repeatedly described above, the uninflected innovative -Ø-variants seem to establish themselves slightly faster before C than before V. As for ‹h›, the contrast with the progressive C-contexts shown in subperiod II is reasonably convincing. Interestingly, even in the more conservative V-initial contexts, the incoming forms reach over 80% by ME III, and as early as the fourth subperiod, ‹n›-containing forms have disappeared but for a minority of 9 examples out of 132. Thus, the rate of change from inflected to uninflected subjunctives equals that found in table 9.7 for the infinitive, and clearly surpasses that

Table 9.8 The distribution of variants of the indicative plural of *be, do, go, see* and *say* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*-n*-variants	34	100	39	91	126	82	67	48
	-ne-variants	0	0	1	2	2	1	6	4
	-Ø-variants	0	0	3	7	25	16	67	48
before ‹h›	*-n*-variants	12	100	12	86	26	81	7	41
	-ne-variants	0	0	1	7	0	0	3	18
	-Ø-variants	0	0	1	7	6	19	7	41
before C	*-n*-variants	58	82	92	89	553	87	213	48
	-ne-variants	0	0	0	0	5	1	20	5
	-Ø-variants	13	18	11	11	80	13	207	47

Table 9.9 The distribution of variants of the subjunctive plural of *be, do, go, see* and *say* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*-n*-variants	3	75	1	100	3	19	1	6
	-ne-variants	0	0	0	0	0	0	1	6
	-Ø-variants	1	25	0	0	13	81	16	89
before ‹h›	*-n*-variants	–	–	12	100	2	67	0	0
	-ne-variants	–	–	0	0	0	0	0	0
	-Ø-variants	–	–	0	0	1	33	1	100
before C	*-n*-variants	10	48	5	42	15	17	7	6
	-ne-variants	4	19	0	0	0	0	0	0
	-Ø-variants	7	33	7	58	74	83	106	94

for the indicative, depicted in table 9.8. Part of the reason for the innovating behaviour of the subjunctive (seemingly counter-intuitive in an obsolescent verbal category) may be an analogous levelling on the model of the singular: the 2nd and 3rd person forms here are likewise uninflected and thereby morphologically distinct from the indicative. The subjunctive can thus be argued to be developing into a characteristically uninflected verb form in the course of the ME era. This evolution is moreover fully in line

with typological principles according to which a marked category (which is what the subjunctive progressively becomes) tends to have reduced inflectional paradigms and fewer allomorphs (Greenberg 1966: 46–7).

4.4 Past participle

The fourth and last type of verb form traditionally inflected with ‹n› is the past participle of strong verbs. Once more, the corpus analysis comprises the items *be(e)n, do(o)n, go(o)n, se(e)n* and their spelling variants with and without ‹n› and ‹e›, this time also including variants with reflexes of the OE *ge*-prefix, for example *ybe(n(e)), ago(n(e))*. The weak verb *sayn/seyn* is excluded from the count since it forms the participle by adding a dental suffix. The variants and their phonotactic contexts are illustrated in examples (29) to (31) and quantified in table 9.10:

(29) And thou hast **seyn him**, and he it is, that spekith with thee. (Wycliffe: *The New Testament*; *HC* ME III)
(30) But his clennesse was moche **i-sene at** his laste ende, (*Polychronicon*; *HC* ME III)
(31) He sede, bi seint gile, Ihc habbe **go mani** Mile, ... (*King Horn*; *HC* ME II)

Past participles are the only forms in the inflectional paradigms of strong verbs that have retained the ‹n›-suffix down to the present day. Yet, as example (31) shows, the ‹n› became variable in ME just as in the case of infinitives and plural verb forms. What is more, table 9.10 indicates that loss of ‹n› was by no means the exception: in the most favourable contexts, before C, we

Table 9.10 The distribution of variants of the past participles of *be, do, go* and *see* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*-n*-variants	28	93	24	73	69	70	62	42
	-ne-variants	2	7	1	3	16	16	62	42
	-Ø-variants	0	0	8	24	13	13	24	16
before ‹h›	*-n*-variants	9	100	6	100	7	58	12	55
	-ne-variants	0	0	0	0	1	8	4	18
	-Ø-variants	0	0	0	0	4	33	6	27
before C	*-n*-variants	42	84	20	53	75	44	80	35
	-ne-variants	3	6	1	3	32	19	75	33
	-Ø-variants	5	10	17	45	65	38	72	32

find up to 45% of ‹n›-less forms, and a third of the participles are still ‹n›-less in subperiod IV. The figures for -Ø-variants are consistently (and in ME III and IV, significantly) lower when a V follows:[26] here the peak in subperiod II occurs at 24% and at the end of the ME era, only 16% of participles remain ‹n›-less. The third type of phonotactic context, a following ‹h›, turns out to be a conservative environment for final ‹n› in the first two diachronic stages, but in the later two stages it shows a behaviour that is intermediate between V and C. Though example numbers are too low to reach statistical significance, table 9.10 thus provides reasonably strong evidence in support of the conclusion (drawn in section 2 of this contribution and in Schlüter, chapter 8 in this volume) that initial [h] was reinforced in the latter half of the ME period.

As already mentioned in the introduction to section 4, final ‹e›-spellings become strikingly frequent in the third and especially fourth corpus sections. The fact that they occur only sporadically in the earlier subcorpora suggests that these graphemes are in fact unetymological additions that were never pronounced. What we are witnessing here may be the incipient use of a following ‹e› to mark the length of the preceding V at a time when final ‹e› was generally no longer pronounced.

In conclusion to this section, a complex scenario has been depicted involving variable [n], [ə] and [h]. With regard to the former, the corpus data show the beginnings of a demise in all grammatical categories (infinitives, indicative and subjunctive plural as well as past participles) in the period from 1150 to 1350. The demise is most advanced in infinitives and subjunctives, it is considerably delayed in indicatives, and it is halted and reversed in past participles. At the close of the ME era we thus end up with a system in which infinitives and subjunctives are typically ‹n›- (and [n]-) less and where over half of the indicatives and about two-thirds of the participles still maintain final ‹n› (and [n]). In the EModE era, ‹n› continued to disappear from the finite verb forms, whereas it became fully re-established as a past participle marker. Thus, functional motivations such as the marking of grammatical categories superimposed themselves on the phonetic erosion of final [n].

The instances of final ‹e› cropping up in the data have been given two different explanations: as survivals of the dative inflection on infinitives in the early corpus sections and as unpronounced indicators of V length in monosyllabic verbs in the late sections.

Each of the four studies outlined here has furthermore revealed more-or-less stable evidence in favour of a phonotactic preference for [n]-final verb forms preceding Vs and [n]-less forms preceding Cs. The exceptional role of [h] in this respect has only received limited support on account of the insufficient database and the weak status of the ‹h›-initial function words typically following verbs.

5 Further variable items

Section 5 brings together three heterogeneous items, the 1st person pronoun *I/ich*, the adjectival and adverbial suffix *-lich/-ly* and the quantifier *everich/every*, which are comparable with regard to their final variable C, namely the affricate [tʃ].[27]

5.1 *Ich* vs. *I*

The OE forerunners of the modern pronoun *I* were *ic* in the south and *ik* in the north of England. In unstressed contexts, these shed their final Cs in the course of the ME era and yielded modern *I*, pronounced [i] (cf. Mossé 1952: 54–5; Graband 1965: 231; Fisiak 1968: 86; Samuels 1972: 137). The [i] was re-lengthened as [iː] just in time to undergo the Great Vowel Shift to [aɪ] (cf. Strang 1970: 262 and footnote 3).

However, we know from the secondary literature that the loss of the final Cs proceeded from the northern and Midland dialects in the thirteenth-century (Horobin and Smith 2002: 111); they were preserved longer before Vs (Graband 1965: 231), generally in stressed uses (see Mossé 1952: 54–5; Fisiak 1968: 86; Samuels 1972: 137), and in southern dialects down to the nineteenth century (Graband 1965: 231; Ihalainen 1994: 222).[28]

The count presented in Table 9.11 includes all variants of *I/ich* spelled as separate words in the corpus.[29] Contractions like *icham* and *ichull* are not included (though they draw attention to the special role played by semivowels like [w], which pattern with Vs in this respect). Examples (32) and (33) illustrate the variation pattern:

(32) ... ȝef **ich** on molde mote wiþ a mai, **y** shal falle hem byfore & lurnen huere lay, ... (Historical poems; *HC* ME II)

(33) Nou **ich haue** wonne leue, ȝif þat **I me** shulde greue, Hit were hounlawe. (*Dame Sirith*; *HC* ME II)

Table 9.11 The distribution of variants of the 1st person singular pronoun in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*ich*	169	100	121	95	4	3	0	0
	I	0	0	6	5	135	97	253	100
before ‹h›	*ich*	171	100	105	97	3	2	0	0
	I	0	0	3	3	156	98	316	100
before C	*ich*	513	94	363	42	0	0	0	0
	I	33	6	494	58	1106	100	2043	100

In all three phonotactic contexts represented in table 9.11, the complete demise of the outgoing form *ich* can be observed. The turnover is extremely rapid, so that a clear phonotactically motivated distribution is largely restricted to subperiod II. Here, the percentage of the reduced form *I* has soared from 6% to 58% before C, while before V and the weakly realized or mute ‹h› the change is only in its initial stages.[30] Even the later corpus sections indicate no reduction.[31] By the mid-fourteenth century, only seven relics of the older full form remain among around 1400 hits. Significantly, these leftovers are found before V and ‹h›. The corpus data thus demonstrate that the optimization of syllable structure is the single most important factor in the transitional stages of the development.

5.2 *-liche* vs. *-lich* vs. *-ly*

The suffix *-ly*, originally used to form de-adjectival and denominal adjectives, goes back to a southern OE form *-lic* and a northern variant *-lik*. The *OED* (s.v. *-ly*, suffix[1]) claims that the modern form *-ly* 'seems to be chiefly due to the influence of the Scandinavian *-lig-*' and appears first in northern and Midland dialects. In her study of the suffix, Ciszek (2002: 110, 125, 126) however finds no evidence of Scandinavian influence, but states that the introduction of the *-ly*-variant started in West-Saxon around the year 1200, then spread to the East Midlands and the South and was completed in the fifteenth century. While the exact localization of the initial stages of the change need not concern us here, the literature on the suffix also yields various insights concerning the functional and formal changes it underwent. Thus, in OE, adjectives in *-lic* were regularly combined with the suffix *-e* to form adverbs, but the combination of *-lic* and *-e* was soon apprehended as a unitary adverbial suffix (cf. Faiß 1989: 139–40). As a consequence of the general loss of final [ə], the adjectival and adverbial suffixes became homophones in the course of the ME era.[32] Moreover, the *OED* and Ciszek (2002: 122, 127) hint that the variable final [tʃ] or (northern) [k] was often preserved before a following V and that the V-final forms *-ly* or *-liche* were typically used before Cs. These statements have, however, not been supported with quantitative evidence and will therefore be tested on the ME part of the *Helsinki Corpus*.

The rough dating of the transition from *-lich(e)* to *-ly* has been established by Ciszek (2002: 110) as occurring between ME II and III. The analysis in table 9.12 is based on a search for all spelling variants of the suffix preceded by a wildcard. Three examples are given in (34) to (36). The data are split up according the following segmental context and the written form of the suffix. Certain items had to be discarded, namely *hali/holi*, which alternates with *haliʒ/holiʒ*, *lic/ʒelic/ilich/ilike*, which have no V-final counterpart, and *seli/unseli*, which do not vary either.

(34) And the halle of the palays is full nobe**lych** arrayed & full merueylleously atyred on all partyes ... (*Mandeville's Travels*; *HC* ME III)

(35) I cannot see who may trew**liche** **ch**alenge comunite þus wiþ Ihesu and his iust Moder, ... (*The Cloud of Unknowing*; *HC* ME III)
(36) And bi þat þou maist it knowe if þou it touche it wol **gladli** blede. (A late Middle English treatise on horses; *HC* ME III)

The data in table 9.12 support Ciszek's dating of the turnover and indicate that it was indeed an extremely rapid one, occurring in all three contexts virtually at the same time. It only begins to take off in subperiod II, when the loss of [tʃ] in *ich* in the same sample of texts is already well under way. If the *-lich-* and *-liche*-variants are totted up in subperiods III and IV (where the final ‹e› is most likely to be mute), we find statistically significant contrasts between V- and C-contexts, even though the contrast amounts only to 5% for ME III and 2% for ME IV.[33]

While these results provide only weak corroboration for the role of syllable structure constraints, this is in part due to the crude approach taken. A restriction of the material to individual dialects, authors or texts promises to be more revealing. Thus, I have undertaken a detailed study of Geoffrey Chaucer's complete works in which I considered the variant *-lich* to end in a C and the variant *-ly* to end in a V, and judged for each instance of *-liche*, whether the ‹e› should be pronounced or mute, based on metrical and phonotactic considerations. While limitations of space forbid me to dwell on the particulars, suffice it to say that a single-authored corpus from as late as the third subperiod of the *Helsinki Corpus* in this way produces statistically highly significant support for syllable structure effects.

Table 9.12 The distribution of variants of the adjectival/adverbial suffix *-ly* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*-lich*	23	12	8	12	12	4	1	0
	-liche	162	87	51	77	23	8	21	5
	-ly	1	1	7	11	251	88	421	95
before ‹h›	*-lich*	13	18	7	21	1	2	0	0
	-liche	59	82	24	73	8	14	0	0
	-ly	0	0	2	6	49	84	76	100
before C	*-lich*	70	13	18	15	18	2	2	0
	-liche	468	85	93	77	39	5	23	2
	-ly	11	2	10	8	788	93	947	97

5.3 *Everiche* vs. *everich* vs. *every*

The quantifier *every* goes back to a contraction of OE *ǣfre ǣlc*. By early ME times, it had developed into *everich* (and its numerous spelling variants), still with a final affricate [tʃ]. The *OED* lists the first reduced instance ending in ‹i› in the late twelfth century. Since the third syllable in the item under consideration can carry secondary stress and variants with a final ‹e› in the spelling do occur, the following analysis would doubtless profit from a close look at individual examples to decide whether the ‹e› should be pronounced or not in a particular case. This complication will however be disregarded here.

The data given in table 9.13 are limited to prenominal uses of *every/ everich*, where syllable structure effects should be the most prominent on account of the tight syntactic and prosodic connection with the following head. In pronominal uses, the item usually (but not always) retains the final ‹ch›. Compounds like *everyone, everywhere* and so on have been included. Among the C-final spelling variants found in the corpus, only those suggesting a final affricate have been considered, that is, forms like *eueril* and *euerilk* have been excluded. Some examples are provided in (37) to (39):

(37) Now ben þe kynges men **euerychon** And ek Porus al at on, ... (*Kyng Alisaunder*; *HC* ME II)
(38) he mai **eueruche day** ys fon him se byfore; ... (Historical poems; *HC* ME II)
(39) Jt is ywrite þat **euery þing** Hym-self shewеþ in þe tastyng. (*Kyng Alisaunder*; *HC* ME II)

Table 9.13 The distribution of variants of the attributive quantifier *every* in the *Helsinki Corpus*, ME section

		1150–1250 (ME I)		1250–1350 (ME II)		1350–1420 (ME III)		1420–1500 (ME IV)	
		tokens	%	tokens	%	tokens	%	tokens	%
before V	*everich*	–		6	86	7	64	9	39
	everiche	–		1	14	0	0	0	0
	every	–		0	0	4	36	14	61
before ‹h›	*everich*	–		0	0	1	20	–	
	everiche	–		1	100	1	20	–	
	every	–		0	0	3	60	–	
before C	*everich*	–		6	29	2	2	0	0
	everiche	–		10	48	2	2	0	0
	every	–		5	24	105	96	138	100

The dataset yielded by this search is far from ample; yet the distribution of examples falls into place. As is always the case in changes involving the loss of a final C, C-initial contexts are on the forefront of the change: the loss of final [tʃ] has obviously taken off by ME II and is already nearing completion in ME III. In the same period, we see the first occurrences of reduced forms before V, where the completion of the changeover is still pending towards the end of the ME period. The few occurrences of the quantifier before ‹h› distribute as would be expected on account of the comeback of pronounced [h] from ME III onwards: ‹h›-initial contexts are exactly intermediate between C- and V-initial contexts.

Incidentally, the nine occurrences of *everich* in ME IV are restricted to the fixed expression *everichone* in several spellings: *euerichoon, everych one* and even *every-chon*. Interestingly, the latter spelling, which occurs twice in *Ludus Coventriae*, shows that the ‹ch› is no longer perceived as belonging to *every*.

Summarizing the findings in this section, the affricate [tʃ] in final position has turned out to constitute another weak segment whose disappearance is codetermined by syllable structure constraints militating against the adjacency of two Cs or Vs across word boundaries. The relevant evidence from the 1st person pronoun is solid; that from the adjectival and adverbial suffix *-ly/-lich* stands in need of clarification (as has been done on the basis of the Chaucer corpus); finally, examples of the quantifier *every/everich* pattern nicely but are too scant to be conclusive. Be that as it may, the three studies have shown that the demise of final [tʃ] proceeds at different speeds depending on the item concerned: it is given up fastest in the personal pronoun, not much later in the quantifier, and most hesitantly in the suffix. In other words, the phonetic erosion is overshadowed by lexical distinctions. Relics of the obsolescent long variants are typically found in high-frequency collocations like *ich am* or *everichone*, where the affricate is protected from erosion by the ideal phonotactic constellation it ensures.

6 Discussion and conclusion

Taken together, the above analyses have laid out a complex scenario, involving the interwoven reinforcement of initial [h], demise of final [ə] and loss or wavering of further final segments, above all [n] and [tʃ], all taking place in the ME era. The fact that weak initial segments may be subject to strengthening while final segments tend to be or to become weak is well in line with the cross-linguistic findings summarized in Zuraw (this volume): speakers tend to articulate sounds more distinctly when they occur at the beginning of a word than when they occur in a less prominent position.

Individual synchronic stages as well as diachronic developments reveal the prominent role played by syllable structure constraints as determinants of phonological variation. The segments under discussion were all available

to circumvent hiatuses as well as consonant clusters: Temporarily, [n] and [tʃ] appeared only when resyllabified in the onset of an otherwise V-initial word, but were dropped elsewhere. In the latter half of the period, when these sounds were falling into obsolescence, initial [h] was re-introduced as a rescue strategy for syllable structures, because an [h]-onset is better than an empty onset. During the long history of its disappearance, final [ə], the unique remainder of the disintegrated OE inflectional system, was likewise put to use to optimize syllable structures. The data have permitted us to conclude that [ə] was generally elided early before V, thus avoiding a hiatus with a weak first member. Before C it seems to have been retained considerably longer to prevent the creation of a consonant cluster. But when the pronunciation of final [ə] became unavailable (around the middle of the fourteenth century), ‹e›-final variants were exchanged more-or-less directly against another type of V-final variants that had discarded the final C as well as the ‹e›. In most cases, longer C-final variants were eventually given up in favour of shorter V-final variants.[34] Since English has more C-initial words than V-initial ones, this result translates into a statistical trend towards the optimization of syllable structures.

The phonological changes analysed in this contribution obviously have a bearing that goes far beyond the bounds of phonology. Phonetic erosion and the phonotactically motivated distribution of segments interact with the morphological marking of grammatical distinctions.[35] The morphological categories involved are: remnants of the OE inflectional system in the determiners *ane, mine, thine* and *none*, adverbs in *-liche* and the quantifier *everiche*, all taking the shape of an additional [ə]; the functional split between prenominal and independent uses of *my/mine, thy/thine* and *no/none*; and the marking of infinitives, indicative plural and subjunctive plural forms and past participles of verbs by means of the [n]-inflection. While issues revolving around the optimization of syllable structure have been at the centre of the discussion so far, a few remarks are in place concerning the grammatical side of things.

An ideal morphological system has unambiguously marked categories that are fully uniform. In other words, it contains neither homomorphs nor allomorphs. This translates into a bi-unique system where each morphological form has exactly one grammatical function, and vice versa (Behaghel 1924: vi; Paddock 1988: 262; Berg 1998: 11). Labels that have been used for this grammatical ideal are the 'one meaning, one form' principle (Anttila 1972: 181), 'paradigm coherence' (Kiparsky 1982: 101) or 'Systemzwang' (Allerton 2000: 574, 577). This principle is functionally well-motivated since it simplifies the morphological paradigms to be learned in language acquisition, alleviates the memory load and facilitates encoding and decoding (Kiparsky 1982: 115; Allerton 2000: 577).

Such an ideal morphological system is of course in conflict with what is ideal from a phonological point of view (see Kiparsky 1982: 109–15; Allerton

2000: 574, 577). Articulatory facilitation requires the reduction of complex phonological forms and leads to phonetic erosion; moreover, constraints like those simplifying syllable structure lead to the creation of phonotactically conditioned allomorphs and avoid complex movements of the speech organs. Examples abound in the preceding sections.[36]

These conflicts can be solved in different ways. One significant factor is the importance of the morphological category in question (Kiparsky 1982: 89, 115). Thus, the OE case system eventually lost its function, so that its exponents, including [ə], became dispensable. The marking of infinitives and subjunctives by means of [n] was given up early and in line with typological markedness principles. In contrast, indicatives preserved the inflection considerably longer, and past participles even re-established it after a period of vacillation. Similarly, phonetic erosion was halted in the case of syntactically independent uses of the 1st and 2nd person possessives *mine/thine* and the negative *none*. In these isolated cases, the retention of a morphological marker significantly retarded, or even outweighed, the trend towards phonetic reduction.

Another overriding factor is the balance a language strikes between the phonological integrity or rigidity of its morphemes and their phonotactic adaptability. The latter was at its height in the ME period; in the long run, however, the shape of most of the morphemes studied (with the significant exception of the indefinite article) was fixed and resyllabification restricted. Thus, the conflict-solving strategies arbitrating between ideal syllable structure and ideal morphological paradigms can vary not only between languages, but also from one historical stage of a language to another. This does not mean that the contrary forces are not operative at a particular time. Possibly the numerous and well-known cases of false juncture occurring in ME (for example *for the nones* 'with the occasion', *atte nale* 'at the ale', *atte nende* 'at an end', *a neiland* 'an island', *a ninch* 'an inch', *a nal* 'an awl', *a newt* 'a lizard', *mi nei* 'my eye'; see Jespersen 1949: 33; see also examples (ii) and (iii) in note 8) are partly due to the tendency to attribute an invariant form to determiners with a variable final [n]: the frequent prenominal occurrence of *an, min, thin* and *non* caused the [n] to be mis-analysed as the initial element of the following noun.

In a nutshell, the focus of the present survey has been on weak segments and their interactions across word boundaries. To a large extent the phonotactic variance is in fact explained as a result of syllable structure effects such as the avoidance of hiatuses and consonant clusters and the preference for strong consonantal syllable onsets. It has turned out, however, that these factors cannot be studied in isolation. After all, morphological distinctions typically hinge on the presence or absence of certain final segments, and depending on the importance of the morphological distinction concerned, phonotactic optimality may prevail against or give way to morphological marking.

Notes

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2. On further examples of variation in stem-final [n], see Jespersen (1949: 31–3).
3. For the situation in EModE, see Schendl (1997) and Rohdenburg and Schlüter (2000: 469–78).
4. According to Ekwall (1975: 96; see further, Strang 1970: 262 on the parallel case of the personal pronoun *I*), *my* in ME and EModE was usually given a weak pronunciation that had not been subject to Open Syllable Lengthening (cf. the modern survivals *milord, milady*). *Mine* also had an unemphatic form [min] in determiner uses. The PDE determiner [maɪ] must therefore represent a re-lengthened form, developed just in time for it to undergo the Great Vowel Shift. This should not distract from the fact that the vast majority of speakers of nonstandard British English still use /mɪ/ to the present day.
5. Diverging views prevail on the dating of this loss: Graband (1965: 252) and Faiß (1989: 155) date its beginnings to the twelfth century; Mustanoja assigns them to the late thirteenth century for the North and to the fourteenth and fifteenth centuries in the remaining area; Schendl (1993: 119; 1997: 185) finds massive evidence of the popularity of the [n]-containing forms as late as the sixteenth century.
6. Most authors restrict these statements to the two possessive determiners; some, however, extend their discussion to the negative determiner *no/none*.
7. To recover as many spelling variants as possible, ample use has been made of the 'Wordlist' function of the *Wordsmith* concordancing software.
8. Lexemes which developed a consonantal onset only in the EModE period (for example *use, unity, one*) are counted among the V-initial lexemes. For a more detailed study of these segmental changes, see Schlüter (2006). Examples like (i), involving words where an initial ‹h› is omitted in the spelling, are nevertheless classified as ‹h›-initial contexts. In addition, in late ME, an increasing number of instances of types (ii) and (iii) crop up, in which the spelling indicates a resyllabification of the [n] in the onset of a V-initial lexeme. These are considered V-initial.
   (i) What to me and to thee, womman? **myn our** ['hour'] cam not ȝit. (Wycliffe: *The New Testament*; *HC* ME III)
   (ii) ... ther I haue had grette scheyr of **my nowlde** ['old'] aqweyntans, as the bryngar heyrof can informe you; ... (Private letters; *HC* ME IV)
   (iii) And therffore I praye you, **myn nown** ['own'] swete Cossen, evene as you loffe me to be mery and to eate your mete lyke a woman. (Private letters; *HC* ME IV)

The emergence of such misspellings provides support for Minkova's (2003: 149–160; see also 2000: 506–7) assumption to the effect that resyllabification across word boundaries became possible only in ME.

9. In the OE section of the *Helsinki Corpus*, there is as yet a single example where the possessive determiner has lost its ‹n›, significantly before another C: *mi lar.* Other sources, for example the *Old English Dictionary Corpus*, seem to provide larger numbers of *my* preceding a C.
10. This is not to deny the fact that a more comprehensive study of the phenomenon would have to distinguish between singular and plural uses as well as different case forms of the determiner. However, such an in-depth analysis is beyond the scope of the present survey.
11. The data provided in table 9.1 for ‹h›-initial lexemes do not distinguish between native Germanic words and Romance loans since there are no more than ten exponents of the latter category over the whole period investigated.
12. The difference fails to pass the chi-squared test on account of the scarcity of data in the category preceding ‹h›. The difference between V- and ‹h›-initial contexts in subperiod IV is however highly significant: the error probability as calculated by a chi-squared test is $p = 8.54 \cdot 10^{-16}$ (***).
13. The differences between ‹h›- and C-initial contexts are highly significant throughout: ME I: $p = 4.28 \cdot 10^{-5}$ (***); ME II: $p = 6.49 \cdot 10^{-54}$ (***); ME III: $p = 5.46 \cdot 10^{-58}$ (***); ME IV: $p = 2.40 \cdot 10^{-38}$ (***).
14. The chi-squared test is not applicable to test the difference between V-initial and ‹h›-initial contexts in subperiod I since the *thy*-variant is too infrequent. The difference between ‹h›-initial and C-initial contexts is however highly significant: $p = 4.31 \cdot 10^{-12}$ (***).
15. The differences between ‹h›-initial contexts and both V- and C-initial contexts are highly significant: $p_{V:h} = 5.53 \cdot 10^{-8}$ (***); $p_{h:C} = 2.38 \cdot 10^{-41}$ (***).
16. While the difference between the V-initial contexts in subperiod IV is not significant, that between the ‹h›-initial contexts in subperiod IV and that between C-initial contexts in subperiod II reach the first level of significance: $p_{V:V} = 0.17$ (n.s.); $p_{h:h} = 0.027$ (*) and $p_{C:C} = 0.013$ (*).
17. The residual examples that are found in the two latest subsections of the corpus may be related to emphatic uses as in example (i), while example (ii) is probably due to the parallelism thus achieved with the preceding *non oþer.*
    (i) Also þat þer schal **non** wardeins make **non** newe statut3 ne newe ordinance with-oute assent of alle þe bretherhede, ... (Documents (*The Gild of St. Fabian and Sebastian*); *HC* ME III)
    (ii) ... loke þat þe brynkes of þe leded pottus mouþe & þe brynkus of þe pot with þe ryndus be wel dabbid with cleye & with hors-donge so þat **non** oþer flauor entre in-to þe pottus ne **non** reche come oute. (A late Middle English treatise on horses; *HC* ME III)
18. The differences between ‹h›-initial contexts on the one hand and V- and C-initial ones on the other fail to become significant for any of the four corpus subsections since the dataset for ‹h›-initial contexts is too small to license the application of the chi-squared test.
19. In theory, one might have expected the strong form of the article, [eɪ], to feature in prevocalic contexts, but contrary to the possessives (see note 34), this is not what happened. Rather, many modern dialects have forms like [ə.aepl] (Kjellmer 2001: 313–14).

20. The preposition *in* also has an ‹e›-final variant, on which see 3.3 below. Spellings with final ‹e› play no role in the corpus in connection with *of* and *on*.
21. Present-day relics of the reduction of *on* to *o* or *a* are found in forms like *five o'clock, asleep, a-hunting* and so on. In *twice a day*, the preposition *on* and the indefinite article are confused; in *of a Sunday*, the confusion concerns the prepositions *on* and *of* (see Jespersen 1949: 32; see Mustanoja 1960: 352).
22. Following the *OED* (s.v. *on*, prep.), the ‹n›-containing variant *an* also occurred in fusions like *an-edge, an-hand* and so on, but my corpus yielded no examples. Note furthermore that the form *one*, cropping up occasionally in the later corpus sections, is silently included among the *on*-forms since the final ‹e› can be assumed to have been mute by this time.
23. Jespersen (1949: 32) informs us that reduction of *in* to *i* was (again?) particularly frequent in EModE.
24. For some reason, the same is not true of the prepositional variant *o*. In period I, only 57 out of its 226 occurrences (25%) involve the definite article or demonstratives.
25. The chi-squared test yields the following error probabilities for the contrast between V- and C-contexts: ME I: $p = 1.18 \cdot 10^{-7}$ (***); ME II: $p = 5.92 \cdot 10^{-8}$ (***); ME III: $p = 1.42 \cdot 10^{-16}$ (***); ME IV: $p = 1.28 \cdot 10^{-5}$ (***).
26. ME I: $p = 0.20$ (n.s.); ME II: $p = 0.20$ (n.s.); ME III: $p = 2.05 \cdot 10^{-5}$ (***); ME IV: $p = 0.0034$ (**).
27. The corpus searches for these items included spelling variants like *ic, -lic* and *everich*, which could as well be taken to represent a final stop [k]. The actual quality of the final C is difficult to establish on the basis of spelling evidence alone.
28. This concerns in particular prevocalic high-frequency uses like *ich am* and contractions like *cham* 'I am' and *chill* 'I will' (Graband 1965: 231; Horobin and Smith 2002: 111).
29. In the entire corpus there is not a single instance of the spelling *ik*.
30. The difference between C-initial contexts and V- and ‹h›-initial ones is statistically very highly significant: ME II: $p_{C:V} = 8.72 \cdot 10^{-29}$ (***); $p_{C:h} = 5.84 \cdot 10^{-27}$ (***).
31. As was the case with the verb forms studied in section 4, *ich* and *I* are often followed by forms of the weakly stressed function word *have*. Therefore, no significant distinction between V- and ‹h›-initial contexts can be expected.
32. In ME, the presence or absence of an additional inflectional ‹e› in versified language also served metrical purposes (for instance in the *Ormulum*, cf. *OED*: s.v. *-ly*, suffix[1]; in the *History of Brut*, see Ciszek 2002: 123; in Chaucer and Gower, see Bihl 1916: 146–7): The additional [ə] was sometimes required to form an unstressed buffer syllable because in longer adjectives and adverbs the suffix itself could carry secondary stress, for example in *yemanly, thriftily* (see Dobson 1968: 827, 830; Barber and Barber 1990: 85).
33. ME III: p=0.0033 (**); ME IV: p=0.020 (*).
34. In Vennemann's (1972: 213–16) terms, this type of change can well be described as a 'rule inversion': the context-dependent dropping of a segment of the base form is reanalysed as the epenthetic addition of the same segment to a reduced base in the complementary set of contexts.
35. For a parallel conclusion stressing the avoidance of grammatical homonymy in phonological change, see Paddock (1988), and for a dissenting opinion contesting the importance of grammar compared to frequency measures, see Mańczak (1993).

36. The workings of a contrary force, nunnation (that is the analogical extension of a final [n] to words which etymologically had none) can be seen in items like *often* (< *oft*), *happen* (< *hap*), *listen* (< *list*), *heighten* (< *height*), *frighten* (< *fright*) (see Jespersen 1949: 34).

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