

CLOSING SUFFIXES IN OLD ENGLISH: A STUDY BASED ON
RECURSIVE AFFIXATION¹

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ABSTRACT

This paper takes issue with the lexicon of Old English and, more specifically, with the existence of closing suffixes in word-formation. Closing suffixes are defined as base suffixes that prevent further suffixation by word-forming suffixes (Aronoff & Furhop 2002: 455). This is tantamount to saying that this is a study in recursivity, or the formation of derivatives from derived bases, as in anti-establish-ment, which requires the attachment of the prefix anti- to the derived input establish-ment.

The present analysis comprises all major lexical categories, that is, nouns, adjectives, verbs and adverbs and concentrates on suffixes because they represent the newest and the most productive process in Old English word-formation (Kastovsky 1992, 2006), as well as the set of morphemes that has survived into Present-day English without undergoing radical changes. Given this aim, the data retrieved from the lexical database of Old English Nerthus (www.nerthusproject.com) comprise 6,073 affixed (prefixed and suffixed) derivatives, including 3,008 nouns, 1,961 adjectives, 974 adverbs and 130 verbs. All of them have been analysed in order to isolate recursive formations.

Keywords: Old English; morphology; noun derivation; recursive suffixation; closing suffixes

1. Introduction

This article is concerned with the lexicon of Old English and, more specifically, with the existence of closing suffixes in word-formation. Old English is a stage in the development of the English language characterised by a rich inflectional system (Kastovsky 1992) and where the combination of affixes in word-

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formation is not unusual. That is why it is a language suitable for analysis, as it allows for the study of stepwise derivations. This article engages in the relationship between base affixes and word-forming affixes. In a gradual analysis of word-formation processes, the base suffix of a derivation is the first suffix in any combination, while the word-forming affix is the second affix, the one producing the morphological output of the process. Closing suffixes are defined as “base suffixes that prevent further suffixation by word-forming suffixes” (Aronoff & Fuhrop 2002: 455). In this study we take this definition a step further and will analyse the cases of suffixes which prevent not only further suffixation but also further prefixation. This is tantamount to saying that this is a study of recursivity, understood as the formation of derivatives from derived bases, as in the word *anti-establish-ment*, which requires the attachment of the prefix *anti-* to the derived input *establish-ment*. Although the concept of recursivity found application in the field of syntax (Chomsky 1965), we interpret it here as a morphological device by which bound morphemes can be successively attached.

Previous research in recursive word-formation processes of Old English has dealt with recursivity in noun formation (González Torres *fc.*; Torre Alonso 2010, 2011a, 2011b), strong verb formation (Martín Arista 2010a), adjective formation (Vea Escarza *fc.*) and lexical negation (Martín Arista 2010b). In general, the question of closing affixes in Old English has received little attention, with the exception of the contribution by Torre Alonso (2009), on whose methodology of analysis we draw. However, Torre Alonso’s (2009) research is restricted to the lexical category of nouns while in this approach we take into account words appertaining to all major lexical classes. Thus, the aim of this article is to offer an exhaustive analysis of the combinations and restrictions which to recursive affixation in order to determine whether or not closing suffixes are present in Old English. The analysis concentrates on suffixes because they represent the newest and the most productive process in Old English word-formation (Kastovsky 1992, 2006), as well as the set of morphemes that have survived into Present-day English without undergoing radical changes. Another reason for focusing on suffixation has to do with category change. In Old English, as in Present-day English, suffixes were restricted by lexical class, whereas prefixes could usually be attached to more than one lexical class. Therefore, both for reasons of productivity and class restrictions, the analysis carried out in this undertaking is focused on suffixation.

To conduct this study, data has been retrieved from the lexical database of Old English *Nerthus* (www.nerthusproject.com) obtaining a total of 6,073 affixed (prefixed and suffixed) derivatives, including 3,008 nouns, 1,961 adjectives, 974 adverbs and 130 verbs. All of these have been analysed in order to isolate recursive formations in which suffixation is involved and have then been classified into three possible directions of derivations relevant to the identification of closing

suffixes: prefixed base > suffixed output, suffixed base > suffixed output, and suffixed base > prefixed output. As this study engages in the identification of closing suffixes, the words containing double prefixation have been disregarded. All in all, 2,053 recursive formations have been found, of which 1,687 result from word-forming suffixation and 366 from word-forming prefixation. Out of the 1,687 recursive formations resulting from word-forming suffixation, 835 display a base prefix and a word-forming suffix whereas the remaining 852 comprise a base suffix and a word-forming suffix. The steps undertaken to reach this analysis and a discussion of the results will be dealt with below. Before that, a revision of the state of the art that launched the theoretical and descriptive questions that have given rise to this work must first be considered.

2. Affix combination: theoretical and descriptive questions

The theoretical background of this article centres on the question of affix combination in English; therefore a review of the main proposals on the suffixation properties in English will be the main focus of this section.

As Plag (1996: 770) puts it, since Bloomfield, two kinds of suffixation processes have been distinguished in English, according to their phonological and morphological behaviour. Suffixes are classified into: (i) those that cause a stress shift on the base of derivation and (ii) those which do not modify the stress pattern of their bases.

Fabb (1988) opts for a stratificational approach to English suffixation, in which two levels of suffixation are distinguished: suffixation of free forms and suffixation of bound roots. Fabb (1988) investigates the combinability of 43 English suffixes, restricting his focus to the suffixes that attach to free forms and excluding bound roots. He concludes that level ordering restrictions apply and limit the number of combinations from a potential 1,849 instances to only 459. He postulates the hypothesis that suffixation is constrained by selectional restrictions of the affixes involved. Fabb (1988) distinguishes four classes of suffixes in English, depending on the selectional restrictions they show. These classes include (i) suffixes that never attach to an already suffixed word; (ii) suffixes that occur after a unique, specific suffix; (iii) freely attaching suffixes that can attach after any other suffix; and (iv) problematic suffixes that attach to more than one suffix but which are not completely unrestricted. The generally adopted view is that the reason why some suffixes cannot attach to certain bases is not due to the suffixes themselves, but to some properties of the bases of derivation. In this sense, Hay (1988: 527) argues that “early accounts of affix ordering were overtly restrictive and drew the line at the wrong level of abstraction”, and generalisations were well avoided in those studies of affix combinations.

Aronoff and Fuhrop (2002) argue against the idea that the attachment of an affix to a base depends on syntactic, semantic, morphological and phonological reasons, called *selectional restrictions*. These restrictions are not defined in a negative sense however; every base can attach to any affix if it meets all the syntactic, morphological, semantic and phonological conditions and, moreover, it does not matter whether the base is complex or not. Aronoff and Fuhrop (2002) claim that English allows only one Germanic suffix per word and that Latinate suffixes combine far more freely, in such a way that the Germanic and Latinate suffixes usually display complementary patterns. Aronoff and Fuhrop (2002) aim to prove that suffixation is restricted by morphological complexity, and to do so they analyse English and German, two closely related languages.

Hay and Plag (2004) review the models of lexical strata and selectional restrictions following the idea that “most combinatorial restrictions among English suffixes can be explained by the fact that these suffixes belong to different strata and that these strata interact phonologically and morphologically in intricate ways” (Hay & Plag 2004: 567). There are two levels in English in this model regarding classification of suffixes in strata. Stratum number 1 is formed by suffixes of foreign origin (Latinate) whereas suffixes in stratum number 2 are mostly of Germanic origin.

Lieber (2004) criticises previous approaches to affix combinability for not including meaning restrictions on word-formation. Lieber (2004: 161) proposes the Redundancy Restriction, which reads as follows: “affixes do not add semantic content that is already available within a base word” (Lieber 2004: 161). As an argument in favour of the Redundancy Restriction, the semantic restriction has been put forward on the attachment of negative affixes to bases which already express negative content (Lieber 2004: 158). On this question, Zimmer (1964; in Lieber 2004: 159) points out that “there are numerous forms like *unblemished*, *unimpeachable*, *unerring*, and *unpainful*, which have a negative prefix even though their bases seem to have clearly negative semantic content”. This explanation has been taken to support the Adjacency Condition in morphology, stating that “only the content of the most recently affixed material is visible to successive affixation” (Lieber 2004: 159).

Plag (1999) advances another, more general type of semantic restriction on affixation: suffixes that form abstract nouns attaching to other suffixes that form abstract nouns should not be expected. Plag (1999) suggests that certain affixes that attach to nouns and do not change syntactic category do not attach to other nominalisers. This leads to another semantic restriction: derivationally redundant affixes do not add semantic content that is already available within a base word (simplex or derived).

The conclusion then is that the Redundancy Condition seems a tendency rather than a strict rule, whereas the Adjacency Condition holds good, thus representing evidence in favour of a gradual analysis of derivation.

The scenario reviewed here indicates that suffix combinability is a current topic of debate in morphology. This article aims to shed some light on the matter by focusing on the Old English stage of the language. The following section describes the aims and methodological procedure of the research adopted to this end.

3. Aims and methodology

This section raises some terminological and methodological questions, including the basics of the paradigmatic approach to word-formation and the delimitation of the scope of the analysis conducted here.

Beginning with the paradigmatic approach to word-formation, we follow Pounder (2000) on the concept of derivational paradigm, which subsumes both the lexical paradigm consisting of the output of lexical creation and the morphological paradigm comprising the units, rules, operations and constraints identified in word-formation processes. In other words, the lexical paradigm represents the static part of word-formation whereas the morphological paradigm constitutes the dynamic part of this area of grammar. For example, the morphological paradigm of *gēar* 'year' turns out the affixal derivative *gēarlīc* 'yearly' by stating rules that combine the relevant base and affix, determine lexical class change and constrain the maximum degree of affixation. In the lexical paradigm of *gēar* we also find the derivations *gēarmælum* 'year by year' and *ofergēare* 'old'.

As regards morphological recursivity, it should be noted that it is a defining property of derivational morphology, as opposed to inflectional morphology, which is not recursive. Compounding is a useful process with which to illustrate the concept: by root compounding we get *wyrt drenc* 'herbal drink' from *wyrt* and *drenc* and, by means of repeated application of the rule of root compounding, we get *biterwyrt drenc* 'drink of bitter herbs' from *biter* and *wyrt drenc*. In affixation, *un-* plus *getrēow* produces *ungetrēow* 'untrue', which, by suffixation of *-nes*, produces *ungetrēownes* 'unbelief'. These examples raise the question of how restrictive the definition of *morphological process* must be in order to speak of recursivity properly. In other words, does *ungetrēownes* involve some sort of recursivity? If recursivity is understood as repetition of a rule, it is questionable that prefixation and suffixation are governed by the same rules and, therefore, *ungetrēownes* is not recursive. In general, the studies in affix combination focus on prefixation or suffixation, with much more attention paid to the

latter process. Level ordering, as pointed out above, has concentrated on suffix combination. When constraints that apply to both prefixation and suffixation have been proposed, they have been formulated indirectly, as in the semantic restrictions advanced by Lieber (2004). The case with *godspellbōc*, ‘book containing the four gospels’, is different because the same rule is applied in both steps of root compounding. The position that we adopt in this respect is that the term *morphological recursivity* must be understood in a narrow sense, which requires that a given process (in this case, affixation) feeds another equal process. In this regard, it follows that morphological processes are gradual, with affixes attaching in a stepwise way, and also that zero derivation and compounding fall out of the scope of this article.

Including prefixation and suffixation into the more general process of affixation is justified on the grounds of the bound character of affixes, as opposed to free lexemes. Nevertheless, the distinction between bound and free forms is debatable in functional terms. Mairal Usón and Cortés Rodríguez (2000-2001) have analysed derivational morphemes as predicates, thus doing away with the distinction between free and bound forms because both are listed as lexemes in the lexicon. In the same vein, Martín Arista (2008, 2009) has demonstrated that the same word-functions can be performed by free and bound morphemes, showing that there is no functional difference between the insertion of a free or a bound form into a given word slot. Although the borderline between derivation and compounding is not always clear, the distinction between both processes is maintained in this analysis in order to perform the gradual study of processes and focus on the constraints that may be imposed on the different combinatory elements. The distinction does, however, raise the problem of affixoids (Kastovsky 1992), or borderline cases between derivation and compounding. Affixoids are elements that exist as independent lexemes in the lexicon of the language and which are undergoing a process of grammaticalization, whereby a lexical item becomes a bound form (Bauer 2007). The Old English inventory of affixoids (Kastovsky 1992) includes the prefixoids *æfter-* (‘after’), *be-* (‘by, near’), *fæ-* (‘calamity, sudden danger, peril, sudden attack’), *for-* (‘before, from’), *fore-* (‘before’), *forþ-* (‘forth, forwards’), *ful-* (‘full’), *in-* (‘in’), *of-* (‘over, above’), *ofer-* (‘over’), *on-* (‘on’), *tō-* (‘to’), *þurh-* (‘through’), *under-* (‘under’), *up-* (‘up’), *ūt-* (‘out, without’), *wan-* (‘lack of’), *wiþ-* (‘with, near, against’), *wiþer-* (‘against’) and *ymb(e)-* (‘around, about’). The set of affixoids also includes the postposed segments *-bora* (‘bearer’), *-dōm* (‘doom, condition’), *-hād* (‘person, condition, state’), *-lāc* (‘play, sacrifice’), *-māel* (‘mark, measure’), *-rāden* (‘terms, condition’) and *-wist* (‘being, existence’). In this article, the question of the distinction between affixation and compounding regarding the affixoids has been solved by analysing the words in which these elements appear. When the element at stake has been grammaticalised in a sig-

nificant number of words, the affixoid has been treated as a pure affix. In the postfield of the word, this treatment does not cause further problems because in Present-day English these affixoids have been fully grammaticalised, as in *frēondscipe* ‘friendship’ or *wīsdōm* ‘wisdom’. In the prefield, however, the question is more complex.² By assuming total grammaticalisation, we are considering as inseparable some forms which can, nowadays, be detached from the base word, as in *incuman* ‘to come in, to go into’ (providing the zero derived noun *incyme* ‘entrance’), or *forþsendan* ‘to send forth’. The analysis comprises all major lexical categories, that is, nouns, adjectives, verbs and adverbs and concentrates on suffixes because they represent the most productive part of Old English word-formation (Kastovsky 1992, 2006) and the part of derivational morphology that has, as a general rule, survived into Present-day English, given that most affixes have disappeared or lost their original meaning. Another reason for focusing on suffixation to the exclusion of prefixation has to do with categorial change. In Old English, as in Present-day English, suffixes are restricted by lexical class, whereas prefixes can usually be attached to more than one lexical class. For instance, the negative prefix *un-* forms nouns, verbs, adjectives and adverbs, that is to say, all the major lexical classes. On the other hand, for example, the suffix *-sian* only forms verbs. Only exceptionally can some suffixes attach to more than one lexical category, as is the case with the agentive suffix *-ere*, normally attached to verbs in order to form nouns, with which some exceptional formations arise involving denominal formations of nouns. Consider the following as illustration:

- 1) *mōtere* ‘public speaker’ < *mōt* ‘a meeting, court’
tollere ‘tax gatherer, publican’ < *toll* ‘toll, tribute, impost’

Nonetheless, the identification of prefixes is necessary for tracing evidence of the existence of closing suffixes. For all these reasons, the full inventory of the affixes (prefixes and suffixed) identified for this paper is included below.³ Brackets represent spelling variants, while numbers account for the existence of several morphologically or lexically related words, for each of which a different number is added.⁴ The prefixes included in *Nerthus* are displayed in (2):

² We draw on Martín Arista (2008, 2009, 2010a) for the terms *prefield* and *postfield*, which refer to the structural positions of the word template that precede and follow the word nucleus.

³ See González Torres (2009) for a full description of these affixes as adjuncts of derivation.

⁴ For further details on numbered predicates in *Nerthus*, we refer the reader to Torre Alonso *et al.* (2008).

- 2) *ā-* (*ā-*), *ā-*, *æfter-*, *and-* (*an-*, *on-*, *ond-*), *ante-*, *arce-*, *be-* (*bi-*, *bī-*, *big-*), *ed-*, (*æd-*, *et-*, *æt-*, *ead-*, *eþ-*), *el-* (*æl-*, *ell-*), *fær-*, *for-* (*fore-*), *forþ-*, *ful-*, *ge-*, *in-*, *med-* (*met-*), *mis-*, *of-* (*æf-*, *ef-*), *ofer-*, *on-* (*an-*), *or-*, *sām-*, *sam-*, *sin-1*, *sub-*, *tō-*, *þurh-un-* (*on-*), *under-*, *up-*, *ūt-*, *wan-*, *wiþ-*, *wiþer-*, and *ymb-* (*ymbe-*).

Prefixes do not cause recategorisation and it is almost impossible to assign them to a particular category to which they can be attached as they can appear in combination with bases of different lexical classes. The different exponents or realisations of the morphemes that have been identified in this work, as included in *Nerthus* are:

Nominal prefixes: *ā-*; *ā-*; *æf-*; *æt-*; *an-*; *and-*; *and-*; *arce-*; *be-*; *bi-*; *bī-*; *big-*; *ed-*; *el-*; *ell-*; *for-*; *fore-*; *ge-*; *in-*; *on-*; *ond-*; *or-*; *sām-*; *sam-*; *sin-*; *sub-*; *tō-*; *un-*; *wan-*; *wiþ-*; *wiþer-*; *ymb-*.

Adjectival prefixes: *ā-*; *æf-*; *and-*; *be-*; *eal-*; *eall-*; *ed-*; *eft-*; *el-*; *for-*; *frēa-*; *ful-*; *full-*; *ge-*; *healf-*; *in-*; *med-*; *mis-*; *oð-*; *on-*; *ond-*; *or-*; *sām-*; *sin-*; *twi-*; *ðurh-*; *ūð-*; *ūp-*; *ūt-*; *un-*; *wan-*; *wiþer-*; *ymb-*.

Verbal prefixes: *ā-*; *ā-*; *æf-*; *æt-*; *an-*; *and-*; *arce-*; *be-*; *bi-*; *bī-*; *big-*; *eal-*; *eall-*; *ed-*; *eft-*; *el-*; *ell-*; *for-*; *fore-*; *frēa-*; *ful-*; *full-*; *ge-*; *healf-*; *in-*; *med-*; *mis-*; *oð-*; *on-*; *ond-*; *or-*; *sām-*; *sam-*; *sin-*; *sub-*; *tō-*; *ðurh-*; *ūð-*; *ūp-*; *ūt-*; *un-*; *wan-*; *wiþ-*; *wiþer-*; *ymb-*.

Adverbial prefixes: *ā-*; *ed-*; *ge-*; *in-*; *or-*; *sām-*; *sam-*; *tō-*; *wiþ-*; *wiþer-*; *ymb-*.

As regards the set of suffixes identified for this work, the whole set, including basic and alternative spellings, are shown in (3):

- 3) *-ad*, *-ade*, *-an*, *-bāre*, *-bior*, *-bora*, *-bore*, *-cian* (*-ecian*, *-ician*, *-ccian*), *-cund*, *-dōm*, *-e*, *-ed*, *-ede*, *-eg*, *-el* (*-ele*, *-ell*, *-la*, *-ol*, *-ul*), *-en* (*-in*, *-n*, *-on*), *-end* (*-nd*), *-ende*, *-ere* (*-era*), *-erne*, *-es*, *-estre* (*-gestre*, *-igystre*, *-istre*, *-ystre*), *-et* (*-ett*), *-ettan* (*-etan*, *-gettan*), *-fæst*, *-feald*, *-ful* (*-full*), *-hād*, *-īge*, *-icge* (*-ecge*, *-ige*), *-ig*, *-ige*, *-iht* (*-iht 2*, *-eht*, *-ihthe*, *-ehthe*, *-ecti*), *-il*, *-incel*, *-ing* (*-eung*, *-ging*, *-gung*, *-iung*, *-ning*, *-nung*, *-ung*), *-isc*, *-lāc* (*-lāc*), *-lāc*, *-lācan*, *-lan*, *-le*, *-lēas*, *-līce*, *-lian* (*-lan*, *-elian*), *-lic* (*-lec*), *-ling* (*-lung*), *-mālum*, *-māst*, *-nes*, *-nes* (*-enes*, *-nes*, *-nis*), *-nian* (*-nan*, *-anian*, *-enian*, *-mian*), *-ode*, *-or*, *-ra*, *-rāden*, *-re*, *-sc*, *-scipe* (*-scype*), *-sian* (*-esian*, *-isian*), *-sum*, *-t* (*-ð*, *-ða*, *-að 2*, *-eð*, *-nað*, *-noð*, *-oð 4*, *-ot*, *-ðo*, *-oða*, *-ðu 2*, *-ta*, *-to*, *-um*, *-ung*, *-unga* (*-enga*, *-enge*, *-inga*, *-inge*, *-unge*), *-weard*, *-wende*, and *-wist*.

Recategorisation being a crucial feature in suffixation, the set of affixes can be divided according to the category of the output lexeme they create by their addition. Thus we can identify the following:⁵

Nominal suffixes: *-að* 2; *-bior*; *-bora*; *-bore*; *-dōm*; *-ecge*; *-eð*; *-end*; *-enes*; *-era*; *-ere*; *-estre*; *-et*; *-ett*; *-eung*; *-fæst*; *-gestre*; *-ging*; *-gung*; *-hād*; *-icge*; *-ige*; *-īge*; *-igystre*; *-incel*; *-ing*; *-istre*; *-iung*; *-lāc*; *-lāc*; *le*; *-lung*; *-n*; *-nāð*; *-nd*; *-nes*; *-nes*; *-nes*; *-ning*; *-nis*; *-noð*; *-nung*; *-oð* 4; *-oða*; *-ol*; *-ot*; *-ra*; *-rāden*; *-re*; *-scipe*; *-scype*; *-t*; *-to*; *-ð*; *-ða*; *-ðo*; *-ðu* 2; *-ung*; *-ung*; *-wist*; *-ystre*.

Adjectival suffixes: *-ad*; *-ade*; *-bāre*; *-cund*; *-ecti*; *-ed*; *-ede*; *-eg*; *-eht*; *-ehte*; *-el*; *-ele*; *-ell*; *-en*; *-ende*; *-erne*; *-es*; *-feald*; *-ful*; *-full*; *-ig*; *-iht*; *-iht* 2; *-ihte*; *-il*; *-in*; *-isc*; *-la*; *-lāc*; *-lēas*; *-lec*; *-lic*; *-on*; *-ta*; *-ul*; *-weard*.

Verbal suffixes: *-an*; *-anian*; *-ccian*; *-cian*; *-ecian*; *-elian*; *-enian*; *-esian*; *-etan*; *-ettan*; *-gettan*; *-ician*; *-isian*; *-lan*; *-lan*; *-lācan*; *-lian*; *-mian*; *-nan*; *-nian*; *-sian*.

Adverbial suffixes: *-e*; *-enga*; *-enge*; *-es*; *-inga*; *-inge*; *-līce*; *-ling*; *-mālum*; *-māst*; *-ode*; *-or*; *-sc*; *-sum*; *-um*; *-unga*; *-unge*; *-weard*; *-wende*.

A feature of the Old English period is the preference for the use of native resources for the implementation of the lexicon. As Scheler (1977: 74) pointed out, only 3% of the vocabulary at the time were loans, and a great proportion of the loans possessed such a degree of integration that they were no longer recognised as foreign incorporations. The set of affixes described above emphasises this trend; not only the productive processes used for lexical creation, but also the elements used in these processes (both affixes and free lexemes in compounds) were thoroughly Germanic. In fact, only the prefixes *arce-* and *sub-* are of foreign nature and their use is restricted to the loans *arcebisceop* ‘archbishop’, and its derivatives, and *subdīacon* ‘subdean’.

To conclude the classification of affixes, it needs to be noted that the nominal suffixes *-a*, *-e*, *-o*, *-u*, which can be considered derivational (González Torres 2010; *fc.*), are treated as exclusively inflective and, consequently, left out of the inventory of suffixes selected for the analysis. These affixes are originally inflective and only acquire derivative value when the semantic analysis tries to assign roles to each of the elements in a given word.

As for the manner in which the analysis has been conducted, we draw on the analysis carried out by the *Nerthus* group in general and, above all, on Torre Alonso (2009), who has laid the foundations of the analysis of the feeding of morphological processes. Rather than analysing the interaction among all mor-

⁵ Note that the elements in the list reflect all possible spellings, that is, the affixes have not been grouped around a standardised form.

phological processes, as Torre Alonso (2009) does, we concentrate on affixation to determine whether or not closing suffixes exist in Old English word-formation.

The lexical database of Old English *Nerthus* offers a lexeme, with its alternative spellings, translation, lexical category and morphological class. Once the relevant predicates have been retrieved from the database, each predicate has to be classified on the grounds of its basic or non-basic status. Basic predicates are formally simple and do not result from derivational processes, and, at the same time, their meanings are not semantically analysable. Within non-basic words, a further distinction has to be drawn between non-recursive derivatives (which undergo a single derivational process of affixation, compounding or zero-derivation), and recursive derivatives (which undergo a derivational process that puts an end to the derivation, i.e. a terminal process, preceded by another process that does not put an end to the derivation, i.e. a non-terminal process). The non-terminal process has to be derivational, not inflective. Consider (4) as illustration:

- 4) Basic: *weard 1* ‘watching, ward, protecting, guardianship’
 Non-recursive derivative: *æfweard* ‘absent’
 Recursive derivative: *æfweardnes* ‘absence’

All of these words have been analysed in order to isolate recursive formations, of which, 1,687 result from word-forming suffixation and 366 are produced by word-forming prefixation. Of the 1,687 recursive formations resulting from word-forming suffixation, 835 display a base prefix and a word-forming suffix and the remaining 852 show a base suffix and a word-forming suffix. Thus, three possible directions of derivation arise: prefixed input > suffixed output, suffixed input > suffixed output, and suffixed input > prefixed output. This is shown in (5):

- 5) a. Prefixed input > Suffixed output: *ednīwe 1* > *ednīwan*
 b. Suffixed input > Suffixed output: *feorrane* > *feorrancund*
 c. Suffixed input > Prefixed output: *ēastan* > *beēastan*

This classification requires some comment. In the first place the concepts of final and pre-final affix refer not to the position of the affix with respect to the base, whether closer or further away, but to the moment in which they are incorporated to the derivation. Thus, in (5a) the base affix is the prefix, whereas in (5b) the base affix is the suffix. In the case of suffixation occurring after suffixation, the position of the elements also reflects the moment in which they were incorporated, with suffixes further away from the base being attached later in time.

Secondly, prefixation is included in the analysis as a discriminatory factor. It is used as a test to identify suffixes that may only occur at the end of recursive derivation, no matter whether the base stage is suffixation or prefixation, and also to test the existence of closing suffixes, that is, affixes that allow for no further derivations. In this respect, following Torre Alonso (2011b) we expect to find suffixes that block only future suffixations and suffixes that block any other type of derivation.

Thirdly, the order of attachment of affixes is not always clear or evident. As occurs in Present-day-English (henceforth PDE) some words such as *unhappiness* could potentially be analysed as *un+happiness* or *unhappy+ness*. Whereas in PDE the suffixes always occur at the end of the derivation, in Old English there is no fixed order in which affixes could be attached. To classify cases of this sort we have looked for extant bases that could support the analysis, as shown in (6a) and (6b):

- 6) a. *uneaðnes* ‘difficulty, inconvenience’ < *eaðnes* ‘easiness, lightness’.
 b. *ungerādnes* ‘disagreement’ < *ungerād* 2 ‘discord’.

In the examples above, the only bases available are the ones proposed. Prefixed bases like the one in (6b) outnumber suffixed bases three to one. This allows us to postulate a single base of derivation in those words for which both the prefixed and the suffixed potential bases are available by taking into account the frequency with which a given ordering of affixation was present in other words. The following example (7) illustrates this procedure:

- 7) a. *unrihtwīsnes* ‘injustice, unrighteousness’ < *unrihtwīs* ‘unrighteous, wrong’
 < *rihtwīsnes* ‘justice, righteousness’.

In cases like (7), the first potential base, the prefixed one, has been selected as the base of derivation on the basis that the available data show that the most common procedure was to create suffixed words from already prefixed lexemes, even if the reverse ordering was also possible.

With these premises in mind, in the following section we deal with the results of the searches carried out in this study.

4. Results of the analysis

The results of the analysis are dealt with as per the ordering of processes presented under (5). The three structures have been analysed by paying attention to individual combinations of affixes. The data will be treated in independent charts that show the different affix combinations and the number of tokens of each of them.

From a quantitative perspective, the research yields the general results under (8):

- 8) a. Prefixed input > Suffixed output: 835
- b. Suffixed input > Suffixed output: 852
- c. Suffixed input > Prefixed output: 366

As the data show, word-forming suffixation applies both to prefixed and suffixed words. What is more, the figures show no preference for bases of a particular derivative type. It is interesting to note the differences in the behaviour of suffixation and prefixation when they apply recursively. The database *Nerthus* contains nearly 5,000 prefixed words and some 7,350 suffixed ones; suffixed words outnumber prefixed words three to two. However, when we observe the derivations that apply recursively, the number of prefixed words is largely reduced. The reduction is even bigger when we do not take into account prefixed words formed out of prefixed inputs. If we pay attention to the figures shown in (8) we can see that the prefixed words total no more than one fifth of the suffixed words under observation, or just one third of the total number of words fulfilling the conditions imposed upon this study.

In the following subsections we will analyse thoroughly the individual combinations of affixes providing quantitative evidence for each of the pairs found in the corpus of the analysis. Tables 1-3 show the different patterns found for each of the set of outputs introduced in (8). These Tables include information regarding the word-forming affix, the base affix and the number of occurrences (token).

4.1. Prefixed input > Suffixed output

Table 1 below shows the combinations of suffixes and prefixes when the latter are attached to prefixed bases of derivation:

Table 1. Word-forming suffixation – base prefixation.

Base prefix	Word-forming suffix	No. of instances	Base prefix	Word-forming suffix	No. of instances	Base Prefix	Word-forming suffix	No. of instances
ed-	-an	1	(ge)-	-ful	1	oð-	-lic	1
arce-	-dōm	1	æf-	-ful	1	ofer-	-lic	3
un-	-dōm	1	and-	-ful	1	on-	-lic	6
(ge)-	-e	3	fore-	-ful	1	or-	-lic	2
æfter ³ -	-e	1	arce-	-hād	1	sin-	-lic	2
for-	-e	2	un-	-hād	1	tō-	-lic	6
forð-	-e	1	(ge)-	-icge	1	ūð-	-lic	1
fore-	-e	2	ā-	-icge	1	un-	-lic	13
ofer-	-e	1	el-	-ig	2	wið-	-lic	2
tō-	-e	1	fore-	-ig	1	wiðer-	-lic	1
ūp-	-e	1	on-	-ig	2	ymb-	-lic	1
un-	-e	7	un-	-ig	5	on-	-ling	1
for-	-ed	1	wan-	-ig	2	ūt-	-ling	1
ge-	-ed	1	(ge)-	-ing	43	un-	-linga	1
ge-	-ede	1	ðurh-	-ing	1	fore-	-nd	1
(ge)-	-el	4	ā-	-ing	27	on-	-nd	1
ðurh-	-el	1	æfter-	-ing	1	(ge)-	-nes	14
æfter-	-el	1	æl-	-ing	1	ðurh-	-nes	3
be-	-el	1	and-	-ing	2	ā-	-nes	34
for-	-el	2	be-	-ing	18	æ-	-nes	2
fore-	-el	1	ed-	-ing	4	æf-	-nes	1
ofer-	-el	3	el-	-ing	1	æfter-	-nes	2
on-	-el	2	for-	-ing	13	æl-	-nes	1
wiðer-	-el	1	forð-	-ing	3	æt-	-nes	2
ofer-	-els	1	fore-	-ing	8	and-	-nes	3
be-	-en	1	ge-	-ing	3	be-	-nes	10
ed-	-en	1	geond-	-ing	2	for-	-nes	29
on-	-en	1	in-	-ing	3	forð-	-nes	1
un-	-en	1	mis-	-ing	1	fore-	-nes	4
(ge)-	-end	11	ō-	-ing	3	full-	-nes	2
ā-	-end	7	oð-	-ing	2	ge-	-nes	5
æfter-	-end	1	ofer-	-ing	4	gēan-	-nes	2
æt-	-end	1	on-	-ing	18	geond-	-nes	1
be-	-end	9	or-	-ing	1	in-	-nes	4
eall-	-end	1	tō-	-ing	7	lic-	-nes	2
ed-	-end	4	ūp-	-ing	1	med-	-nes	2

Base prefix	Word-forming suffix	No. of instances	Base prefix	Word-forming suffix	No. of instances	Base Prefix	Word-forming suffix	No. of instances
for-	-end	4	un-	-ing	3	mis-	-nes	1
for-	-end	2	under-	-ing	3	oð-	-nes	1
fore-	-end	3	wiðer-	-ing	1	of-	-nes	4
geond-	-end	1	ymb-	-ing	7	ofer-	-nes	11
in-	-end	2	el-	-isc	2	on-	-nes	30
ō-	-end	1	ūp-	-isc	1	or-	-nes	7
ofer-	-end	5	ge-	-læcan	1	tō-	-nes	27
on-	-end	14	sin-	-les	1	twi-	-nes	2
sin-	-end	1	ā-	-lice	1	ūp-	-nes	4
tō-	-end	2	be-	-lice	2	ūt-	-nes	1
ūp-	-end	1	ge-	-lice	3	un-	-nes	64
wið-	-end	1	lic-	-lice	2	under-	-nes	1
ymb-	-end	3	mis-	-lice	1	wið-	-nes	6
(ge)-	-ere	8	on-	-lice	1	wiðer-	-nes	1
æfter-	-ere	1	sām-	-lice	1	ymb-	-nes	5
be-	-ere	2	sin-	-lice	1	ā-	-nian	1
for-	-ere	1	un-	-lice	63	(ge)-	-scipe	2
fore-	-ere	2	(ge)-	-lic	12	ge-	-scipe	2
ō-	-ere	1	ðurh-	-lic	3	or-	-scipe	1
ofer-	-ere	1	ā-	-lic	9	ge-	-sum	2
forð-	-es	1	ed-	-lic	1	(ge)-	-t	2
or-	-es	1	en-	-lic	1	be-	-t	1
sin-	-es	1	end-	-lic	1	ed-	-t	1
ūt2-	-es	1	er-	-lic	1	(ge)-	-to	1
un-	-es	4	for-	-lic	10	ā-	-um	1
be-	-estre	1	fore-	-lic	3	mi-	-um	1
for-	-estre	2	full-	-lic	1	ed-	-unga	1
ofer-	-estre	1	ge-	-lic	6	or-	-unga	1
for-	-et	1	gēan-	-lic	1	un-	-unga	1
on-	-et	1	mid-	-lic	1	on-	-weard	1
(ge)-	-et	1	mis-	-lic	1			

By way of description the suffixes that can occur in final position once prefixation has already applied in the derivation are *-an* (1); *-dōm* (2); *-e* (9); *-ed* (2); *-ede* (1); *-el* (9); *-els* (1); *-en* (4); *-end* (20); *-ere* (7); *-es* (5); *-estre* (5); *-et* (2); *-ful* (4); *-hād* (2); *-icge* (2); *-ig* (5); *-ing* (27); *-isc* (2); *-læcan* (1); *-les* (1); *-lice* (10); *-lic* (13); *-ling* (2); *-linga* (1); *-nd* (2); *-nes* (35); *-nian* (1); *-scipe* (3);

-t (3); *-to* (1); *-um* (2); *-unga* (3); *-up* (1) and *-weard* (1). The figure in brackets indicates the number of prefixes with which each of the word-forming suffixes operate (type).

Looking at the token aspect, two suffixes immediately catch our eye, those being *-nes* and *-ing* which stand out from the others as they give way to a total of 289 and 181 respectively. Contrasting these figures with the rest of the suffixes, we can see that they participate in three and two times more word formation processes than *-lic* which is the affix with the third largest number of new word creations. This makes sense, bearing in mind two main aspects. The first one is that the nominal paradigm is the more prolific one in the surviving Old English lexicon; both *-nes* and *-ing* are nominal suffixes. The second is that the lexicon expands by developing elements that allow the speakers to refer to, and express, abstract concepts. Again, these two affixes have as a primary function the development of abstract nouns from other non-abstracts words, typically nouns and affixes.

There are nonetheless differences in the behaviour of these suffixes as regards the derived bases they are attached to. While *-nes* preferably combines with bases negated by means of *un-* (64 instances) including *unrihtnes* ‘wrong, wickedness’ or *unsidefullnes* ‘immodesty’, the suffix *-ing* (by means of its variant form *-ung*) only attaches to three underived bases, namely *ungewiderung* ‘bad weather’, *unmiltung* ‘hardness of heart’ and *unwlitēgung* ‘disfigurement’.

As for other outstanding suffixes the adjectival *-lic* and its adverbial version *-lice* follow *-nes* and *-ing* from a considerable distance. They produce a similar number of items: 89 in the case of *-lic* and 76 in the case of *-lice*. However, they present differences as regards the number or types with which they interact. The adverbial *-lice* takes part in 9 different combinatorial patterns with the prefixes *ā-*, *be-*, *ge-*, *lic-*, *mis-*, *on-*, *sām-*, *sin-* and *un-*, but except for the combination with *un-* (63 instances) the other patterns do not show more than three examples. On the other hand, *-lic* offers a more varied combinatorial capacity, as it can be attached to bases prefixed with *ā-*, *ed-*, *en-*, *end-*, *er-*, *for-*, *fore-*, *full-*, *ge-*, *gēan-*, *mid-*, *mis-*, *oð-*, *ofer-*, *on-*, *or-*, *sin-*, *tō-*, *ðurh-*, *ūð-*, *un-*, *wið-*, *wiðer-* and *ymb-*. The difference between both suffixes lies not only in the number of patterns but also in the number of words each pattern gives rise to. The combinations with *-lic* offer a more stable character with several of the patterns producing between 6 and 12 words. Finally, as with the case of *-nes*, it is the bases prefixed with *un-* that are preferred by these suffixes to implement already derived words although the instances are a lot higher in the case of the adverbial *-lice* whereas the combination *un-/lice* provides 13 examples, not far from the 12 examples provided by the combination *ge-/lic* or the 10 instances provided by the combination *for-/lic*. Examples are offered in (9):

- 9) a. *unāblinnendlic* ‘unceasing, perpetual’; *ungemætlic* ‘excessive’
 b. *forhygdelic* ‘despised’; *forcūðlic* ‘bad, wicked’
 c. *gedwimorlic* ‘illusory, unreal’; *gelōmlic* ‘repeated, frequently’

The other suffix deserving some comment here is *-end*. This agentive noun former participates in the formation of 74 different words and combines with 20 different prefixes. These figures are relevant because they contrast with the relatively poor influence that other agentive suffixes, such as *-ere* or *-estre*, have with this kind of complex words. Compare the following examples in (10):

- 10) a. *eallwealdend* ‘ruler of all’; *edlēaniend* ‘rewarder’; *onræsend* ‘attacker’
 b. *æfterfolgere* ‘follower’; *foreðingere* ‘intercessor, mediator’; *forgifestre* ‘female giver’; *oferswīðestre* ‘victrix’

None of the remaining suffixes produce more than twenty words; the data range from the single occurrences of *-an* and *-weard* in the words *ednīwan* ‘anew’ and *ongēanweard* ‘downwards’, to the nineteen cases of the adverbial suffix *-e* including *forcūðe* ‘infamously, evilly’ or *ūprihte* ‘straight up’.

As a general rule, the possibilities of combinations are multiple and diverse, but the number of items each pair can create is relatively small. The resources are productive, but are not well established in the language; the lexical creation resource is available and used by the speakers but not in a consistent, homogeneous and stable manner.

4.2. Suffixed input > Suffixed output

The following set includes the analysis of the words which contain double suffixation in the final and pre-final derivative steps. This group constitutes the biggest subset in the corpus of analysis: 852 items have been identified. As in Table 1, Table 2 includes the base suffix, the word-forming suffix and the number of occurrences of each particular combination.

Table 2. Word-forming suffixation – base suffixation.

Base suffix	Word-forming suffix	No. of instances	Base suffix	Word-forming suffix	No. of instances	Base suffix	Word-forming suffix	No. of instances
-an	-cund	1	-lāc	-ing	1	-tig	-lic	1
-e	-cund	1	-lācan	-ing	3	-uð	-lic	1
-en	-dōm	1	-le	-ing	1	-um	-lic	2

Base suffix	Word-forming suffix	No. of instances	Base suffix	Word-forming suffix	No. of instances	Base suffix	Word-forming suffix	No. of instances
-end	-dōm	1	-līce	-ing	1	-weard	-lic	3
-ig	-dōm	1	-lian	-ing	1	-wende	-lic	2
-ing	-dōm	1	-lic	-ing	2	-wīs	-lic	3
-wīs	-dōm	1	-nian	-ing	4	-ot	-ling	1
-an	-e	3	-ol	-ing	1	-en	-mælum	1
-el	-e	1	-or	-ing	1	-bære	-nes	4
-fæst	-e	1	-sian	-ing	11	-cund	-nes	2
-ig	-e	4	-sum	-ing	1	-dōm	-nes	1
-lic	-e	309	-en	-isc	1	-ed	-nes	1
-ling	-e	1	-en	-læcan	1	-el	-nes	3
-or	-e	1	-els	-lēas	1	-els	-nes	1
-sum	-e	2	-en	-lēas	3	-en	-nes	3
-t	-e	1	-end	-lēas	1	-end	-nes	3
-ta	-e	1	-līce	-lēas	1	-erne	-nes	1
-el	-ed	1	-t	-lēas	1	-et	-nes	1
-el	-en	1	-bære	-līce	1	-fæst	-nes	13
-er	-en	1	-cund	-līce	2	-feald	-nes	2
-an	-end	1	-e	-līce	2	-ful	-nes	16
-ettan	-end	1	-els	-līce	1	-hād	-nes	1
-læcan	-end	1	-en	-līce	2	-ig	-nes	23
-lian	-end	1	-end	-līce	5	-iht	-nes	1
-sian	-end	1	-es	-līce	1	-ing	-nes	4
-dōm	-ere	1	-fæst	-līce	3	-isc	-nes	2
-en	-ere	1	-feald	-līce	1	-læcan	-nes	2
-ettan	-ere	3	-ful	-līce	17	-lēas	-nes	9
-ic	-ere	1	-ig	-līce	7	-līce	-nes	2
-nian	-ere	1	-isc	-līce	1	-lic	-nes	39
-sian	-ere	2	-lēas	-līce	7	-nian	-nes	1
-t	-ere	2	-od	-līce	1	-od	-nes	1
-t	-es	1	-ol	-līce	4	-ol	-nes	15
-weard	-es	9	-or	-līce	2	-or	-nes	5
-læcan	-estre	1	-sum	-līce	4	-ræden	-nes	2
-nian	-estre	1	-t	-līce	2	-sum	-nes	10
-līce	-ettan	1	-weard	-līce	1	-t	-nes	1
-en	-fæst	1	-an	-lic	2	-ul	-nes	2
-ig	-fæst	1	-bære	-lic	3	-ung	-nes	2

Base suffix	Word-forming suffix	No. of instances	Base suffix	Word-forming suffix	No. of instances	Base suffix	Word-forming suffix	No. of instances
-t	-feald	1	-cund	-lic	5	-weard	-nes	4
-tig	-feald	7	-dōm	-lic	3	-welle	-nes	1
-en	-ful	1	-en	-lic	6	-wende	-nes	2
-dōm	-hād	1	-end	-lic	17	-wīs	-nes	3
-ed	-hād	1	-ere	-lic	1	-fæst	-nian	1
-ere	-hād	1	-fæst	-lic	4	-t	-ræden	2
-lāc	-hād	1	-feald	-lic	5	-dōm	-scipe	1
-t	-ic	1	-ful	-lic	7	-en	-scipe	3
-el	-ig	1	-hād	-lic	2	-ot	-scipe	1
-en	-ig	1	-ig	-lic	11	-t	-sum	2
-iht	-ig	2	-isc	-lic	1	-lēas	-t	27
-t	-ig	2	-lēas	-lic	6	-tig	-t	4
-e	-ing	1	-nd	-lic	1	-lic	-um	1
-en	-ing	1	-nian	-lic	2	-unga	-um	1
-er	-ing	1	-ol	-lic	2	-weard	-um	2
-et	-ing	1	-or	-lic	1	-wende	-um	1
-ettan	-ing	15	-ot	-lic	1	-an	-weard	3
-fæst	-ing	1	-sc	-lic	1	-e	-weard	1
-hād	-ing	1	-sum	-lic	6	-en	-weard	1
-ig	-ing	1	-t	-lic	2			

The set of suffixes that can be attached to previously suffixed bases includes *-cund* (2); *dōm* (5); *-e* (10); *-ed* (1); *-en* (2); *-end* (5); *-ere* (7); *-es* (2); *-estre* (2); *-ettan* (1); *-fæst* (2); *-feald* (2); *-ful* (1); *-hād* (4); *-ic* (1); *-ig* (4); *-ing* (19); *-isc* (1); *-lācan* (1); *-lēas* (5); *-lice* (20); *-lic* (28); *-ling* (1); *-mālum* (1); *-nes* (35); *-nian* (1); *-ræden* (1); *-scipe* (3); *-sum* (1); *-t* (2); *-um* (4) and *-weard* (3). As before, the figure in brackets indicates the number of patterns each suffix takes part in.

It is interesting to note that despite being the most numerous word-formation system, none of the double suffix structures yields more than 40 words, with the exception of the combination *-lic/-e*, which forms adverbs from adjectives. Some data stand out with regards to the number of items created with these combinations.. The combination of *-lic* and *-nes*, with 39 words, represents the limit for this formation including the words *fracōðlicnes* ‘vileness, coarseness’ or *snyderlicnes* ‘separateness, separation’. The divergent behaviour of the combination *-lic/-e* necessitates some explanation. In our view, the high number of

cases can be explained by methodological reasons and the way that language evolution is treated. We are referring here to the inflective origin of the adverbial suffix *-e*. Originally, the adverbial ending *-e* corresponded to the *-e* ending of the adjectival dative and instrumental cases. The overlapping of functions and the loss of inflections in the different paradigms through the Middle English period resulted in the identification of *-e* as a derivative ending. Given the synchronic perspective adopted in this analysis, we do not aim at distinguishing which words belong to the inflective and derivative periods, and thus we treat them all as being created by means of a transparent process of derivation.

The combination of *-lic/-e* is so prolific that it became a distinct adverbial suffix. In fact, this analysis has identified 67 words in which the suffix *-lice* is bound to an already suffixed base. All in all there are 20 different structures, including the combinations with *-bære*, *-cund*, and *-ig*. Example (11) presents some cases:

- 11) a. *cwildebærlīce* ‘pestilentially, destructively (BT)’
 b. *incundlice* ‘inwardly’; *woruldcelandlice* ‘fiercely, severely (Sweet)’
 c. *drēoriglice* ‘sorrowfully’; *hāliglice* ‘ardently’

A second striking feature observed in Table 2 is the large number of combinations that produce a single word. To put it more clearly, out of the 180 different combinations represented in Table 2, as many as 98 (54.5%) give way to a single word. This implies a great productivity of this type of combination and at the same time the heterogeneous ways in which the speakers implemented the Old English lexicon. Let us continue with the adverbial formations and analyse some of their particularities. The suffixes *-mælum* and *-mæst* do not participate in processes of double suffixation, while, *-an*, *-e*, *-lice*, *-um* and *-weard* intervene in these processes in different ways. While *-an* is never final in this sort of structure, the other suffixes can occur both in final and pre-final positions. What is more, they combine among themselves to form adverbs from previously derived adverbs. It is interesting to note, though, that the combinations cannot be reversed; there are not affix loops or reverse combinations involving adverbial suffix combinations. The topic of affix loops and their result will be discussed in detail below.

Apart from the case of *-e* just discussed, the most prolific combinations involve the use of *-nes*, *-ing*, *-lic* and *-lice*, as was the case in Table 1. Examples to consider include the words *trendelnes* ‘circuit’; *cnāwelæcing* ‘acknowledgement’; *heofoncundlic* ‘heavenly’ and *ēstfullice* ‘kindly’. Fifth in the list comes the combination of *-lēas* and *-t* which constitutes a difference with the set of Table 1, where *-end* was the most commonly used suffixed behind the four predominant types (*-nes*, *-ing*, *-lic* and *lice*). The set of examples of this pattern is shown in (12):

- 12) *ārlēast* ‘disgraceful deed’, *abbodlēast* ‘lack of an abbot’, *andgietlēast* ‘want of understanding’, *bearnlēast* ‘childlessness’, *carlēast* ‘freedom for care, security’, *frēondlēast* ‘want of friends’, *lēaflēast* ‘unbelief’, *gemyndlȳst* ‘madness’, *(ge)wītlēast* ‘folly, madness’, *gīemelēast* ‘carelessness, neglect; presumption’, *hafenlēast* ‘want, poverty’, *hlāflēast* ‘want of bread’, *hygelēast* ‘heedlessness, folly’, *lārlēast* ‘want of instruction, ignorance’, *līflēast* ‘loss of life, death’, *mægenfæst* ‘resolute, wise’, *mægenlēast* ‘weakness, feebleness; inability’, *metelīest* ‘lack of food, starvation’, *mōdlēast* ‘want of courage, despondency’, *rēccelīest* ‘carelessness, negligence’, *scamlēast* ‘impudence, shamelessness, immodesty’, *slāplēast* ‘sleeplessness’, *sorglēast* ‘security’, *wæterlēast* ‘want of water’, *weglēast* ‘trackless place, wilderness’, *werodlēst* ‘lack of fighters’, *wītelēast* ‘freedom from punishment or fine’, *wīflēast* ‘lack of women’.

Once again, although they are the two most commonly used suffixes, and share properties as abstract noun formers, differences arise in the use of *-nes* and *-ing*. Contrary to what we advanced above, in that their use differed depending on the kind of affixes with which they were combined, the differences here reside in the type of base they are attached to. The suffix *-nes* is usually combined with adjectival bases, especially those suffixed with *-ful* (16 instances), *-ig* (22) and *-lic* (39), while *-ing* appears with verbal bases preferably derived with *-ettan* (15) and *-sian* (10). Consider the cases in (13) as illustration:

- (13) a. *egesfulnes* ‘fearfulness, fear’; *elðēodignes* ‘pilgrimage, exile’;
gemāhlicnes ‘importunity; wantonnes’.
 b. *āgnettung* ‘interest, usury’; *grimsung* ‘harshness, severity’

4.3. Suffixed input > Prefixed output

The third and final group of words under observation is that of prefixed words, where the prefix has been attached to a previously suffixed base. As in the cases above, Table 3 includes information about the affixes involved and the number of times the combination occurs.

Table 3. Word-forming prefixation – base suffixation.

Word-forming prefix	Base suffix	No. of instances	Word-forming prefix	Base suffix	No. of instances	Word-forming prefix	Base suffix	No. of instances
be-	-an	1	of-	-ing	1	mis-	-nes	2
un-	-dōm	1	ofer-	-ing	3	ofer-	-nes	3
ofer-	-el	1	on-	-ing	5	on-	-nes	3
un-	-el	8	tō-	-ing	3	sin-	-nes	1
eall-	-en	1	un-	-ing	10	tō-	-nes	3
ðurh-	-ig	4	ymb-	-ing	2	ūp-	-nes	1
æl-	-ig	1	tō-	-læcan	2	un-	-nes	14
æle-	-ig	1	for-	-lice	4	ymb-	-nes	2
be-	-ig	1	fore-	-lice	2	for-	-nian	1
eall-	-ig	3	in-	-lice	1	un-	-scipe	5
for-	-ig	1	on-	-lice	1	ðurh-	-sian	1
fore-	-ig	3	un-	-lice	20	ā-	-sian	4
frēa-	-ig	1	for-	-lic	1	be-	-sian	2
full-	-ig	2	ðri-	-lic	1	ge-	-sian	1
ge-	-ig	1	eall-	-lic	1	ofer-	-sian	1
healf-	-ig	1	for-	-lic	3	un-	-sian	3
ofer-	-ig	4	ofer-	-lic	2	nes-	-sin	1
twi-	-ig	2	on-	-lic	3	nes-	-sine	1
un-	-ig	29	tō-	-lic	2	un-	-sum	4
wan-	-ig	1	twi-	-lic	1	under-	-t	1
ymb-	-ig	1	un-	-lic	137	æ-	-t	1
fram-	-ing	2	under-	-lic	1	ed-	-t	1
healf-	-ing	1	æfter-	-nd	1	on-	-t	1
mis-	-ing	1	under-	-nd	1	twi-	-t	1
un-	-ing	1	ed-	-nes	1	wan-	-t	1
ðurh-	-ing	1	forð-	-nes	2	un-	-unga	1
ed-	-ing	2	fore-	-nes	2	un-	-wīs	3
for-	-ing	3	fram-	-nes	1	un-	-wist	1
fore-	-ing	2	in-	-nes	3			
in-	-ing	3	mid-	-nes	1			

The prefix that best attaches to already suffixed bases is the negative *un-*. All in all it appears in 237 different combinations involving the suffixes *-dōm*, *-el*, *-ig*, *-ing*, *-ing*, *-lice*, *-lic*, *-nes*, *-scipe*, *-sian*, *-sum*, *-unga*, *-wīs*, *-wist*. Of these, the most prolific combination is that with *-lic*, which totals 152 different occur-

rences, as in *unāl̥y̆fendlic* ‘not allowed’ or *unbrŏsnigendlic* ‘indestructible’. The other combinations present a significantly smaller number of instances, ranging from the single case of *-unga* and *-wist*, in the words *undĕarnunga* ‘openly’ and *unh̥iredwist* ‘unfamiliarity’ to the 29 combinations with the suffix *-ig* in the words *unh̥y̆ðig* ‘unhappy’ or *unmihtig* ‘weak, powerless’.

None of the other prefixes present a distribution comparable to that of *un-*. Only *tō-* with ten lexemes created by means of four different patterns, including the combinations with *-ing*, *-l̥ēc̥an*, *-lic* and *-nes*, and *for-* with 13 words being created out of the combinations with *-ig*, *-ing*, *-l̥ice*, *-lic* and *-n̥ian*, offer some standardised combinations. This implies that, once again, the systems of lexical creation by means of affix juxtaposition are varied and well accepted, suggesting that the processes were very productive at the time. This idea is supported by the remarkable number of combinations that give way to a single word. Consider (14) as a survey:

- 14) a. Word-forming suffix – base prefix: *edn̥īwan* ‘anew’; *arcebisceopdōm* ‘post of archbishop’; *oferswīðestre* ‘victrix’
 b. Word-forming suffix – base suffix: *trendeled* ‘made round’; *bisceophādung* ‘episcopal ordination’; *l̥eofwendum* ‘cunningly, skilfully’.
 c. Word-forming prefix – base suffix: *beēastan* ‘to the east of’; *beh̥y̆dig* ‘careful’; *framslitnes* ‘desolation’; *framierning* ‘outflowing’.

4.4. Affix loops

An occurrence, relevant to this discussion, and observable in the comparison of Tables 1-3, is the existence of reversed combinations of affixes, that is, pairs of affixes that can be both final and pre-final. It could be argued that this observation is the result of a biased approach to the analysis in the sense that we have always tried to postulate an extant base for the derived word instead of maintaining a regularised order that ruled the attachment of affixes. However, the studies by Martín Arista (2009) and Torre Alonso (2011b) have already shown the inadequacy of establishing a relative ordering of processes. Moreover, the number of cases and the figures in each of them are of sufficient relevance so as to suggest this as a plausible approach and a significant result.

Table 4 provides evidence of all the reverse combinations found in Tables 1, 2 and 3:

Table 4. Reverse combinations of affixes.

Word-forming suffix – base prefix	No. of instances	Word-forming prefix – base suffix	No. of instances	Word-forming suffix – base prefix	No. of instances	Word-forming prefix – base suffix	No. of instances
-dōm+un-	1	un-+-dōm	1	-lic+on-	6	on-+-lic	3
-ere+(ge)-	7	(ge)-+-ere	1	-lic+tō-	6	tō-+-lic	2
-ig+fore-	1	fore-+-ig	3	-lic+un-	13	un-+-lic	135
-ing+(ge)-	42	(ge)-+-ing	1	-nes+ge-	4	ge-+-nes	1
-ing+ā-	27	ā-+-ing	1	-nes+ford-	1	ford-+-nes	2
-ing+mis-	1	mis-+-ing	1	-nes+fore-	4	fore-+-nes	2
-ing+un-	3	un-+-ing	1	-nes+in-	4	in-+-nes	3
-līce+for-	1	for-+-līce	3	-nes+mis-	1	mis-+-nes	2
-līce+fore-	1	fore-+-līce	3	-nes+ofer-	11	ofer-+-nes	3
-līce+on-	2	on-+-līce	1	-nes+on-	29	on-+-nes	3
-līce+un-	64	un-+-līce	20	-ol+ofer-	1	ofer-+-ol	1
-lic+for-	9	for-+-lic	4	-t+ed-	1	ed-+-t	1
-lic+ofer-	3	ofer-+-lic	2				

There are 25 different combinations involving prefix-suffix / suffix-prefix combinations. It is interesting to note the absence of suffix-suffix combinations; as already pointed out by Torre Alonso (2010) the suffix-suffix combinations are always stable and, once set, the order of the affixes can never be reversed. However, it should be noted that his approach only took nouns into consideration. This transcategorial analysis proves that the restriction applies not only to the lexical category noun, but to all the other lexical classes as well. As regards suffix-prefix combinations, the freedom of combinability is higher. Although some orderings are clearly preferred in some of the patterns (consider the case of *un-/lic* vs. *-lic/un-*) some pairings have a more equal distribution. Consider the combinations of *for-/lic*, *ofer-/lic* or *in-/nes* which produce the lexemes presented in (15a), (15b) and (15c) respectively:

- 15) a. *fordēmedlic* ‘to be condemned’ from *fordēman* vs. *fordyslic* ‘very foolish’ from *dyslic*.
 b. *ofermōdlic* ‘proud, haughty’ from *ofermōd* vs. *ofersælic* ‘on the other side of the sea’ from *sælic*.
 c. *ingehygdnes* ‘intention’ from *ingehygd* vs. *inwunenes* ‘persistence’ from *wunenes*.

4.5. Input and output categories in recursive derivations

The final part of the analysis engages in the description of the lexical class changes caused by means of the successive attachment of affixes. Table 5 shows the input and output categories as well as the quantification of the instances according to the order in which the affixes are attached.

Table 5. Input and output categories through recursive derivation.

Input category > Output category	Base prefix – Word-forming suffix	Base suffix – Word-forming suffix	Base suffix – Word-forming prefix	TOTAL
Adj > Adj	34	70	223	327
Adj > Adv	91	384	0	475
Adj > N	30	51	0	81
Adj > Num	0	9	0	9
Adj > Pron	1	0	0	1
Adj > Vb	66	2	0	68
Adv > Adj	2	8	0	10
Adv > Adv	6	16	30	52
Adv > N	9	16	0	25
Adv > Num	0	2	0	2
Adv > Vb	4	0	0	4
N > Adj	103	211	0	314
N > Adv	0	3	0	3
N > N	43	42	93	178
N > Vb	457	49	0	506
Num > Num	0	4	0	4
Vb > Adj	1	1	0	2
Vb > Adv	0	1	0	1
Vb > N	0	1	0	1
Vb > Vb	1	1	0	2

Table 5 confirms that recategorisation is a feature proper of suffixation. As expected, no examples have been found where the attachment of a prefix causes a modification of the category of the input word. Second, with the exception of the changes from adjective to verb and noun to verb, there is more category modification when a suffix applies to a previously suffixed base. This is specially so when the output category of the new word is an adverb; 384 suffixed adverbs are formed from already suffixed adjectives. In the case of adjectives, 211 are created by means of the suffixation of previously suffixed nouns. As regards

suffixed nouns, though there is a tendency for them to be formed upon suffixed inputs, there seem to be no limitations to them being created upon prefixed inputs as well. Once again, the data shows great versatility and confirms the scarce restrictions imposed by morphology on the implementation of the lexicon at this stage of the language.

This exhaustive analysis of affix combinations has yielded 10 cases in which the derivative processes turn a derived adverb into an adjective. Some examples, along with their derivative chains, are provided in (16):

- 16) *ūtancund* ‘extraneous, external, foreign’ < *ūtan* ‘on the outside, from the outside, without’.
furðumlic ‘luxurious, indulging’ < *furðum* ‘even, exactly’.

Finally, the data in Table 5 shows that no ordering of category linearisation can be established with regards to lexical creation. All major lexical classes can create words appertaining to all the other major classes. This goes against a unified linearisation of lexical creation by which strong verbs are at the beginning of the derivations followed by nouns, adjectives, adverbs and weak verbs as postulated by Bammesberger (1965), Hinderling (1967) or Kastovsky (1992).

The data presented so far has depicted the situation of multiply derived lexemes in Old English and has exhaustively established the manner in which the different affixes involved in these processes are ordered and interact among themselves. The following section engages in the development of the conclusions that can be extracted from this description of the recursive derivative processes.

5. Conclusions

With this work, we have aimed to contribute to the analysis of Old English word-formation. To do so, we have paid special attention to the processes of affixation and, more concretely, to the phenomenon of recursive affixation, understood as the successive incorporation of affixes to the bases of derivation. Some points need to be highlighted: first, the need, justified by the different properties and rules operating upon them, to differentiate and treat independently the processes of prefixation and suffixation; and second the consideration of borderline cases (affixoids) as pure suffixes in view of their historical evolution, that has led to the loss of content meaning in all cases.

The description of the exhaustive analysis proves the capability of the language to incorporate new morphemes to already complex lexemes. At the same time, the research has proved that practically no limitations or restrictions can be put forward as far as these incorporations are concerned. The large quantity

of combinations, along with the relatively restricted number of lexical formations they create, highlight a substantial productivity in the lexical creation and in the implementation of the lexicon in this stage of the language.

Most importantly, the analysis has achieved its main goal: the identification of closing affixes in Old English. Five affixes in particular stand out as those that can be considered closing affixes, though differences and subtleties appear among them. Those affixes are the verbal *-cian*, the nominal *-estre* and *-incel*, and the adverbial *-mǣlum* and *-mǣst*.

Of these, the one that can most clearly be claimed as a closing suffix is *-estre*, for it attaches both to underived bases and to previously derived cases. It never appears in pre-final position in recursive formations, so it can be said that it is a fully closing suffix that prevents further affixation. The next most likely candidate is *-mǣlum*. It attaches to underived bases and in one occasion to a previously suffixed base. It can also be claimed as a fully closing suffix, but its presence is much more limited.

The other three suffixes are a level below these two. They can be attached to underived bases but never participate in recursive formations. They must be considered closing suffixes for they block the appearance of later derivations, but present a more restricted distribution than *-estre* or *-mǣlum*.

At the same time this study has come up with the word *unhiredwist* ‘unfamiliarity’, where the prefix *un-* is attached to the suffixed base *hiredwist* ‘familiarity’. This word is relevant as it supports Torre Alonso’s (2011b) claim that *-wist* could not be considered as a closing suffix. In his work, the author states that although the data suggest that *-wist* blocks further derivations, “these figures are by no means representative and do not constitute evidence strong enough so as to claim their status of closing affixes” (Torre Alonso 2011b: 275). The presence of this affix in pre-final position in the above mentioned word proves his statement true and offers evidence of the suffix *-wist* occurring in pre-final position. Even though this occurs in just one example, the suffix *-wist* allows for the incorporation of other affixes after it is used in the derivative chain, which prevents it from being catalogued as a closing suffix.

This paper confirms the special character of *-nes* and *-ing* already pointed out by Torre Alonso (2011b). This author postulated these affixes as process-closing affixes, as, although they can be pre-final and allow for further derivations to operate, they never allow for other suffixes to be attached after them. The only derivative operations they allow occur on the left side of the base. The present work, which involves all major lexical categories extends his analysis and proves that this property is restricted to these two affixes and that no other suffix presents a similar behaviour.

Two final relevant observations can be made from this piece of research. The first is the existence of affix loops or reverse combinations of affixes in which

both elements can be pre-final to each other. In this sense a restriction applies on double-suffixed words, for the order of two successive suffixes can never be reversed. The quantitative data proves that this phenomenon is relevant in itself and not a consequence of any methodological decision taken *a priori*.

Secondly, we have remarked upon the recategorisation character proper of suffixation, which was selected by Martín Arista (2008) as one of the properties of derivational morphology along with recursivity. The data proves that no linearisation can be put forward as regards the direction in which the categories are changed by successive processes of affixation, as all major lexical categories can be turned into words of any other lexical category if provided with adequate suffixation.

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