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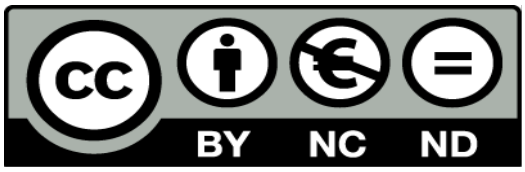

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SOME ASPECTS OF THE PARADIGMATIC ANALYSIS OF OLD ENGLISH WORD-FORMATION

Carmen Novo Urraca

2016

Universidad de La Rioja

SOME ASPECTS OF THE PARADIGMATIC ANALYSIS OF OLD ENGLISH WORD-FORMATION

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PhD Dissertation

Supervised by Prof. Javier Martín Arista

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To Darío and Julia

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Abbreviations

ADJ	-	adjective	np.	-	neuter plural
ADV	-	adverb	p.	-	plural
BT	-	Bosworth-Toller	PREF.	-	prefixed
COMP.	-	compounding	SUF	-	suffixed
f.	-	feminine	STV	-	strong verb
m.	-	masculine	V/vb.	-	verb
n.	-	neuter	WKV	-	weak verb
N	-	noun	ZD	-	zero-derived

1. Introduction

This section presents the review of the state of the art as well as the relevance, aims and methodology of the research.

The state of the art relevant for this research can be reviewed from the descriptive and the theoretical perspectives. From the descriptive perspective, Kastovsky (1986, 1989, 1990, 1992, 2006) identifies a typological change in the morphology of Old English as a result of which invariable morphological bases are replaced by variable bases of inflection and derivation. According to Kastovsky (1992, 2006) this typological shift takes place in two steps: firstly, root-formation yields way to stem-formation and, secondly, stem-formation is substituted by word-formation. Haselow (2011) explains how some analytic tendencies arise in the derivational morphology of English that can be attributed to the change from variable to invariable base morphology. From the theoretical perspective, Martín Arista (2008, 2009, 2011a) develops a functional theory of derivational morphology by elaborating on some aspects of functional grammars like layering and projection, applies it to Old English (Martín Arista 2010a, 2010b, 2011b, 2012b, 2013) and finds, among other things, that different lexical layers can be distinguished in Old English and that some mismatches between form and function turn up (Martín Arista 2011a, 2014).

As a general assessment of the previous research in the morphology and lexicology of Old English, it could be remarked that, in spite of the contribution that some insightful works, such as Pilch (1970), Kastovsky (1992) and Lass (1994), make to the field of the historical linguistics of English, an exhaustive study of the Old English lexicon in general and word-formation in particular is still pending. Kastovsky (1992), moreover, claims that previous studies do not fulfill this aim and stresses the difficulty of carrying out an analysis that combines both synchronic and diachronic facts.

The nature of Old English data reinforces the need for a study in word-formation. Kastovsky (1992) underlines the formally and semantically transparent character of Old English derivational morphology. Although Martín Arista and Vea Escarza (2016) question the overall transparency of the word-formation of Old English, it is beyond a doubt that some bases of derivation turn out many derivatives. For instance, 16 verbal derivatives share the strong verb base *cuman* 'come', *faran* 'go' and *standan* 'stand'; 14 share the strong verb base *sittan* 'sit'; 13 share the strong verb base *fōn* 'take' *gan* 'go' and *sēon* 'see', etc. In this line, there are series of derivatives that display a considerable degree of formal and semantic transparency such as the derivatives of the prefix *mis-:*

misðēon ‘to misthrive, degenerate’, *misbēodan* ‘to ill-use’, *misbregdan* ‘to change’, *miscweðan* ‘to speak ill, curse; speak incorrectly’, *misfaran* ‘to go wrong, transgress; fare ill’, *misfōn* ‘to make a mistake, be deceived’, *mishealdan* ‘to neglect’, *mislimpan* ‘to go wrong’, *misrǣdan* ‘to advise wrongly’, *misspōwan* ‘to fare badly’, *missprecan* ‘to grumble, murmur’, *misweaxan* ‘to grow improperly’, *misweorðan* ‘to turn out amiss’, *miswrītan* ‘to write incorrectly’. The formation of derivatives on derived bases also contributes to the efficiency of the derivational system. For instance, the following formations comprise two prefixes, in such a way that the second is attached to the derivative with the first: *fullunrōt* ‘very unhappy’, *geælfremed* ‘estranged’, *ofādrygan* ‘to dry off’, etc. Such efficiency of the derivational system is explained by Kastovsky (1992) in terms of an associative lexicon in which relations hold between items with the same historical origin (Germanic) as opposed to the dissociative lexicon of Present-Day English, in which such relations often link items with different origin (Germanic and Romance, for instance, in pairs like *father-paternal*).

Against this backdrop, the aim of the research reported in the PhD dissertation is to take further steps towards an explicit, principled and exhaustive description of the lexicon of Old English that incorporates up-to-date concepts of theoretical linguistics such as productivity, recursivity, morphological relatedness and paradigmatic morphology.

For reasons of time and space, it has been necessary to focus on some parts of the wide and manifold area of Old English derivational morphology. The aspects of Old English word-formation selected for this PhD dissertation revolve around the lexical class of the adjective and include the productivity and recursivity of deadjectival paradigms (Novo Urraca 2013), the contentful and transpositional units of suffixation (Novo Urraca fc.-a) and the typology of morphological relatedness that arises in adjectival derivatives (Novo Urraca fc.-b).

The focus on the class of the adjective can be justified in the following way. Bammesberger (1965), Hinderling (1967), Seebold (1970) and Kastovsky (1992) stress the role played by the strong verb as the starting point of lexical derivation in Germanic. Nevertheless, Heidermanns (1993) claims that there is a primary class of Germanic adjectives which cannot be morphologically related to strong verbs. Apart from the primary character of some Old English adjectives, this lexical class has drawn less attention than the strong verb and requires further study. Furthermore, the adjective is the

source of derivation of all the major lexical categories and the target of derivation of strong verbs, adjectives and nouns.

The methodology of research is governed by two principles. In the first place, the analysis is strictly synchronic. This means that the processes of word-formation belong to two types: transparent processes on the synchronic axis and opaque processes on the synchronic axis. The transparent processes on the synchronic axis include affixation (prefixation and suffixation) and compounding, while the opaque process is zero derivation. Affixation can be illustrated by means of the prefixal forms *unāwæscen* 'unwashed' and *bedrīfan* 'to follow up', as well as the suffixed derivatives *hwearft* 'revolution' and *forsacung* 'denial'. Instances of compounding include *blāchlēor* 'with pale cheeks', *blǣcern* 'lamp, candle, light, lantern', *blǣcernlēoht* 'lantern-light' etc. Zero derivation may be productive and transparent on the diachronic axis (Stark 1982), thus the formation of weak verbs from adjectives in instances like *dimmian* 'to be or become dim', *fūlian* 'to be or become foul', *heardian*' to be or become hard', *hāsian* 'to be or become hoarse', etc. On the synchronic axis, zero derivation is the formation by means of zero proper (as in *drenc* 'drink' < *drincan* 'to drink') or through the attachment of morphemes whose main function is inflectional (as is the case with *cuma* 'stranger' < *cuman* 'to come' and the weak verbs presented above). For this reason, zero derivation is considered an opaque process of word-formation on the synchronic axis.

As Martín Arista (2012a) explains, in a strictly synchronic analysis, the derivation from a given strong verb takes place in two derivational steps. In the first place, a noun (often neuter), or, less typically, an adjective is derived from the strong verb. Within the first step, an adjective is also zero-derived from the noun or, less frequently, the noun is zero-derived from the adjective. Secondly, weak verbs are derived from the nouns and the adjectives. For example, the strong verb *þurfan* 'to need, be required' is the base of zero derivation of the noun *þearf* 'need', which, in turn, produces the zero derived adjective *þearf* 'needy'. Then, the weak verb *þorfan* 'to need' is produced.

In the synchronic analysis of derivational morphology, the affixes are attached one by one. This is called *gradual derivation* or *stepwise derivation*. This can be illustrated with examples like *ge-mynd-ig-lic-nes* 'remembrance' (*mynd* > *gemynd* > *gemyndig* > *gemindliglic* > *gemindiglicness*). An important consequence of considering derivation a gradual process is that only one affix is relevant to a derivational process, as, for instance, in the attachment of the suffix *-nes* to turn out the derived noun *gemindiglicness* 'remembrance', which also contains the prefix *ge-* and the suffixes *-ig*

and *-nes*. It must be noted that zero derivation also takes up a step of the derivation even though it does not add any derivational affix. Thus, the nominative singular *blice* 'exposure' (< *blīcan* 'to shine') has an inflectional suffix while *glid* 'slippery' (< *glīdan* 'to slip') and *wīg* 'fight' (< *wīgan* 'to fight') do not display any suffix at all. By analogy with affixation, compounding also adds adjuncts to the base of compounding in a stepwise fashion, although, by definition, such adjuncts are free forms, as in *æðelboren* 'of noble birth; free-born; inborn'.

Secondly, the analysis is paradigmatic. Derivational paradigms (Pounder 2000), gather all the lexemes that share a lexemic base, to which they can be related by means of transparent or opaque derivational processes of word-formation. Thus defined, derivational paradigms constitute sets of paradigmatic relations between a base of derivation and all its derivatives. Derivational paradigms require meaning and form continuity. On the side of meaning, part of the meaning remains constant and part changes as a result of the operation of the various derivational processes. On the side of form, the formal changes undergone by derived elements are attributable to the addition of derivational morphemes. As in Pounder (2000), a distinction is made between the lexical paradigm (or product of word-formation processes) and the morphological paradigm (or set of units, processes, principles and rules that produce the lexical paradigm).

For instance, the derivational paradigm of the adjective *(ge)swēge* 'sonorous, harmonious' comprises the following derivatives: *ānswēge* 'harmonious', *āswēgan* 'to thunder, intone', *āswōgan* 'to cover over, choke', *bencswēg* 'bench-rejoicing', *geswēgsumlīce* 'unanimously', *geswōgung* 'swooning', *hāsswēge* 'sounding hoarsely', *hearpswēg* 'sound of the harp', *hereswēg* 'martial sound', *hlūdswēge* 'loudly', *inswōgan* 'to invade', *inswōgennes* 'onrush', *midswēgan* 'to cover, choke', *onāswēgan* 'to sound forth', *samodswēgende* 'consonantal', *samswēge* 'sounding in unison', *selfswēgend* 'vowel', *swēg* 'sound, noise, clamour, tumult; melody, harmony, tone; voice; musical instrument', *swēgan* 'to make a noise, sound, roar, crash; import, signify', *swēgcræft* 'music', *swēgdynn* 'noise, crash', *swēgendlic* 'vocal, vowel', *swēghlēoðor* 'sound, melody', *swēging* 'sound, clang, roar', *swēglic* 'sonorous', *swētswēge* 'agreeable (of sound)', *swīðswēge* 'strong-sounding, heroic', *swōgan* 'to sound, roar, howl, rustle, whistle, rattle', *ungeswēge* 'inharmonious, dissonant, discordant, out of tune, harsh', *ðurhswōgan* 'to penetrate', *welswēgende* 'melodious'.

The derivational paradigm of a strong verb reflects more clearly than one of an adjective the highly organised and hierarchical nature of the lexicon of Old English. For

instance, the paradigm of *(ge)beran* ‘to bear’ is as follows (notice that indentation marks further derivation; Martín Arista 2012a):

(ge)beran **strong vb. IV** ‘to bear, carry; produce; be situated by birth; wear; endure’
gebyrd **noun n.** ‘birth; offspring; nature, quality, rank; fate’ (<*(ge)beran*)
gebyrðen **noun f.** ‘what is born, a child’ (<*gebyrd*)
gebyrde **adjective** ‘innate, natural’ (<*gebyrd*)
ungebyrde **adjective** ‘uncongenial’ (<*gebyrde*)
byrde **adjective** ‘well born’ (<*(ge)beran*)
byre **noun m.** ‘descendant’
geboren **past participle** of *(ge)beran*
ungeboren **adjective** ‘yet unborn’ (<*geboren*)
(ge)beorðor **noun n.** ‘child-bearing, child-birth; offspring’ (<*(ge)beran*)
gebǣre **noun n.** ‘manner, behaviour; gesture, cry; action’ (<*(ge)beran*)
gebǣran **vb. weak 1** ‘to behave, conduct oneself; fare’ (<*gebǣre*)
gebǣrnes **noun f.** ‘bearing, manner’ (<*gebǣre*)
geberian **vb. weak 1 and 2** ‘to happen, pertain to, belong to, befit’ (<*(ge)beran*)

The paradigm of *(ge)beran* illustrates two advantages of the paradigmatic analysis of the derivational morphology of Old English. In the first place, the recursive formation of derivatives can be described and explained gradually, as in *(ge)beran* > *gebyrd* > *gebyrde ungebyrde* ‘uncongenial’. In the second place, formations like *gebǣran* ‘to behave, conduct oneself; fare’ (<*gebǣre*) or *geberian* ‘to happen, pertain to, belong to, befit’ (<*(ge)beran*) are no longer transparent on the synchronic axis and can only be recovered from the diachronic axis through paradigmatic analysis.

This lexical paradigm also points to an issue that arises in this study, namely, the formation of paradigms. It has been stated above that it is necessary that paradigms guarantee the continuity of the meaning and the form of the lexical items that belong to them. In this case, the noun *gebǣre* ‘manner, behaviour; gesture, cry; action’ might give rise to a paradigm of its own, together with its derivatives *gebǣran* ‘to behave, conduct oneself; fare’ and *gebǣrnes* ‘bearing, manner’, in order to guarantee meaning and form continuity both in the verbal paradigm of *(ge)beran* and in the nominal paradigm of *gebǣre.* Alternatively, *gebǣre, gebǣran* and *gebǣrnes* could be attributed to the highly polysemous meaning of the strong verb *(ge)beran* and included into its paradigm.

Whichever solution is adopted, the gathering of paradigms requires the kind of analysis illustrated with this example.

Apart from the principles presented above, the methodology of this research also addresses the question of productivity. Plag (1999) defines this term as *the possibility of coining new complex words according to the word-formation rules of a given language*. Previously, some authors such as Baayen (1989) and Baayen and Lieber (1991) proposed statistical measures of productivity, which are not directly applicable to historical linguistics. In this line, Kastovsky (1992) remarks that there is no direct way of testing productivity in a historical language but just textual frequency. Lass (1994) notes that words with one textual occurrence may be lexicalised forms or morphological residues rather than neologisms. Furthermore, Quirk and Wrenn (1994) point out that *it is often impossible for us to distinguish processes that were active and flourishing during the Old English period from those which had ceased to be formative before the Anglo-Saxons left the continent of Europe*. In the study of Old English, Trips (2009) and Haselow (2011) carry out syntagmatic studies in productivity that focus on the evolution of individual affixes, although they do not contribute to the overall picture of Old English lexicon. For all these reasons, and due to the paradigmatic approach adopted in this research, productivity is measured in terms of derivational paradigms by gauging the relative importance the lexical paradigms of a given class for the derived lexicon of Old English as a whole and by assessing the degree of recursivity of the derivatives.

The data of analysis of the three articles of which this PhD dissertation consists have been retrieved from different versions of the lexical database of Old English *Nerthus* (Martín Arista et al. 2011; Martín Arista 2012c; Martín Arista and Mateo Mendaza 2013; Vea Escarza and Tío Sáenz 2014; Tío Sáenz and Vea Escarza 2015). In its latest version (Martín Arista et al. 2016), *Nerthus* comprises 31298 files, including 17,666 nouns, 5833 verbs, 5359 adjectives, 1468 adverbs, 496 proper names, 113 affixes and 298 members from other categories.

This doctoral work comprises, as has been said above, three articles, dealing with the productivity and recursivity of deadjectival paradigms (Novo Urraca 2013), the contentful and transpositional units of suffixation (Novo Urraca fc.-a) and the typology of morphological relatedness that arises in adjectival derivatives (Novo Urraca fc.-b).

Novo Urraca (2013) is a study in the Old English derivational paradigms with adjectival bases that aims at assessing the productivity and degree of recursivity of such paradigms. This aim can be broken down into theoretical and descriptive objectives. Theoretically, this article proposes the concept of paradigmatic productivity with a view to assess the role of the lexical classes as bases of derivational processes. From the descriptive angle, this article identifies the basic adjectives of Old English and analyses all the paradigms with adjectival base. The analysis includes the productivity of each paradigm, measured in terms of the number of derivatives in type analysis, and the degree of recursivity, assessed on the grounds of the number of formations based on derived elements.

Novo Urraca (fc.-a) has the objective of analysing the suffixation of Old English and, more specifically, to focus on recursive formations and the related aspects of combinability and the relative position of the affixes. In order to contribute to a clear-cut distinction between affixation and compounding, this article proposes to distinguish suffixes from suffixoids on the basis of boundedness. After providing an exhaustive description of the recursive and non-recursive suffixal formations the article also puts forward two criteria for distinguishing contentful from transpositional suffixes. The positional criterion refers to the position of transpositional suffixes with respect to contentful suffixes. The distributional criterion makes reference to the frequency of type of transpositional suffixes compared with contentful suffixes.

Novo Urraca (fc.-b) searches the Old English lexicon for the derivational paradigm with adjectival base in order to put forward a typology of morphological relatedness that includes implicit and explicit relatedness. These types of morphological relatedness can be seen in short distance and long distance relations between lexical primes, which are the bases of all the derivatives of each lexical paradigm; derived adjectives, which function as input to recursive derivational processes; target adjectives, which represent the product of processes that does not admit further derivation; and morphologically unrelated adjectives, which are neither the input nor the output of a derivational process.

2. Results of research

The aspects of the paradigmatic analysis of Old English word-formation selected for this PhD dissertation revolve around the lexical class of the adjective and include the productivity and recursivity of deadjectival paradigms (Novo Urraca 2013), the contentful and transpositional units of suffixation (Novo Urraca fc.-a) and the typology of morphological relatedness that arises in adjectival derivatives (Novo Urraca fc.-b). The results obtained in these respects are presented in turn.

Beginning with the productivity and recursivity of deadjectival paradigms (Novo Urraca 2013), these terms make reference, respectively, to the amount of derivatives related by derivational morphology to a paradigmatic base of the adjectival class and to the derivation of already derived forms. For instance, a total of 24 derivatives share the adjectival base *grim* 'fierce, savage; dire, severe, bitter, painful', thus forming its derivational paradigm. The productivity in terms of type is equal to the number of derivatives in the paradigm. Regarding recursivity, the formation of *āgrimsian*$_{V}$ 'to provoke, irritate' requires the previously prefixed base *grimsian*$_{V}$ 'to rage', which, in turn, derives from the adjective *grim* 'fierce, savage; dire, severe, bitter, painful', thus representing an instance of recursive formation.

This said, the analysis of deadjectival paradigms identifies 95 derivationally unrelated adjectives and 365 basic adjectives which have given rise to derivational paradigms, thus gathering 6,292 lexical items. Therefore, more than 20% of the lexicon contained in *Nerthus* is derived from an adjective.

Considering lexical categories, 43.42% of the items included in deadjectival derivational paradigms are nouns, whereas with regards to the whole lexicon, only 14.74% of the nouns are part of deadjectival paradigms. So, with regards to the whole Old English lexicon, the adjective is not as productive as other patterns, including denominal and deverbal ones. The opposite holds with respect to the adverb. Whereas within adjectival paradigms there are 715 adverbs derived from an adjective, which represent 11.36% of the total percentage of deadjectival items, there are 1,797 adverbs in the whole lexicon, which represent 40.46% of the total. Therefore, the adjective is not productive at all with respect to adverbial items.

Taking into account derivational word-formation processes within deadjectival paradigms, 2,485 are compounds, 1,950 are suffixal derivatives, 961 are prefixal derivatives and 915 are zero derived items. Therefore, deadjectival derivation is basically the result of compounding and suffixation, these two morphological word-formation

processes being the most productive word-formation ones compared with prefixation and zero derivation.

Comparing deadjectival paradigms with strong verb paradigms, the first ones show an average productivity of type of 17.2 derivatives per paradigm whereas strong verbs show an average of 52.2. Hence, deadjectival derivational paradigms are not as productive as strong verb derivational paradigms, but since they organise 20% of the lexicon, they must be taken into account to offer a complete picture of the lexical stock. Another aspect that deserves comment is that some of them are bases of derivation of strong verbs which have been traditionally considered as basic items in the organization of the Old English lexicon.

Once the deadjectival paradigms have been gathered, another question arises when looking at word-formation processes. Some of the derived items are not directly related to their base of derivation. Rather, they are the result of the application of more than one word-formation process in different steps, thus giving rise to a derivational continuum. These items are called recursive when they involve the repetition of the same process, that is to say, when the target of derivation of a word-formation process becomes the source of derivation of a more derived item by means of the same word-formation process. In this work, both prefixation and suffixation are grouped under the label of affixation since both of them imply a meaning change of the base resulting from the addition of a derivational morpheme. A total of 750 affixed recursive items have been identified, while there are only 237 instances of compounding feeding compounding, and 83 examples of zero derivation feeding zero derivation. Consequently, the combinations considered in this work comprise the affixal relations because of their significant relevance. The relations of recursive derivation studied are prefixation inputted to suffixation (152 derivatives), suffixation inputted to prefixation (203 derivatives), prefixation inputted to prefixation (17 derivatives) and suffixation inputted to suffixation (378 derivatives). Figures clearly show that recursive suffixation is preferred over the rest when creating words in Old English.

These patterns of combinability of affixes have also permitted to identify affix loops. They have been considered in this study just when the output of a morphological process is the input to the same morphological process. The analysis of affixes consists of 47 prefixes and 66 suffixes. Only 11 affixes are part of recursive prefixation feeding prefixation, and hence, involve affix loops such as ***full****unrōt* 'full sad, very unhappy' < ***un****rōt* 'sad, dejected; displeased, angry' < *rōt* 'glad, cheerful, bright', ***ge****ælfremed* 'estranged; free,

separated from' < ***æl****fremed*$_{\text{PREF}}$ 'strange, foreign' < *fremed* 'foreign, alien, strange', ***healf****sinewealt* 'semicircular' < ***sine****wealt*$_{\text{PREF}}$ 'round, globular, concave; circular, cylindrical' < *wealte* 'a ring; a snare', while in the case of suffixes, 42 are involved in affix loops within recursive suffixation, as in *dēað****bære*** 'deadly' < *dēað*$_{\text{SUF}}$ 'death, dying; cause of death; in pl. manes, ghosts' < *(ge)dead* 'dead', *feorran****cund*** 'come from afar, foreign born' < *feorrane*$_{\text{SUF}}$ 'from afar, from a remote time or place; far off, at a distance'< *feorrane* 'from afar, from a remote time or place; far off, at a distance', *hāligdōm* 'holiness, righteousness, sanctity; holy place, sanctuary, chapel; relics, holy things; holy office; sacrament; holy doctrines' < *hālig 1*$_{\text{SUF}}$ 'holy, consecrated, sacred; venerated; godly, saintly; ecclesiastical; pacific, tame' < *(ge)ha:l* 'hale, whole, entire, uninjured, healthy, well, safe, genuine, straightforward'. The combination of prefixes with suffixes and the other way around imply semantic compatibility, so that they do not violate the redundancy restriction described by Lieber (2004) and stipulating that the affix that is attached does not add a meaning which is already in the base of derivation. As it turns out, prefixes tend to add a more general meaning, whereas suffixes add the more specific one. Furthermore, the output item has to be compatible to the input one, the suffixes presenting more specific requirements.

With respect to the contentful and transpositional units of suffixation (Novo Urraca fc.-a), the importance of suffixation in deadjectival paradigms and their combinability advises to pursue this line of research, although the paradimgs based on strong verbs cannot be put aside because, all in all, they contain approximately one half of the derived items of the lexicon of Old English.

Since prefixation has traditionally been the target of research in different studies in the derivational morphology of Old English (thus, de la Cruz 1975; Hiltunen 1983; Dietz 2010, among others) the next step of the analysis of suffixation has been the application of principles that govern prefixation to the formation with morphemes in the postfield of the word. Nevertheless, the analysis based on boundedness is not applicable due to several reasons. First of all, whereas recursive prefixation is basically verbal, recursive suffixation is mainly nominal and adjectival. Secondly, suffixes do not have adverbial and propositional pairs. Thirdly, suffixes normally produce items of one lexical category. And, finally, suffixation turns out to be more recursive than prefixation, with a maximum of three suffixes in a complex word.

Consequently, the principles that govern prefixation cannot be applied to suffixation directly and other types of criteria are needed. The proposal made in Novo Urraca (fc.-a) is to classify the suffixes into contentful and transpositional on the basis of

a positional criterion and a distributional one. The positional criterion is morphological. Transpositional suffixes entail a change in category and cannot be attached before contentful suffixes in recursive derivation. On the other hand, the distributional criterion is based on semantics. The more combinable an affix is, the more likely it is to be transpositional since a high type frequency usually implies fewer restrictions on semantic compatibility.

The first part of the analysis throws the following results. First of all, type frequent suffixes do not form verbs, so, in Old English, prefixation is usually preferred to derive verbs. Secondly, regarding categorization, the vast majority of suffixes attach to more than one category. In fact, three suffixes only attach to one category, -ESSE and -INCEL to nominal bases producing nominal derivatives and -IC to nominal bases turning out adjectival derivatives. It is remarkable that several of them attach to the four major lexical categories: -UNG in noun formation; -OL and -WĪS in adjective formation; and -ES, -INGA, -UNGA, -LĪCE and -UM in adverb formation. Since most deadverbial suffixes attach to all the major categories, adverb formation is clearly the most recategorizing process from the point of view of lexical class.

The analysis goes on by drawing a distinction between non-final and final suffixation, recursivity understood, as has been said above, as a process in which a suffixed item is suffixed again. The combinations found from the perspective of final suffixation include suffixed nouns from suffixed nouns, suffixed nouns from suffixed adjectives, suffixed adjectives from suffixed nouns, suffixed adjectives from suffixed adjectives, suffixed weak verbs from suffixed nouns, adjectives and verbs, and suffixed adverbs from different previously suffixed categories.

Out of 62 suffixes, a total of 14 are not used recursively either in final or pre-final position. As a general rule, they have a low type frequency, which indicates that, in Old English, low frequency suffixes undergo more restrictions on recursivity. Besides, half of the suffixes are identified both in pre-final and final position in recursive derivatives of all categories. On the other hand, some suffixes have been found only in pre-final or final position. Thus, 4 nominal suffixes (ESTRE, -LING, -NES, and -SCIPE), and 2 adverbial suffixes (A and -ES) appear only in final position, whereas 1 nominal affix (-RÆDEN), 7 adjectival suffixes (ENDE, -ER, -IHT, -OR, -TIG, -WENDE and -WĪS), 3 verbal affixes (-CIAN, -ERIAN and -SIAN), and 3 adverbial suffixes (-AN, -INGA, and -UNGA) appear only in pre-final position.

This part of the research concludes by pointing out that, considering the criteria proposed above to classify the suffixes into contentful and transpositional, only final suffixes can be considered transpositional. Overall, there are two clear transpositonal suffixes, -NES in nominal derivatives and –LĪCE in adverbial derivatives, and two less clear cases in deadjectival derivations, -LIC and –FUL. Therefore, the rest of the suffixes are identified as contentful.

The third part of this study in the paradigmatics of Old English word-formation focuses on the typology of morphological relatedness that arises in adjectival derivatives (Novo Urraca fc.-b). After identifying all the adjectives contained in the lexicon, it has been possible to isolate a total of 64 morphologically unrelated adjectives. Most of them present attested formatives but, due to the lack of evidence from the lexicon, it is not possible to relate them to other lexical items. This is, for example, the case with *āberd* 'crafty', *begriwen* 'steeped in'and *ahwlic* 'terrible'. After putting these aside, there remain 26 instances which can be defined as morphologically unrelated adjectives proper, including *frīs* 1 'curled', *hlanc* 'lank', *hlec* 'leaky'.

With regards to morphologically related adjectives, they have been divided into two types. Type 1 adjectives include adjectives which being simple, are defined as lexical primes and organise derivational paradigms, and those which are coined throughout processes of zero derivation, affixation and compounding and whose forms and meanings are different from the base of derivation. For instance, the adjective *ðearl* 'vigorous, strong, severe, strict, harsh, violent, heavy, excessive' > *ðearle* 'severely, sorely, strictly, hard (BT)' belongs to Type 1. Type 2 adjectives are the result of zero derivation processes or conversion, thus showing the same form as other lexical items. This is the case with the adjectives *nytt*$_{\text{N}}$ 'use' ~ *nytt*$_{\text{ADJ}}$ 'useful', and *dēore*$_{\text{ADJ}}$ 'dear' ~ *dēore*$_{\text{ADV}}$ 'dearly'.

Furthermore, Type 1 adjectives are subdivided into those adjectives which function as source adjectives for derivation, called *lexical primes*, and those target adjectives that cannot function as bases of derivation. A total of 355 lexical primes have been found that organise derivational paradigms. Regarding target adjectives, zero derived adjectives usually come directly from the lexical prime or show only one derivational step. The ones with an intermediate step of derivation involving affixation can be recursive. Similarly, the majority of morphologically related adjectives of the target type are derived from strong verbs, which reinforces the role of the strong verb as the starting point of derivation in Germanic (Hinderling 1967; Kastovsky 1992).

Turning to Type 2 adjectives, two homonymous zero derivatives present a multilateral relation whereas two homonymous converted derivatives have a bilateral relation. For instance, a multilateral relation holds among the strong verb *brecan* 'to break', the noun *bryce* 'breach' and the adjective *bryce* 'fragile', while a bilateral relation holds between the adjective *clǣne* 'clean'and the adverb *clǣne* 'purely'. As can be seen in the examples, no form change is triggered by the derivational process that turns out the adverb. The direction of derivation goes from the adjective to the adverb.

Finally, morphological relatedness entails two types of relations, namely short distance relations, in which the simplex base of derivation and the derivative are involved, as happens in *sinewealt*$_{\text{ADJ}}$ 'round; circular'> *healfsinewealt*$_{\text{ADJ}}$ 'semicircular'; and long distance relations, in which intermediate derivatives can be identified as compulsory to get the last derivational item, that is, involving recursivity. This is the case with *hǣð* 1$_{\text{N}}$ 'heath, untilled, land, waste; heather'> *hǣðen* 1$_{\text{ADJ}}$ 'heathen'> *hǣðendōm*$_{\text{N}}$ 'heathendom'.

3. Publications

4. Concluding remarks and lines of future research

This research has focused on the class of the adjective, which has drawn little attention in previous research in the areas of the lexicology and the derivational morphology of Old English. With respect to this class, it has been necessary, in the first place, to consider it from both the perspective of the bases of derivation and the perspective of the derivatives, that is to say, as source and as target of derivation. It has been found that, from the perspective of the base of derivation, the adjective is the source category of derived nouns (such as *frēodōm* 'freedom'), adjectives (such as *geornful* 'eager'), weak verbs (like *geclǣnsian* 'to make clean') and adverbs (like *cwiculīce* 'vigorously'). From the perspective of the target, the adjective is derived from other adjectives (as in *ǣmyrce* 'excellent'), nouns (as is the case with *giffæst* 'endowed, talented; capable of') and verbs (like *æfterboren* 'afterborn, posthumous'). Considering the processes in operation, the adjective is the target and the source of affixation, compounding and zero derivation, asi in *swice* 'deceitful' < *swīcan* 'wander', *hryre* 'perishable' < *hrēosan* 'fall' and *bryce* 'fragile' < *brecan* 'break'.

In order to establish the boundaries between the different processes of word-formation, it is necessary to carry out a paradigmatic analysis of such processes, which, giving the whole picture of the resulting lexical creation, helps to draw a distinction, to begin with, between inflection and derivation (thus, for instance, the presence of the inflectional ending with agentive meaning in pairs like *andsæc* 'denial, refusal'/*andsaca* 'adversary', *forebod* 'prophecy, preaching'/*foreboda* 'messenger, crier') and between affixation and compounding (thus, for instance, the distinction between suffixes -bound forms- and suffixoids -free forms turning bound-, as in formations with *bora,* such as *strǣlbora* 'archer', and formations with *feald*, such as *ðicfeald* 'dense'. While the distinction between suffixes and suffixoids has been drawn completely, attention will have to be paid by future research to the distinction between bound and free forms as preverbs. This is so not only because the patterns of prefixation or compounding of verbs are inherited by their derivatives but, above all, because while the verbal prefixes are becoming more opaque from the semantic point of view (Hiltunen 1983; Ogura 1995), the preverbal adpositions and adverbs are undergoing lexicalisation and grammaticalisation (Brinton 1988; Brinton and Traugott 2005; Martín Arista and Cortés Rodríguez 2014).

The paradigmatic analysis of the derivational morphology of Old English also allows the researcher to find parasynthetic formations such as the ones involving the simultaneous attachment of the prefix UN- and the suffix -E (as in *ungebierde* 'beardless' < *beard* 'beard'), the prefix UN- and the suffix -FUL (as in *ungewitful* 'unwise' < *gewitt* 'intellect, sense'), the prefix UN- and the suffix -IG (as in *unforrotiendig* 'incorruptible' < *forrotian* 'to decay, putrefy') (Lacalle Palacios 2013); as well as the prefix GE- and the suffix -ED, as is the case with *gehefed* 'weighed down' < *hefe* 'weight' and *gecilled* 'made cool' < *ciele* 'coolness, cold' (Novo Urraca fc.-a). This leaves for future research the pending task of looking for parasynthetic patterns involving less frequent affixes than the ones cited above.

The study of the morphophonological alternations that hold between some bases and their derivatives in Old English also calls for a paradigmatic analysis. Ojanguren López (2014) as well as Novo Urraca and Pesquera Fernández (2014) remark that it is necessary to consider not only strong verbs and nouns (such as *stæl (stelan)* 'to steal' ~ *stalu* 'stealing'), as Kastovsky (1968, 2006) does, but also adjectives and weak verbs (such as *dēop* 'deep' ~ *dȳpan* 'to dip') in order to offer a systematic account of the vocalic constrasts between bases and derivatives. Future research should complete the analysis of morphophonological alternations, although this entails the previous task of checking the spelling of the headwords of the database *Nerthus* against textual sources and regularising it if necessary.

Furthermore, it has been possible to combine the quantitative and the qualitative analysis by making reference to derivational paradigms. In this way, it turns out, from the quantitative point of view, that a suffix like -DŌM presents 52 derivatives in type analysis; and, from the qualitative point of view, that -DŌM can be attached to nominal and adjectival bases, as in *dysigdōm* 'ignorance'. It remains for future research to apply this quantitative-qualitative analysis to prefixation and zero derivation.

Finally, the paradigmatic approach to derivational morphology has also allowed the researcher to delve into a topic of the current debate in linguistics such as recursivity. Recursivity in lexical derivation has not been at the centre of the debate, though. For this reason, it has been explored in two different ways in this work. In a less restricted view, recursivity has been analysed by process, that is to say, afixation. In a more restricted view, recursivity has been analysed by process and position or, in other words, in terms of prefixation vs. suffixation. With the less restricted view of recursivity, mixed patterns involving prefixation as the input to suffixation (as in *unrihtdōm* 'iniquity') and

suffixation as the input to prefixation (as in *foreglēawlīce* 'providently, prudently') have been considered; while with the more restricted view of recursivity the only patterns that have been discussed are prefixation as the input to prefixation (as in *ofādrygan* 'to dry off, wipe off') and suffixation as the input to suffixation (as in *frēcenful* 'dangerous'). Of the two views of recursivity, the less restrictive one has proved more fruitful because it has helped to assess the productivity of paradigms and to propose the typology of morphological relatedness, but the more restrictive view has been more accurate, given that it has allowed us to distinguish between contentful and transpositional suffixes and to gauge the type frequency of the suffixes. In this respect, it remains for future research to deal with the semantic compatibility that arise, above all, in the recursive formation of verbs (Vea Escarza fc. concentrates on the semantic compatibility found in the recursive formation of Old English nouns and adjectives).

Turning to the question of the data of analysis, this work has benefited from the data provided by *Nerthus* and, at the same time, has contributed to the progressive refinement of such data. It has been mentioned, as regards the paradigmatic approach to derivational morphology, that derivational paradigms must guarantee the continuity of the form and the meaning of the derivatives with respect to the base. In this sense, it has been noted that the noun *gebǣre* 'manner, behaviour; gesture, cry; action' as well as its derivatives *gebǣran* 'to behave, conduct oneself; fare' and *gebǣrnes* 'bearing, manner' might constitute a paradigm independent from the one of *(ge)beran* 'to bear, carry; produce; be situated by birth; wear; endure'. Although, as a result of the work reported here, the adjectival paradigms have been thoroughly revised, the revision of the paradigms from other classes is a pending task for future research.

In spite of the questions that will have to be addressed by future research, this work contributes to the study of the lexicon of Old English based on current linguistic theory. The introduction of up-to-date theoretical concepts like productivity, recursivity, morphological relatedness and paradigmatic morphology has not prevented this research from exhaustively analysing some areas of the derivational morphology of Old English, such as the lexical paradigms with adjectival bases and the formations with suffixes and suffixoids. In general, the importance of the adjective as the starting point of a significant part of the derivation of Old English has been stressed. Finally, the gradual analysis of derivation, far from being an obstacle to the strictly synchronic analysis that this PhD dissertation has carried out, has helped to offer an account in which the transparent and

the opaque parts of derivation, on the one hand, and the process and the result of derivation, on the other, are stated in the derivational paradigm.

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