

RECATORIZATION IN THE RECURSIVE FORMATION OF OLD ENGLISH NOUNS AND ADJECTIVES

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Abstract: The aim of this paper is to identify the types of recategorization that arise in the recursive formation of Old English nouns and adjectives by means of prefixation and suffixation. The first step of this analysis is to isolate the recursive adjectival and nominal formations, for which the lexical database of Old English *Nerthus* (www.nerthusproject.com) is used. Out of a total of nearly 7,500 affixed nouns and adjectives, there are 388 recursive formations. The main conclusion of this article is that recursivity in the formation of adjectives and nouns crucially depends on the noun as source category and the adjective as path category. As a general rule, the derivation proceeds as follows: noun > adjective > noun / adjective.

Keywords: *recategorization, recursivity, affixation, Old English*

1. Aims of research and data of analysis

The aim of this article is to identify the types of recategorization that arise in the recursive formation of Old English nouns and adjectives by means of prefixation and suffixation.¹ The article is organized as follows. This section presents the main aims of as well as the data of analysis that have been used in the research. Section 2 unfolds the theoretical framework on the basis of the distinction between derivational and inflectional morphology. Section 3 is devoted to the analysis of Old English recursivity, focusing on the lexical categories of noun and adjective. Section 4 presents the recategorization patterns of recursive formations. Finally, section 5 draws the main conclusions of the analysis.

The data of analysis have been retrieved from the lexical database of Old English *Nerthus* (www.nerthusproject.com), consulted in November 2014. The data comprise a total of 4,370 nouns and 3,218 adjectives derived by prefixation or suffixation. By process, a total of 2,001 are prefixed words and 5,587 are suffixed. There are 257 recursive nouns and 131 recursive adjectives, thus making a total of 388. Out of the 388 recursive nouns and adjectives, 377 are recursive formations with non-recursive base (two affixes), whereas the remaining 11 are recursive with recursive base (three affixes). The analysis distinguishes the affixes presented in Figures 1, 2 and 3, which are based on the description of Old English affixation made by Jember et al. (1975),

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Kastovsky (1992), Lass (1994) and Quirk and Wrenn (1994). The textual realizations and variants of each affix are given between brackets:

Ā- (ā-), ĀE- (āe-), ÆFTER- (æfter-), ÆT- (æt-), AND- (am-, an-, and-), ANTE- (ante-), ARCE- (arce-), BE- (bi-, bī), EALL- (æ1-, al-, eall-), ED- (ed-), EL- (æ1-, el-), FOR- (for-, fōr-, fore-), FORE- (for-, fore-, fōre-), FORÐ- (forð-), FRAM- (fram-), FRĒA- (frēa-), FUL- (ful-, full-), GĒAN- (gean-, gēan-), HEALF- (healf-), IN- (in-, inn-), MID- (med-, mid-), OF- (æf-, of-), OFER- (ofer-), ON- (on-), OR- (ō-, or-), SĀM- (sam-, sām-), SIN- (sin-, sine-), SUB- (sub-), TŌ- (tō-), TWI- (twi-), ÐRI- (ðri-, ðry-), ÐURH- (ðurh-), UN- (and-, on-, un-), UNDER- (under-), ŪP- (up-, ūp-), ŪT- (ūt-, ūð-), WAN- (wan-), WIÐ- (wið-), WIDĒR- (wiðer-), YMB- (ymb-, ymbe-).

Figure 1: Old English prefixes.

-BORA (-bior-, -bora), -DŌM (-dōm), -ED (-ad), -EL (-el, -eld, -ele, -elle, -il, -l, -la, -le, -ll, -lle, -ol), -ELS (-els, -ls), -EN (-en, -n), -END (-d, -en, -end, -ende, -iend, -liend, -nd), -ERE (-e, -er, -era, -ere, -igere, -lere, -lĕre, -re), -ESSE (-esse), -ESTRE (-estre, -istre, -stre, -ystre), -ETT (-et, -eta, -ett, -t, -tt), -FUL (-ful), -HĀD (-hād), -ICGE (-ecge, -icge, -ige), -IG (-ig), -INCEL (-incel), -ING (-ing, -unga, -inga), -LING (-ling), -NES (-enes, -es, -nes, -ness, -nis, -nys, -nyss, -s), -RĀĒDEN (-rāēden), -SCIPE (-scipe, -scype), -SUM (-sum), -ð (-að, -d, -ed, -ot, -oð, -oða, -t, -ð, -ða, -ðe, -ðo, -ðu, -uð), -UNG (-ng, -ung), -WIST (-wist).

Figure 2: Old English nominal suffixes.

-BĀRE (-bāre), -CUND (-cund), -ED (-ade, -ed, -ede, -od, -ode, -te, -ud), -EL (-el, -ol, -ul), -EN (-en), -END (-end, -igend), ENDE (-ende, -iende), -ERNE (-ern, -erne), -FÆST (-fæst), -FEALD (-feald), -FUL (-ful), -IC (-ic), -IG (-ig, -ige), -IHT (-eht, -ehte, -iht, -ihte), -ING (-ing), -ISC (-isc), -LĒAS (-lēas), -LIC (-lic), -OR (-or), -SUM (-sum), -WEARD (-weard), -WELLE (-welle), WENDE (-wende).

Figure 3: Old English adjectival suffixes.

2. The role of recategorization in derivational morphology

Two approaches to the general question of how words are related to other words (or how meaning spreads in a structured lexicon) stand out, namely the Generative Lexicon (Pustejovsky 1991, 1995) and Construction Morphology (Booij 2012). The former puts emphasis on compositionality, which is understood as the addition of meaning components, whereas the latter focuses on the output, captured in terms of morphological constructions, or recurrent associations of form and meaning holding in units of the size of the word. Both the Generative Lexicon and Construction Morphology, therefore, make use of the concept of lexical inheritance (also called lexical typing in the Generative Lexicon) to address the question of how less complex words contribute meaning to more complex words to which they are morphologically or semantically related.

On the side of morphological relatedness, Structural-functional theories of language such as Functional Grammar (Dik 1997a, 1997b), Functional Discourse Grammar (Hengeveld and Mackenzie 2008) and Role and Reference Grammar (Foley and Van Valin 1984; Van Valin and LaPolla 1997; Van Valin 2005), admit the existence of continuity between inflectional and derivational morphology, given their concern with the applicability of functional grammars to a wide variety of languages. Lexeme-Morpheme Base Morphology (Beard 1995, 1998; Beard and Volpe 2005), in a convergent approach, proposes a unified account of forty-four universally available functions that constitute constraints on the possible inflectional and derivational operations and, moreover, can apply both at the level of the word and the level of the phrase.

Booij (2010:22) raises the question of inflectional systems for a morpheme-based analysis of word-internal structure, since “in many languages there is no one-to-one correspondence between the building blocks of inflective words and their morpho-syntactic and morpho-semantic properties.” In a similar line, Manova (2005: 233), states that “derivation and inflection are seen as constituting a continuum between the

poles of prototypical derivation and prototypical inflection.”

In the distinction between derivation and inflection, Ricca (2005: 197) quotes Anderson (1992: 75-76), who remarks:

An interesting argument for the separation of inflection from derivation is based on the fact that inflectional systems often display 'portmanteau' morphs. [...]. It seems to be the case that portmanteaux are much rarer in derivation (if indeed such elements exist at all). What is more relevant here, however, is the observation that there do not ever seem to be elements which combine inflectional and derivational categories in the same portmanteau.

The issue of cumulation establishes a substantial difference between inflection and derivation. Cumulation, understood as the presence of a single marker that codifies more than one grammatical category, is rare in the case of derivation. According to Ricca (2005: 198), the fact that derivation is less paradigmatically built than inflection makes it complicated to find instances of cumulation, due to the fact that cumulative exponence assumes a certain autonomy in the categories involved regarding their formal linguistic coding.

In a synthetic approach that emphasizes the functions of the elements of word structure, Martín Arista (2008, 2009) remarks that the defining properties of derivational morphology, which is distinguished from inflection, are recategorization and recursivity.

Given this theoretical stance, it is necessary to explain why a separation is kept in Old English where the theoretical model of reference usually does not. The reason for completely distinguishing inflection from derivation has to do with the scope of this journal article. The analysis of Old English is purely intralinguistic and, consequently, interlinguistic considerations regarding the existence of continuity between inflection and derivation in some or many languages are not a focal point of attention. Furthermore, even within Old English the amount of available data of affixation as well as the questions posed by prefixation and suffixation advise to put other phenomena aside.

The main area of contact between inflection and derivation that arises in a synchronic analysis of Old English is the formation of nouns that end in end in a suffix (-a, -e, -o, -u) and derive mainly from strong verbs (as in *ece* 'pain' < *acan* 'to ache' and *bite* 'bite' < *bītan* 'to bite'). González Torres (2010), in order to decide whether these suffixes are inflectional or derivational, compares each affix with the other affixes that are attached to the same base, as well as to the simplex form. Focusing on one of these pairs, -a / -e, in cases such as *ācumba* / *ācumbe* 'oakum', there is no meaning contrast and the ending expresses gender inflection. The same can be said of other pairs like *hūsbonða* 'householder' / *hūsbonde* 'mistress of a house', *wuduwa* 'widower' / *wuduwe* 'widow', *māga* 'son' / *māge* 'female relative', *gefædera* 'male sponsor' / *gefædere* 'female sponsor' and *geongra* 'disciple' / *geongre* 'female attendant'. However, in pairs like the ones in Figure 4, which comprise two morphologically related words which convey a significantly different meaning, the meaning contrast between the two members of the pair cannot be attributed to inflection. Rather, it has to be explained as the result of a derivational process:

bita 'bit' / *bite* 'bite', *fēða* 'foot-man' / *fēðe* 'power of locomotion', *feorhgōma* 'jaw' / *feorhgōme* 'means of subsistence', *firenhiċga* 'adulterer' / *firenhiċge* 'adulteress', *fyrðwīsa* 'chieftain' / *fyrðwīse* 'military style', *gedrinca* 'cupbearer' / *gedrince* 'drink', *gemāna* 'community' / *gemāne* 2 'fellowship', *gripa* 'handful' / *gripe* 'grip', *hlāfordswica* 'traitor' / *hlāfordswice* 'high treason', *ierfa* 'heir' / *ierfe* 'heritage', *landrīca* 'landed proprietor' / *landrīce* 'territory', *rīca* 'influential man' / *rīce* 2 'rule', *secga* 'sayer' / *secge* 'speech', *selfēta* 'cannibal' / *selfēte* 'a plant', *spura* 'spur' / *spure* 'heel', *sticca* 'stick' / *sticce* 1 'sticky matter', *wīðercwida* 'contradictor' / *wīðercwīde* 'contradiction', *wicca* 1 'wizard' / *wicce* 'witch',

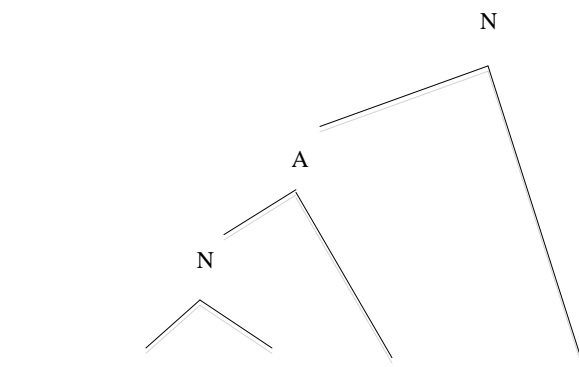
woruldrīca ‘great man’ / *woruldrīce* 1 ‘earthly kingdom’.²
 Figure 4: Derivational vocalic endings (from González Torres 2010).

Considering the evidence gathered in Figure 4, it is necessary to admit a certain degree of overlapping between inflection and derivation in Old English, although it seems to be restricted to zero derivatives like the ones in Figure 4. As has been remarked above, this article engages in affixation thus dealing with purely derivational affixes or, put in another words, with morphological phenomena that can be separated from inflection on a discrete basis.

3. The analysis of Old English recursivity in nouns and adjectives

To recapitulate, in the previous section the distinction between inflectional and derivational morphology has been drawn on the basis of the property of cumulation, which does not apply to inflection, as well as the properties of recategorization and recursivity, which are exclusive to derivation. In the analysis of Old English morphology, the overlapping between inflection and derivation affects zero derivation only, which falls out of the scope of this research.

With these theoretical parameters, the analysis of recursivity that follows draws on the structural-functional framework of morphology proposed by Martín Arista (2011, 2012, 2013, 2014), who defines lexical recursivity as the derivation of derived bases, thus representing a property of lexical paradigms. For a formation to be considered recursive, a given process needs to be repeated, such as prefixation on prefixation or suffixation on suffixation. Apart from the restriction stipulating that recursivity requires that the output of a derivational process needs to be input to the process in question, lexical derivation is gradual: an affix is attached per process. A distinction must be made, therefore, between simplex forms (no affix), non-recursive formations (one affix), recursive formations with non-recursive base (two affixes) and recursive formations with recursive base (three affixes). The highest degree of complexity identified in the recursive word-formation of Old English is represented in Figure 5, which presents *ealdordōmlicnes* ‘authority, control’ by following the diagram model adopted by van der Hulst (2010) for lexical recursivity. As the figure shows, the suffixed noun *ealdordōmlicnes* is recursively derived from the previously derived adjective *ealdordōmlic* ‘preeminent’, which is created, in turn, out of the already suffixed noun *ealdordōm* ‘power’, morphologically related to the derivative base EALDOR 1 ‘elder’.



² In the lexical database of Old English Nerthus numbered entries have been devised, on the grounds of different category, different morphological class or different variants, for predicates otherwise equal. For instance, *āwiht* 1 is a noun, *āwiht* 2 an adverb and *āwiht* 3 an adjective; and *besēon* 1 ‘to see, look, look round’, is a class V strong verb, whereas *besēon* 2 ‘to suffuse’ belongs to class I.

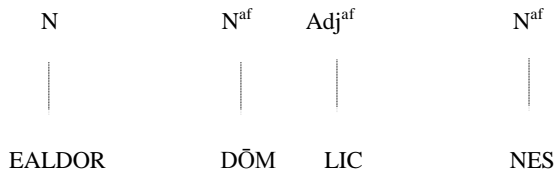


Figure 5: Representation of the recursive noun *ealdordōmlicnes*.

The analysis has been carried out in two steps: in the first place, non-final derivation is analyzed, including the primary base of affixation and the first affix in the derivation. Then, final derivation is taken into account, which comprises the secondary base of affixation and the second affix in the derivation. In instances of double recursivity like *ealdordōmlicnes* ‘authority, control’, a tertiary base is considered to which the third affix in the derivation is attached. The analytical steps are illustrated in Figure 6.

DERIVATIVE	SECONDARY BASE	PRIMARY BASE	SEQUENCE OF AFFIXES
<i>undertōdal</i> (N) ‘secondary division’	<i>tōdāl</i> ‘partition’	<i>(ge)dāl</i> ‘division’	<i>undertō-</i>
<i>bisceophādung</i> (N) ‘episcopal ordination’	<i>bisceophād</i> (N) ‘bishophood’	<i>bisceop</i> ‘bishop’	<i>-hādung</i>
<i>healfsinewealt</i> (Adj) ‘semicircular’	<i>sinewealt</i> (Adj) ‘round’	<i>wealte</i> (N) ‘a ring’	<i>healfsine-</i>
<i>wilsumlic</i> (Adj) ‘desirable’	<i>wilsum</i> (Adj) ‘desirable’	<i>will I</i> (N) ‘mind, will’	<i>-sumlic</i>

Figure 6: Gradual derivation of recursive nouns and adjectives.

The analysis has identified a number of sequences or patterns of recursivity, which are different depending on the derivative process involved. Beginning with nouns, a total of three prefixal recursive patterns emerge, which are exemplified below, together with a predicate containing the recursive sequence in question:

- (1) ofer-healf- (*oferhealfhēafod* ‘crown of the head’), on-un- (*onunwīsdōm* ‘folly’), under-tō- (*undertōdal* ‘secondary division’)

In (2), the fifty-five different recursive patterns for suffixed nouns are provided, as well as an example of each of them:

- (2) -bære-nes (*lustbærnes* ‘enjoyment’), -cund-nes (*incundnes* ‘inward conviction’), -dōm-end (*lācedōmnes* ‘cataplasm’), -dōm-ere (*selfdēmere* ‘monk living subject to his own rules’), -dōm-hād (*ðēowdōmhād* ‘service’), -dōm-nes (*lācedōmnes* ‘cataplasm’), -dōm-scipe (*ealdordōmscipe* ‘office of alderman’), -el-ett (*ðyfelett* ‘thicket’), -el-nes (*rēafolnes* ‘rapacity’), -el-ung (*setlung* ‘sitting’), -en-dōm (*hāðendōm* ‘heathendom’), -en-ere (*crīstnere* ‘one who performs the rite of *crīstnung*’), -en-nes (*frēcennes* ‘harm’), -en-ræden (*mæstenræden* ‘right of feeding swine in mast-pastures’), -en-scipe (*geliefenscipe* ‘justification’), -en-ung (*crīstnung* ‘christening’), -end-dōm (*reccenddōm* ‘governance’), -end-nes (*ālīesendnes* ‘redemption’), -end-ræden (*frēondræden* ‘friendship’), -end-scipe (*frēondscipe* ‘friendship’), -ere-

hād (*ðrōwerhād* ‘martyrdom’), -ere-nes (*gīfernes* ‘greediness’), -ett-nes (*ānetnes* ‘solitude’), -ett-ung (*līgetung* ‘lightning’), -fæst-en (*hēahfæsten* ‘fortified town’), -fæst-nes (*staðolfæstnes* ‘stability’), -fæst-ung (*staðolfæstnung* ‘foundation’), -feald-nes (*felafealdnes* ‘multitude’), -ful-nes (*wistfullnes* ‘good cheer’), -hād-nes (*geoguðhādnes* ‘state of youth’), -hād-ung (*bisceophādung* ‘episcopal ordination’), -ig-dōm (*hāligdōm* ‘holiness’), -ig-nes (*wērignes* ‘weariness’), -ing-hād (*æðelinghād* ‘princely state’), -ing-nes (*līhtingnes* ‘lightness of taxation’), -isc-nes (*menniscnes* ‘state of man’), -lēas-nes (*feohlēasnes* ‘want of money’), -lēas-ð (*wīflēast* ‘lack of women’), -lic-nes (*medemlicnes* ‘mediocrity’), -lic-ung (*gemetlicung* ‘adjustment’), -ræden-nes (*geferrædnes* ‘society’), -sum-nes (*lufsumnes* ‘pleasantness’), -ð-dōm (*ðēowotdōm* ‘service’), -ð-el (*tihtle* ‘accusation’), -ð-en (*tyhten* ‘incitement’), -ð-end (*tyhtend* ‘inciter’), -ð-ere (*tyhtere* ‘inciter’), -ð-ing (*tyhting* ‘incitement’), -ð-ling (*ðēowtling* ‘servant’), -ð-nes (*tyhtnes* ‘inward impulse’), -ð-ræden (*mædræden* ‘mowing’), -ð-scipe (*nāhtscipe* ‘worthlessness’), -ung-dōm (*wiccungdōm* ‘witchcraft’), -ung-nes (*gegearwungnes* ‘preparation’), -weard-nes (*tōweardnes* ‘future’)

Next, the patterns applying to recursive adjectives are dealt with. The analysis has identified three different ones for prefixation, which are presented in (3):

- (3) healf-sine- (*healfsinewealt* ‘semicircular’), un-and- (*unandweard* ‘not present’), un-for- (*unforcūð* ‘reputable’)

A total of thirty-five different patterns are needed to account for the recursivity of suffixed adjectives in Old English. They are shown in (4) together with an example of each:

- (4) -bære-lic (*cwildberendlic* ‘deadly’), -cund-lic (*eorðcundlic* ‘earthly’), -dōm-lic (*ealdordōmlic* ‘preeminent’), -ed-lic (*fracoðlic* ‘base’), -el-ed (*hwyrflēde* ‘round’), -el-en (*ðyflēn* ‘bushy’), -en-ful (*frēcenful* ‘dangerous’), -en-isc (*hæðenisc* ‘heathenish’), -en-lēas (*ðēodenlēas* ‘without a ruler or chief’), -en-lic (*ieldendlic* ‘dilatatory’), -en-weard (*līnenweard* ‘clad in linen’), -end-lēas (*frēondlēas* ‘friendless’), -end-lic (*onfōndlic* ‘to be received’), -ere-en (*forligeren* ‘fornicating’), -ere-lic (*forligerlic* ‘unchaste’), -fæst-lic (*æwfæstlic* ‘lawful’), -feald-lic (*hundfealdlic* ‘hundred-fold’), -ful-lic (*fācenfullic* ‘deceitful’), -hād-lic (*fāemnhādlic* ‘maidenly’), -ig-fæst (*wlitigfæst* ‘of enduring beauty’), -ig-lic (*syndriglic* ‘special’), -iht-ig (*clifihtig* ‘steep’), -isc-lic (*mennisclic* ‘human’), -lēas-lic (*scamlēaslic* ‘shameless’), -ol-lic (*swicollic* ‘fraudulent’), -or-ig (*heolstrig* ‘shadowy’), -scipe-lic (*gesinsciplic* ‘conjugal’), -sum-lic (*angsumlic* ‘troublesome’), -ð-bære (*dēaðbære* ‘deadly’), -ð-ful (*genyhtful* ‘abundant’), -ð-ig (*cystig* ‘charitable’), -ð-lēas (*cystlēas* ‘worthless’), -ð-lic (*forstlic* ‘glacial’), -ð-sum (*(ge)nyhtsum* ‘abundant’), -weard-lic (*inweardlic* ‘internal’)

Pounder’s (2000) paradigmatic model of derivational morphology provides an adequate model for the explanation of gradual derivation as represented in Figure 6. Within this frame, the affixes that are attached to already affixed words require an extra

position, called slot -II, since slot -I position is taken up by the affix inserted in the previous stage of the operation. The first part of the operation in (5) represents the affixation process, the second one the derivational function and the third one the (re)categorization pattern. The symbol \oplus stands for the affixation. This is why it appears after a prefix or before a suffix. The right column shows two types of restrictions: *s.c.* corresponds to *stem conditions* (base lexical class) and *o.c.* stands for *order conditions* (slot).

Beginning with prefixation, the operations in (5) illustrate this derivational phenomenon for nouns and adjectives:

- (5) a. $\langle \text{on} \oplus \text{x} \rangle ; 'O_5';$ s.c.: N
 $\langle \text{INTENS}('X') \rangle$ o.c.: slot -II [un- slot -I]
 $\langle \Sigma_N \rightarrow \Sigma_N \rangle$ *onunspēd* from SPĒD 'luck'
onunspēd 'indigence'
- b. $\langle \text{đurh} \oplus \text{x} \rangle ; 'O_5';$ s.c.: Adj
 $\langle \text{INTENS}('X') \rangle$ o.c.: slot -II [un- slot -I]
 $\langle \Sigma_{\text{Adj}} \rightarrow \Sigma_{\text{Adj}} \rangle$ *đurhunrot* from RŌT 1 'glad'
đurhunrot 'very sad'

The derivatives exemplified in (5) require slot -II, while the position slot -I is occupied by the prefix *un-* in both cases. In the first case, the prefix *un-* is attached to a nominal base, SPĒD, whereas in the second case, the same prefix is attached to an adjectival base, RŌT 1. The derivational function involved in both cases is INTENS('X'),³ since both prefixes *on-* and *đurh-* convey a meaning of intensification.

Regarding the operations involved in recursive suffixation, the operations represented in (6) require slot -II as a result of the insertion of a suffix in middle position, so that a final suffix can be inserted:

- (6) a. $\langle \text{x} \oplus \text{hād} \rangle ; 'O_5';$ s.c.: N
 $\langle \text{I}('X') \rangle$ o.c.: slot -II [-dōm slot -I]
 $\langle \Sigma_N \rightarrow \Sigma_N \rangle$ *đēowdōmhād* from đĒOW 1 'servant'
đēowdōmhād 'service'
- b. $\langle \text{x} \oplus \text{hād} \rangle ; 'O_5';$ s.c.: Adj
 $\langle \text{ABST}('X') \rangle$ o.c.: slot -II [-ere, -ing slot -I]
 $\langle \Sigma_{\text{Adj}} \rightarrow \Sigma_N \rangle$ *æðelinghād* from ÆðELE 'noble'
æðelinghād 'princely state', *đrōwerhād* 'martyrdom'

The operations presented in (6) produce derivatives in *-hād* performing either the function I('X'),⁴ as in (8a), or the function ABST('X'),⁵ as in (8b). The former function is, in fact, a non-function because there is no change in the meaning of the derivative

with respect to the base. The latter function corresponds to the formation of abstract nouns. The operation in (8a) represents the derivational process corresponding to the only predicate that contains the affixal sequence *-dōm-hād*. The second operation describes the derivative process undergone by the predicates *æðelinghād* and *ðrōwerhād*, containing the recursive sequence *-ing-hād* and *-ere-hād* respectively, and an adjectival base of derivation. As with the operations in (5), slot -II is required once the slot -I position has been occupied. Whereas recursivity with non-recursive base is described in terms of slot -II position, recursivity with recursive base requires the slot -III position. Examples of nouns and adjectives having a recursive base have been identified in suffixation exclusively. The operations in (7a) and (7b) include an example of each, noun and adjective respectively. The derivational function accounts for the derivatives that convey a meaning of property or abstract quality.⁶

- (7) a. $\langle x \oplus \delta \rangle$; 'O₅'; s.c.: Adj
 $\langle \text{PROP}('X') \rangle$ o.c.: slot -III [-end slot-II [-lēas slot -I]]
 $\langle \Sigma_{\text{Adj}} \rightarrow \Sigma_{\text{N}} \rangle$ *frēondlēast* from FRĒO 1 'free'
frēondlēast 'want of friends'
- b. $\langle x \oplus \text{lic} \rangle$; 'O₅'; s.c.: V
 $\langle \text{PROP}('X') \rangle$ o.c.: slot -III [-ð slot-II [-end slot -I]]
 $\langle \Sigma_{\text{V}} \rightarrow \Sigma_{\text{Adj}} \rangle$ *tyhtendlic* from (GE)TĒON 1 'to pull'
tyhtendlic 'persuading'

A total of 11 predicates, three of which are nouns and eight adjectives, undergo double recursivity, that is, three different affixes and functions partake in the derivational process. Nouns are listed in (8a) and adjectives in (8b).

- (8) a. *dēaðbārnes* 'deadliness', *dēaðlicnes* 'mortal state',
ealdordōmlicnes 'authority', *fracoðlicnes* 'vileness', *frēondlēast*
'want of friends', *gesælignes* 'happiness', *godcundlicnes* 'divine
nature', *mennislicnes* 'state of man'
- b. *dēaðbærlic* 'deadly', *gesæliglic* 'happy', *tyhtendlic* 'persuading'

The nominal suffix *-nes* is, by far, the most frequent in the Old English lexicon in type analysis. A total of 190 predicates have been identified containing this affix in final position. Example (9) shows all the recursive sequences in which it appears and an instance of each pattern:

- (9) -bære-nes- (*cwealmbārnes* 'mortality'), -cund-nes (*godcundnes* 'divine nature'), -dōm-nes (*lācedōmnes* 'cataplasm'), -ed-nes (*fracoðnes* 'vileness'), -el-nes (*meagolnes* 'earnestness'), -en-nes (*frēcennes* 'harm'), -end-nes (*ālīesednes* 'redemption'), -ende-nes (*hālwendnes* 'earnestness'), -ere-nes (*gīfernes* 'greediness'), -ett-nes (*ārfaetnes* 'virtue'), -feald-nes (*felafealdnes* 'multitude'), -ful-nes (*carfulnes* 'care'), -hād-nes (*geoguðhādnes* 'state of youth'), -ig-nes (*ēadignes* 'happiness'),

-ing-nes (*līhtingnes* ‘lightness of taxation’), -isc-nes (*menniscnes* ‘state of man’), -lācan-nes (*ðrīstlācnes* ‘boldness’), -lēas-nes (*endelēasnes* ‘infinity’), -lic-nes (*hrædlicnes* ‘suddenness’), -or-nes (*slāpornes* ‘lethargy’), -ræden-nes (*gefērrædnes* ‘society’), -sum-nes (*langsumnes* ‘length’), -ung-nes (*gegearwungnes* ‘preparation’), -weard-nes (*æfterweardnes* ‘posterity’)

As for adjectives, the suffix *-lic* is the most frequent one in final position. It also turns out the highest number of recursive patterns, a total of 103, including those appearing in (10):

- (10) -bære-lic (*lustbærlīc* ‘pleasant’), -cund-lic (*heofoncundlic* ‘heavenly’), -dōm-lic (*wītedōmlic* ‘prophetic’), -ed-lic (*fracoðlic* ‘base’), -el-lic (*ðrisellīc* ‘tripartite’), -en-lic (*crīstenlic* ‘Christian’), -end-lic (*nergendlic* ‘that should be preserved’), -ere-lic (*wōgerlic* ‘amorous’), -ettan-lic (*swōretendlic* ‘short-winded’), -fæst-lic (*ārfæstlic* ‘pious’), -feald-lic (*hundfealdlic* ‘hundred-fold’), -ful-lic (*egesfullic* ‘terrible’), -ig-lic (*ēadiglic* ‘prosperous’), -isc-lic (*mennisclic* ‘human’), -lēas-lic (*scamlēaslic* ‘shameless’), -nian-lic (*lācnigendlic* ‘surgical’), -scipe-lic (*gesinsciplic* ‘conjugal’), -sum-lic (*lufsumlic* ‘gracious’), -um-lic (*furðumlic* ‘luxurious’), -weard-lic (*inweardlic* ‘internal’), -wīs-lic (*rihtwīslic* ‘righteous’)

4. Recategorization in derivation

The analysis of Old English recursive nouns has derived the patterns of category combination that appear represented in (11), together with all the predicates that correspond to each pattern. The leftmost category in each pattern stands for the source category from which the derivational process starts, whereas the rightmost category corresponds to the target category.

- (11) a. Noun > noun > noun (21)
bisceophādung ‘episcopal ordination’, *ealdordōmscipe* ‘office of alderman’, *gecwedrædnes* ‘agreement’, *gefērrædnes* ‘society’, *geoguðhādnes* ‘state of youth’, *lācedōmnes* ‘cataplasm’, *līgetung* ‘lightning’, *mægðræden* ‘friendship’, *mæstenræden* ‘right of feeding swine in mast-pastures’, *nīetennes* ‘brutishness’, *oferhealfhēafod* ‘crown of the head’, *onunspēd* ‘indigence’, *onunwīsdōm* ‘folly’, *ðēowdōmhād* ‘service’, *ðēowotdōm* ‘service’, *ðēowtling* ‘servant’, *ðēowtscipe* ‘service’, *ðȳfelett* ‘thicket’, *undertōdal* ‘secondary division’, *woruldgerædnes* ‘secular ordinance’, *wynsumnes* ‘loveliness’
- b. Adjective > noun > noun (7)
æðelinghād ‘princely state’, *ānetnes* ‘solitude’, *dēðing* ‘putting to death’, *frēcennes* ‘harm’, *frēondræden* ‘friendship’, *frēondscipe* ‘friendship’, *gīfernes* ‘greediness’
- c. Verb > noun > noun (22)
æfterfylgendnes ‘succession’, *ālīesendnes* ‘redemption’, *crypelnes* ‘paralysis’, *fyrðringnes* ‘furtherance’, *gegearwungnes* ‘preparation’, *gesihðnes* ‘vision’, *līhtingnes* ‘lightness of taxation’, *mædræden* ‘mowing’, *mæðere* ‘mower’, *reccenddōm* ‘governance’, *setlung* ‘sitting’

swēgungness ‘sound’, *tihle* ‘accusation’, *tyhten* ‘incitement’, *tyhtend* ‘inciter’, *tyhtere* ‘inciter’, *tyhting* ‘incitement’, *tyhtnes* ‘inward impulse’, *ḍrōwerhād* ‘martyrdom’, *ḍurhwunungnes* ‘perseverance’, *wiccungdōm* ‘witchcraft’, *wrigelnes* ‘covering’

d. Adverb > noun > noun (2)

nāhtnes ‘worthlessness’, *nāhtscipe* ‘worthlessness’

e. Pronoun > noun > noun (2)

selfdēmente ‘monk subject to his own rules’, *selfdēmere* ‘monk subject to his own rules’

f. Noun > adjective > noun (111)

æðelcundnes ‘nobleness’, *æwfæsten* ‘legal or public fast’, *æwfæstnes* ‘religion’, *andgielēast* ‘want of understanding’, *ārfæstnes* ‘virtue’, *ārlēasnes* ‘wickedness’, *ārlēast* ‘disgraceful deed’, *bearnlēast* ‘childlessness’, *bōcsumnes* ‘obedience’, *brōḍorlīcnes* ‘brotherliness’, *carfulnes* ‘care’, *carlēasnes* ‘freedom for care’, *carlēast* ‘freedom for care’, *ceorliscnes* ‘churlishness’, *crīstnere* ‘one who performs the rite of crīstnung’, *crīstnung* ‘christening’, *cwealmbāernes* ‘mortality’, *cystignes* ‘liberality’, *dēaðbāernes* ‘deadliness’, *dēaðlicnes* ‘mortal state’, *dōmfæstnes* ‘righteous judgement’, *drēorignes* ‘sadness’, *(ge)dyrstignes* ‘boldness’, *ēadignes* ‘happiness’, *ealdordōmlicnes* ‘authority’, *ealdorlicnes* ‘authority’, *egelēasnes* ‘boldness’, *egesfulnes* ‘fearfulness’, *elḍēodignes* ‘foreign travel or residence’, *endelēasnes* ‘infinity’, *fācenfulnes* ‘deceitfulness’, *feohlēasnes* ‘want of money’, *flāsclicnes* ‘incarnate conditio’, *fracoḍnes* ‘vileness’, *fracoḍscipe* ‘scandalous conduct’, *fremfulnes* ‘utility’, *fremsumnes* ‘benefit’, *frēondlēast* ‘want of friends’, *fyrenfulnes* ‘luxury’, *geblādfæstnes* ‘success’, *geflitfulnes* ‘litigiousness’, *gelēaffulnes* ‘faith’, *gelēafenscipe* ‘justification’, *gelimplicnes* ‘opportunity’, *gemyndlȳst* ‘madness’, *gesālignes* ‘happiness’, *geswincfulnes* ‘tribulation’, *getrēowlēasnes* ‘treachery’, *gewyrdignes* ‘eloquence’, *gēmelēasnes* ‘negligence’, *gēmelēast* ‘carelessness’, *godcundnes* ‘divine nature’, *grāedignes* ‘greediness’, *hāḍendōm* ‘heathendom’, *hāḍennes* ‘heathenism’, *hāḍenscipe* ‘paganism’, *hafenlēast* ‘want’, *(ge)healdsumnes* ‘keeping’, *hefignes* ‘heaviness’, *hiwlēasness* ‘want of form’, *hohfulnes* ‘care’, *hygdignes* ‘chastity’, *hygelēast* ‘heedlessness’, *incundnes* ‘inward conviction’, *līflēast* ‘loss of life’, *lufsumnes* ‘pleasantness’, *lustbāernes* ‘enjoyment’, *māgenlēast* ‘weakness’, *mānfulnes* ‘wickedness’, *menniscnes* ‘state of man’, *metelīest* ‘lack of food’, *mōdignes* ‘greatness of soul’, *mōdlēast* ‘want of courage’, *nihternnes* ‘night season’, *rēccelīest* ‘carelessness’, *rēcelēasnes* ‘recklessness’, *scamlēast* ‘impudence’, *scandlicnes* ‘shame’, *sceamfæstness* ‘modesty’, *sceamfullness* ‘modesty’, *sceaḍḍignes* ‘injury’, *sibsumnes* ‘peace’, *sidefulnes* ‘virtue’, *sigorfæstnes* ‘victory’, *slāplēast* ‘sleeplessness’, *slidornes* ‘slippery place’, *sorglēast* ‘security’, *spēdignes* ‘opulence’, *staḍolfæstnes* ‘stability’, *staḍolfæstnung* ‘foundation’, *stedefæstnes* ‘constancy’, *synderlicnes* ‘separateness’, *synnignes* ‘sinfulness’, *tīdlicnes* ‘opportunity’, *ḍēawfæstnes* ‘discipline’, *ungewittignes* ‘folly’, *unwæstmfæstnes* ‘barrenness’, *unwlitignes* ‘disfigurement’, *wæstm̄bāernes* ‘fruitfulness’, *waterlēast* ‘want of water’, *wanspēdigness* ‘indigence’, *wearrihtnes* ‘roughness (of skin)’, *weglēast* ‘trackless’

place', *wīflēast* 'lack of women', (*ge*)*wilsumnes* 'willingness', *wistfullnes* 'good cheer', *wītelēast* 'freedom from punishment', *witlēasnes* 'want of intelligence', (*ge*)*witlēast* 'folly', *wittignes* 'intelligence', *wlitignes* 'beauty'

g. Adjective > adjective > noun (58)

angsumnes 'pain', *cynelicnes* 'kingliness', (*ge*)*dafenlicnes* 'fit time', *earfoðlicnes* 'difficulty', *ēaðelicnes* 'easiness', *efenlicnes* 'evenness', *elreordignes* 'barbarism', *ēstfulnes* 'devotion', *ēstines* 'benignity', *felafealdnes* 'multitude', *forðweardnes* 'progress', *fracoðlicnes* 'vileness', *gehæplicnes* 'convenience', *gehȳðelicnes* 'opportunitas', *gelēaflēasnes* 'unbelief', *gelōmlicnes* 'repetition', *gemānelicnes* 'generality', *gemāhlicnes* 'importunity', *gemetlicung* 'adjustment', *gemōdsumnes* 'agreement', *gemyndiglicnes* 'remembrance', *geonglicnes* 'youth', *geornfulnes* 'eagerness', *getrēowfulnes* 'Israel', *geðafsumnes* 'consent', *gewyrdelicnes* 'eloquence', *godcundlicnes* 'divine nature', *hāligdōm* 'holiness', *hālignes* 'holiness', *hālwendnes* 'salubrity', *hēahfæsten* 'fortified town', *hēalices* 'sublimity', *heardlicnes* 'austerity', *hrædlicnes* 'suddenness', *inlendiscnes* 'habitation', *langsumnes* 'length', *lāðwendnes* 'hostility', *lēaflēast* 'unbelief', *manigfealdnes* 'multiplicity', *medemlicnes* 'mediocrity', *mennislicnes* 'state of man', *netwerðlicnes* 'utility', *nytlicnes* 'utility', *rædfæstnes* 'reasonableness', *sārignes* 'sadness', *smēalices* 'subtlety', *sōðfæstnes* 'truth', *swīðlicnes* 'excess', *sȳferlicnes* 'purity', *tælwierðlicnes* 'blameableness', *ðearflicnes* 'want', *ðēostorfulnes* 'darkness', *ungemetlicnes* 'intemperance', *unnytlicnes* 'uselessness', *wærlicnes* 'wariness', *weorðfulnes* 'dignity', *weorðlicnes* 'worthiness', *wōhfulnes* 'wickedness'

h. Verb > adjective > noun (28)

ācumendlicnes 'possibility', *āwendendlicnes* 'mutability', *etolnes* 'greediness', *foreðancolnes* 'prudence', *forgitelnes* 'forgetfulness', *forwitolnes* 'intelligence', *gearowitolnes* 'sagacity', *geswipornes* 'wile', *gifolnes* 'liberality', *heolstrung* 'darkness', *hetolnes* 'violence', (*ge*)*hīersumnes* 'obedience', *hwurfulnes* 'inconstancy', *meagolnes* 'earnestness', *missenlicnes* 'variety', *ofergitolnes* 'forgetfulness', *ofersprecolnes* 'talkativeness', *onwendedlicness* 'changeability', *rēafolnes* 'rapacity', *slāpolnes* 'somnolence', *slāpornes* 'lethargy', *slipornes* 'filthiness', *sprecolnes* 'loquacity', (*ge*)*stæððignes* 'staidness', *sticolnes* 'height', *swicolnes* 'deceit', *wērignes* 'weariness', *wiðercwedolnes* 'contradiction'

i. Adverb > adjective > noun (4)

ongēanwyrðnes 'opposition', *tōweardnes* 'future', *ðæslicnes* 'fitness', *wiðerweardnes* 'opposition'

j. Numeral > adjective > noun (1)

ānfealdnes 'unity'

As for recursive adjectives, (12) gathers all the possible combinations of categories identified in the analysis.

(12) a. Adjective > adjective > adjective (18)

angsumlic ‘troublesome’, *gemetfæstlic* ‘moderate’, *geornfullic* ‘desirous’, *gesundfullic* ‘sound’, *gesundiglic* ‘prosperous’, *gesyndiglic* *1* ‘prosperous’, *hālwendlic* ‘salutary’, *healfsinewealt* ‘semicircular’, *langsumlic* ‘tedious’, *manigfealdlic* ‘manifold’, *nēahfealdlic* ‘intimate’, *sāriglic* ‘sad’, *sōðfæstlic* ‘true’, *unandwīs* ‘unskilful’, *unforcu:ð* ‘reputable’, *ðurhunrot* ‘very sad’, *weorðfullic* ‘worthy’, *wīsfæstlic* ‘wise’

b. Noun > adjective > adjective (49)

ārfæstlic ‘pious’, *āwfæstlic* ‘lawful’, *andgietfullic* ‘intelligible’, *clifhtig* ‘steep’, *crīstenlic* ‘Christian’, *cwealmberendlic* ‘pestilent’, *cwildberendlic* ‘deadly’, *dēaðbærlic* ‘deadly’, *dēawigendlic* ‘dewy’, *drēorilic* ‘bloody’, *ēadiglic* ‘prosperous’, *egesfullic* ‘terrible’, *eldēodiglic* ‘foreign’, *endelēaslic* ‘endless’, *eorðcundlic* ‘earthly’, *fācenfullic* ‘deceitful’, *fracodlic* ‘base’, *fremfullic* ‘useful’, *fremsumlic* ‘benignant’, *fȳrenful* ‘fiery’, *(ge)flitfullic* ‘contentious’, *(ge)wynsumlic* ‘pleasant’, *gemyndiglic* ‘memorable’, *gesāliglic* ‘happy’, *gesīðcundlic* ‘intimate’, *gewinfullic* ‘laborious’, *gīemelēaslic* ‘careless’, *godcundlic* ‘divine’, *grundlēaslic* ‘boundless’, *hæðenisc* ‘heathenish’, *hearmfullic* ‘harmful’, *hefiglic* ‘heavy’, *heofoncundlic* ‘heavenly’, *hrēodihtig* ‘reedy’, *hundfealdlic* ‘hundred-fold’, *hygelēaslic* ‘unbridled’, *līnenweard* ‘clad in linen’, *lufsumlic* ‘gracious’, *lustbærlic* ‘pleasant’, *mānfullic* ‘infamous’, *mennislic* ‘human’, *metcundlic* ‘metrical’, *mōdiglic* ‘high-souled’, *scamlēaslic* ‘shameless’, *staðolfæstlic* ‘steadfast’, *stēorlēaslic* ‘unmanageable’, *tēonfullic* ‘abusive’, *wilsumlic* ‘desirable’, *wlitigfæst* ‘of enduring beauty’

c. Verb > adjective > adjective (3)

heolstrig ‘shadowy’, *hīersumlic* ‘willing’, *swicollic* ‘fraudulent’

d. Adverb > adjective > adjective (6)

inwardlic ‘internal’, *ongēanweardlic* ‘adversative’, *syndriglic* ‘special’, *tōwardlic* ‘in the future’, *unandweard* ‘not present’, *wiðerweardlic* ‘contrary’

e. Numeral > adjective > adjective (3)

ānfealdlic ‘single’, *hundtēontigfealdlic* ‘hundred-fold’, *ðrifealdlic* ‘three-fold’

f. Adjective > noun > adjective (11)

cȳðig ‘known’, *cȳðlic* ‘manifest’, *dēaðbære* ‘deadly’, *dēaðlic* ‘deadly’, *frēcenful* ‘dangerous’, *frēcenic* ‘dangerous’, *frēondlēas* ‘friendless’, *frēondlic* ‘friendly’, *frymðlic* ‘primeval’, *ieldendlic* ‘dilatatory’, *wēstenlic* ‘eremitic’

g. Noun > noun > adjective (16)

ealdordōmlic ‘preeminent’, *fāemnhādlic* ‘maidenly’, *gesinsciplic* ‘conjugal’, *giftlic* ‘nuptial’, *gydenlic* ‘of a goddess’, *lācedōmlic* ‘salutary’, *mægðhādlic* ‘maidenly’, *mægðlēas* ‘not of noble birth’, *mōnaðlic* ‘monthly’, *nīetenlic* ‘animal’, *tyhtendlic* ‘persuading’, *ðearfendlic* ‘needy’, *ðēodenlēas* ‘without a ruler’, *ðēowtlic* ‘of a slave’, *ðȳflen* ‘bushy’, *wītedōmlic* ‘prophetic’

h. Verb > noun > adjective (25)

ālīesendlic ‘loosing’, *bebēodendlic* ‘imperative’, *cystig* ‘charitable’, *cystlēas* ‘worthless’, *cystlic* ‘charitable’, *feormendlēas* ‘wanting a burnisher’, *forligeren* ‘fornicating’, *forligerlic* ‘unchaste’, *forstig* ‘frosty’, *forstlic* ‘glacial’, *gehīerendlic* ‘audible’, *gehyspendlic* ‘abominable’,

genyhtful ‘abundant’, *gewemendlic* ‘seducing’, *hatigendlic* ‘hateful’,
(ge)herigendlic ‘laudable’, *hwyrfledde* ‘round’, *nergendlic* ‘that should be
 preserved’, *(ge)nyhtsum* ‘abundant’, *onfōndlic* ‘to be received’,
onlīesendlic ‘absolvable’, *plihhtlic* ‘perilous’, *(ge)sāelig* ‘fortuitous’,
underfōndlīc ‘to be received’, *wōgerlic* ‘amorous’

Considering nouns in the first place, the analysis has proved that the most frequent combination is, by far, *noun > adjective > noun*; a total of 111 predicates adjust to this pattern. In the second place, the combination *adjective > adjective > noun* registers a total of 58 recursive nouns that fit it. In turn, the least frequent patterns in noun formation are *numeral > adjective > noun*, having only one predicate, and *adverb > noun > noun* and *pronoun > noun > noun*, displaying two predicates each.

Turning to the combination patterns found in adjectives, the differences in frequency are not as clearcut as in the case of nouns. Thus, 49 predicates have been identified fitting the pattern *noun > adjective > adjective*, being the most frequent one, followed by *verb > noun > adjective*, with 25 predicates. On the contrary, the patterns *verb > adjective > adjective* and *numeral > adjective > adjective* are the least frequent, having three predicates each.

5. Conclusion

This article has carried out an analysis of the recategorization patterns of the formation of nouns and adjectives through affixation in Old English. In order to identify such patterns, it has been necessary to analyze exhaustively the recursive formation of these lexical categories.

Recursivity in Old English is mainly a suffixal phenomenon. In recursive suffixation, a total of fifty-eight combinations of affixes derive nouns, and thirty-eight derive adjectives. The most frequent suffix in noun formation (*-nes*) and the most frequent suffix in adjective formation (*-lic*) are attached in the final step of the process of derivation.

The analysis has demonstrated that double recursivity takes place both in prefixation and suffixation, although the number of instances of double recursivity in suffixation clearly stands out. This idea coincides with Martín Arista’s (2008) morphological template for Old English derivational morphology. Torre Alonso, in his description of Old English nominal morphology (2009, 2010, 2011a, 2011b), suggests a maximum of three morphological positions to the right of the word, although the third position is reserved for inflection, whereas the data analyzed here require a derivational third position to the right of the word.

Regarding recategorization, approximately one half of the recursive nouns and adjectives analysed derive from nouns, that is, their first base of derivation is a noun. A total of 132 nouns turn out nouns through a three-step derivation process, whereas 65 nouns produce adjectives. As for the category of the path derivative (the derived base of derivation), 288 out of 388 predicates contain an adjectival base of derivation, the rest being nouns. The conclusion can be drawn, therefore, that recursivity in the formation of adjectives and nouns crucially depends on the noun as source category and the adjective as path category. As a general rule, then, the derivation has the following form: *noun > adjective > noun / adjective*.

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