SYNTACTIC AND SEMANTIC RULES IN OLD ENGLISH ADJECTIVE FORMATION[1]

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1. Introduction

As some authors, such as Kastovsky (1992) and Lass (1994) have argued, the lexicon of Old English has two main defining properties. Firstly, the lexical stock is homogenously Germanic and, secondly, word-formation is considerably transparent both in terms of form and meaning, in such a way that the whole lexicon is permeated by the word-formation families that result from generalized derivational processes of zero derivation, affixation and compounding.

Previous work in the area of Old English word-formation has paid special attention to the evolution from variable base morphology to invariable base morphology (Kastovsky 1986, 1989, 1990, 2006) and the major processes and patterns of lexical creation (Kastovsky 1992). More recently, the Old English lexicon has been searched for the exponents of semantic universals (Martín Arista and Martín de la Rosa 2006; de la Cruz Cabanillas 2007; Guarddon Anelo 2009a, 2009b) while more theoretical questions have been discussed from the point of view of Old English, including grammaticalization (Cortés Rodríguez and Martín Arista fc.), lexical layers (Martín Arista 2011b, 2011c, fc.-a, fc.-b), morphological recursivity (Martín Arista 2010a, 2010b; Torre Alonso 2009, 2010, 2011a, 2011b, fc.), the morphological structure of complex words (Martín Arista 2011a, 2011c, fc.-c, fc.-d) and morphological productivity (MaízVillalta 2011; Mateo Mendaza fc.-a, fc.-b). That is, the emphasis has been put on the units, categories and processes of

Old English word-formation, but little has been done in the area of meaning, with the exception of work on semantic universals, and no advance has been made in the field of the lexical relations attributable to word-formation processes. For this reason, this piece of research focuses on the formation of Old English adjectives from the point of view of the change of meaning produced by the processes of word-formation that turn out affixal adjectives. The aim is twofold. Firstly, it is necessary to come up with an exhaustive description of the units, categories and processes that turn out affixal derived adjectives in Old English. Secondly, this research aims at offering a systematic description of adjective formation that is based on up-to-date linguistic theory. In this respect, I have looked for a complete framework that is compatible with the foundations of a structural-functional theory of morphology as set out by Martín Arista (2008, 2009) and adequate for the processing of the linguistic data of Old English. I have opted for Pounder's (2000) paradigmatic model of word-formation, which is, in turn, based on Mel'čuk's (1996, 2006) Meaning-Text Theory.

This brief review of the relevant literature and the foundations of the research serves as an introduction. The remainder of this work is organized in the following way. Section 2 centres upon morphological processes and the basis of the Process and Paradigm Model. Section 3 provides a description of the different derivational functions that take part in the formation of Old English adjectives. Section 4 concentrates on the data and the sources of the research. Sections 5 and 6 include the analysis carried out in terms of syntactic and semantic rules. Section 7 comments on an issue that has arisen in the course of the research and draws the conclusions. Finally, the appendix lists all the adjectives analysed in this work, along with their translation into Present-day English.

2. Functions and rules in Process and Paradigm Morphology

The goal of the Meaning-Text Theory (Mel'čuck 1996, 2006) is to explain the correspondence between language meaning and language form (text, or sound). It represents natural languages by means of stratificational models comprised of the following levels: Semantic Representation (SemR), Deep-Syntactic Representation (DSyntR), Surface-Syntactic Representation (SSyntR), Deep-Morphologic Representation (DMorphR), Surface-Morphologic Representation (SMorphR), Deep-Phonetic Representation (DPhonR) and Surface-Phonetic Representation (SPhonR). In the works just cited Mel'čuk (1996, 2006) is concerned mainly with Semantic Representation, Deep-Syntactic Representation and Surface-Syntactic Representation. Semantic Representation specifies the common meaning of a set of synonymous utterances, with respect to which two types of semantic units are distinguished: *functors,* on the one hand, which include predicates, quantifiers

and logical connectives and which can take arguments or *semantic actants;* and *semantic objects*, on the other. The second stratum, Deep-Syntactic Representation, specifies the syntactic structure of one particular sentence. In tree representation, which accounts, among other things, for dependency, the relations held between the lexemes can be of four different types: *actantial,* which connects lexemes with their actants; *attributive,* which connects nodes with their attributes, modifiers, and circumstantials; *coordinative,* which connects cojoined lexemes; and *appendency,* which connects nodes with lexemes denoting an interjection, a direct address, a parenthetical, etc. Surface-Syntactic Representation also uses a dependency tree for representing the syntactic structure of a sentence, the difference with Deep-Syntactic representation being that the nodes of SSynt-trees are actual lexemes of the language and the nodes of DSynt-trees are generalized lexemes. In order to transform one DSyntR into another equivalent one the use of *paraphrasing rules* is necessary, which become of special relevance for lexical choice and text organization.

Pounder (2000) bases her paradigmatic model of word-formation on the distinction between the lexical and morphological units that partake in word-formation. Among lexical units, we find the word-form, which represents a minimal utterance between pauses, being an actually occurring, concrete and countable item. The lexicon does not include any direct representation of the word-form. The second lexical unit is the lexeme. It is the fundamental unit of the lexicon, although it exists at an abstract level, thus it is not directly accessible. A lexeme can be morphologically complex. The meaning of a lexeme tends to be more general than that of word-forms, and it has lexico-syntactic properties, such as class and gender. The word-form requires a lexeme to exist, otherwise a word-form would not be possible. It is the lexeme that is formed, but not the word-form. The lexemic meaning is created on the basis of the original lexeme, whereas the word is assigned syntactic properties. Word-formation does not consist of the creation of a set, but of an abstract item. The lexicon, unlike word-forms, is an open, potentially infinite list which can always be enlarged. Potential lexemes exist in an abstract but real sense, although they do not exist in the lexicon.

Turning to morphological units, the morph is the most concrete of the morphological units. The morpheme is the abstract elementary morphological sign. The morpheme may be lexical or non-lexical; lexical morphemes have symbolic or referential content, whereas non-lexical morphemes have symbolic or referential content. Both the morph and the morpheme are notions mainly concerned with form. These units are not important in themselves; we will make greater use of functional labels such as *stem* (or base), *root*, and *affix*.

Pounder applies the framework of lexical functions to the analysis of 16th century German adjectives, draws a basic distinction betweenword-formation meaning and the lexical meanings of word-formations. A word-formation paradigm is *a set of paradigmatic relations between word-formations sharing a lexemic root* (Pounder

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2000:82).The morphological word-formation paradigm contains word-formation meanings (functions) as defined in the Meaning-Text Theory. Whereas the paradigm as a morphological structure comprises a set of paths between a base and the operations that turn out its derivatives, the lexical paradigm involves a structured pattern of instructions for operations on stems. The morphological paradigm is valid for a whole lexical class, such as the class of adjectives, or a subclass such as deadjectival verbs. The lexical paradigm is the individual paradigm of the member of a lexical class, such as, for instance, the paradigm of a certain verb. In other words, the morphological paradigm defines a set of possible operations that can be instantiated by the lexical paradigm. This means that the morphological paradigm, consisting of a set of operations, represents the dynamic side of word-formation, whereas the lexical paradigm, as a product, constitutes the static side of word-formation.

In Process and Paradigm Morphology, operations and rules account for all relevant aspects of derivational morphology. The word-formation morphological operation has the following form:

$$< X \rightarrow Y ; \text{'FR'} ; \Sigma> ; \text{'WFO}_X\text{'}; \Sigma>$$
$$<f\,(\text{'X'}) ; \text{'SR}_X\text{'} ; \Sigma>$$
$$<\Sigma_X \rightarrow \Sigma_Y ; \text{'}\Sigma R_X\text{'} ; \Sigma>$$

FIGURE 1: The word-formation morphological operation

As presented in figure 1, lexemes are signs of the form $<X ; \text{'X'} ; \Sigma>$, where the *signifiant* is a set of lexical morphs (of morph complexes). The word-formation morphological operation specifies the base and the affix $(X \rightarrow Y)$, the derivational function $(f\,(\text{'X'}))$ and the category change $(\Sigma_X \rightarrow \Sigma_Y)$, along with the relevant restrictions. In the morphological rule, four kinds of *signifiants* can be found: (i) *signifiants* of the general form: X Å y (derivation), where y is an affix; (ii)*signifiants* of the general form: $X \rightarrow X$ (conversion);(iii)*signifiants* of the general form: $a \rightarrow b$ (modificatory processes), where a and b are phonological units in X and Y respectively and are defined in Σ; and(iv)*signifiants* of the general form: X Å Y (compounding), where X and Y are bothstems.The semantic rule is a sign of the form $<f\,(\text{'X'})\text{'} ; \text{'SR}_X\text{'} ; \Sigma>$, where the *signifiant* is a function, of which there is a finite set in a given language.Thesyntactic rule is a sign of the form $<\Sigma_X \rightarrow \Sigma_Y ; \text{'}\Sigma R_X\text{'}$; $\Sigma>$where the *signifiant* is a relation between the syntactics of two lexical items.

Before defining the semantic and syntactic rules that determine the formation of Old English adjectives, section 3 offers an inventory of the lexical functions necessary for the derivation of this lexical category.

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3. Derivational functions in Old English adjective formation

In the Process and Paradigm Model, as well as in the Meaning-Text Theory, a lexical function is a binary correlation between two sets that gives rise to an (infinite) series of ordered pairs (x, y), in which the conceptual (logical) motivation is visible (Pounder 2000:108). Consider, as an illustration, the derivational function EX('X'). Given the general form $f(x) = y$ and a function such as EX('X') = y ('out of') it is possible to get a correlation between the set of substance designations, as in EX(WOOD) = WOODEN.

The list of word-formation functions provided by Pounder (2000) is based on the lexical functions of the Meaning-Text Theory. This set is expandable and draws a basic distinction between primary and secondary word-formation functions. The latter are *applicable to some or all lexico-syntactic categories, and modify word-formation meanings rather than constituting word-formation meaning on their own* (Pounder 2000:109). Secondary functions are often used in combination with the primary functions. An example of secondary function is the pejorative function, which belongs to the sphere of evaluative morphology.

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Primary functions
REL('X'): 'with respect to X'
EX('X'): 'X' is the origin
OF('X'): 'X' is the possessor
FOR('X'): 'X' is a goal or purpose
LIKE('X'): 'X' is a characteristic of 'X'
WITH('X'): 'X' is a possessed object or property or is in some sense present
POSS('X'): 'X' is in some way possible, potential
DIST('X'): 'X' stands in a distributive relation to something
PL('X'): 'X' is pluralized
SING('X'): 'X' is singularized
DIM('X'): 'X' is made smaller, diminished
NEG('X'): 'X' is negated
I('X'): 'X' and y are identical

Secondary word-formation functions
POS('X'): 'X' is evaluated positively
PEJ('X'): 'X' is evaluated negatively
INTENS('X'): 'X' is associated with high degree of expressive-emotional intensity
AUGM('X'): 'X' is increased

FIGURE 2: Primary and secondary word-formation functions (based on Pounder 2000)

Apart from this classification, the second degree functions have to do with figurative senses, that is, a meaning with the additional element 'as if'. These functions are represented as follows: 'WITH' = LIKE(WITH('X')), as in HONEYED (*honeyed words*); 'EX' = LIKE(EX('X')), as in FLAXEN (*flaxen hair*); and 'OF' = LIKE(OF('X')), as in PIGTAIL. As regards the relation between inflectional and derivational meaning, Pounder (2000) proposes the function PL('X'), which introduces the plural number by inflectional of derivational means.

The inventory of derivational functions proposed by Pounder (2000) has been adapted to the study of the formation of Old English suffixed adjectives. The following primary functions have been taken directly from Pounder. An illustration of each is given in (1):

(1) REL('SWǢP'): *swǣpig* 'fraudulent'
EX('ELETRŌOW'): *eletrēowen* 'of olive-trees'
LIKE('WUDU'): *wudiht* 'thick (with trees), garden-like'
DIM('(GE)BÆRNAN'): *sāmbærned* 'half-burned'
I('NYTT 2'): *unnyt 1* 'useless'

In (2) the secondary word-formation functions are listed that have been used without modification with respect to Pounder´s proposal. As in (1), an illustrative example of Old English suffixal adjectives is provided:

(2) PEJ('(GE)SCRENCAN'): *misscrence* 'distorted'
INTENS('SNOTOR'): *foresnotor* 'very wise'
DIST('HWĒOL'): *twihwēole* 'two-wheeled'

In turn, no affixal adjective has been found in the *Nerthus* database that displays the following derivational functions found in Pounder's (2000) inventory:

(3) OF('X'):
FOR('X'):
WITH('X'):
POSS('X'):
PL('X'):
SING('X'):
NEG('X'):
POS('X'):
AUGM('X'):

On the other hand, several functions that have not been proposed by Pounder have been used. To begin with, the function NEG('X') has been broken down into three functions of a more specific nature: PRIV('X'), OPP('X') and COUNTFACT('X'). The typology of lexical negation is based on Martín Arista (2010b) and relies basically on lexical category: privation requires a nominal base, counterfactuality

a verbal base and opposition an adjectival base. The function WITH('X') has been subdivided into WITHENT(ity)('X') and WITHPROP(erty)('X'). For this distinction I have derived my inspiration from the typology of entities adopted by Functional Grammar (Dik 1997a, 1997b) and Functional Discourse Grammar (Hengeveld and Mackenzie 2008), in which properties belong to the zero-order and entities to the first-order of the typology of entities. My function STA(ive) draws on the fundamental distinction made by Role and Reference Grammar (Van Valin and LaPolla 1997; Van Valin 2005) between stative and non-stative predications, the adjectives I have analysed belonging to the former type. The functions LOC(ative) and TEMP(oral) have been taken from Mel'čuk (1996), although Beard and Volpe (2005) make a similar proposal. Finally, the figurative function LIKE(LOC('X') is based on the authors just mentioned but follows the methodology devised by Pounder (2000) for the definition of non-literal word-formation functions. In this respect, Brinton and ClossTraugott (2005) have underlined the role played by locative prepositions and adverbs in the development of telic particles throughout a process of grammaticalization of a figurative use. To close this section, the functions not included by Pounder (2000) but used in this research include:

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(4) PRIV('WĪTE): *wītelēas* 'without punishment or fine'
OPP('SCYLDIG'): *unscyldig* 'guiltless'
COUNTFACT('DRĒFAN'): *undrēfed* 'untroubled'
WITHENT('HLÆDER'): *hlædrede* 'having steps'
WITHPROP('WYNN'): *wunsum* 'winsome'
STA('HOSPAN'): *hospul* 'despised'
TEMP('(GE)WRĪTAN'): *æfterwriten* 'written afterwards'
LOC('INNE 2'): *inneweard 1* 'internal'
LIKE(LOC('MĒDAN')): *inmēde* 'close to one's heart'

4. Data of analysis and methodology

The data of analysis have been retrieved from the lexical database of Old English *Nerthus* (www.nerthusproject.com), which is based mainly on Clark Hall´s (1996) *A Concise Anglo-Saxon Dictionaryand Supplement*. Other sources of *Nerthus* include *An Anglo-Saxon Dictionary and Supplement* (Bosworth and Toller 1973), Sweet´s (1976) *The Student´s Dictionary of Anglo-Saxon* and *The Dictionary of Old English* (Healey 2003). The etymological part draws on Holthausen´s (1963) *AltenglischesetymologyschesWörterbuch*, Ettmüller´s (1968) *Lexicon Anglosaxonicum* and Orel´s (2003) *A Handbook of Germanic Etymology*.

In its present state, *Nerthus* contains 29,987 predicate headwords (type), including 16,690 nouns, 5,785 adjectives, 5,618 verbs, 1,654 adverbs and members of other grammatical categories. This research focuses on the 5,785 adjectives, 3,356 of which have been derived by affixation.

I have followed the conventions adopted by the *Nerthus* lexical database as regards the use of numbered predicates to indicate morphologically relevant differences. As Torre Alonso *et al*. (2008) and Martín Arista (2010c, 2011c,) explain, numbered entries have been defined on the grounds of different category, different morphological class or different variants for predicates formally equal in order to stress morphological contrasts. For instance, *ābūtan* 1 'on, about, around' belongs to the lexical class of the adposition and *ābūtan* 2 'about, nearly', to the adverb. Similarly, *andfenge* 1 'acceptable, agreeable' qualifies as an adjective, whereas *andfenge* 2 'undertaker, helper' is ascribed to the category noun. As for the difference in morphological class, *besēon* 1 'to see, look', for example, is a Class V strong verb, whereas *besēon* 2 'to suffuse' is a Class I strong verb. Similarly, *byrðre* 1 'bearer' is a masculine noun whereas *byrðre* 2 'child-bearer' is feminine. With respect to variants, two or more predicates receive a different number depending on the existence of different spelling variants, as is the case with *fōdder* 1 'food' with variants *fōddor* 1, *fōddur* 1, *fōter*, and *fōdor*; *fōdder* 2 'cover' with variants *fōddor* 2 and *fōddur* 2; and *fōdder* 3 'hatchet', with variants *fōddor* 3 and *fōddur* 3. A total of 148 numbered adjectives have been used in the analysis.

Two word-formation processes play a role in the formation of adjectives in Old English, both of an affixal nature: prefixation and suffixation. 1,264 prefixal adjectives and 2,092 suffixal ones, which together make 3,356 affixal adjectives are analysed in this piece of research.

The prefixes attached to derived adjectives are *ā-, æ-, æg-, æf-, æfter-, æl-, æle-, æt-, al-, am-, an-, and-, be-, bī-, eal-, eall-, ed-, el-, ell-, for-, forð-, fore-, fram-, frēa-, ful-, full-, (ge)-, ge-, gēan-, geond-, healf-, in-, med-, mis-, ō-, of-, ofer-, on-, or-, or-, sam-, sin-, sine-, tō-, twi-, þri-, þurh-, þry-, ūð-, ūp-, ūt-, un-, under-, wan-, wiðer-* and *ymb-*.

The suffixes attached to derived adjectives include *-ða, -ad, -ade, -bǣre, -cund, -e, -ed, -ede, -eg, -eht, -ehte, -el, -en, -end, -ende, -er, -ern, -erne, -es, -et(t), -fæst, -feald, -ful, -ga, -ic, -iende, -ig, -ige, -iht, -ihte, -ing, -isc, -lēas, -lic, -n, -od, -ode, -ol, -or, -sc, -sum, -ta, -te, -u, -ud, -ul, -um, -weard, -welle, -wende* and *-wīs*.

Regarding the methodology of research, this work draws on the structural-functional theory of morphology put forward by Martín Arista (2008, 2009, 2011a) in two important respects. Firstly, the defining properties of derivational morphology are recategorization and recursivity. Secondly, word-formation

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meanings are accounted for by functional relations. On the latter question, I have opted for the derivational functions proposed by Pounder (2000), who has put forward a complete model of Process and Paradigm morphology which can be traced back to Mel'čuk's (1996, 2006) structural theory of morphology. These general principles are implemented by means of the following methodological steps. In the first place, I formulate the form rules that stipulate the affix, base and lexical categories found in the derivation, as in (5):

(5) $FR_1 <x \text{ Å } ad; \text{ '}FR_1\text{'}; \text{ s.c.: } N>$ *geillerocad* from ILLERACU 'surfeit'

The next step is the formulation of semantic rules, which account for the word-formation meaning in terms of a derivational function, as in (11):

(6) $SR_{10}<OPP(\text{'}X\text{'}); \text{ '}SR_{10}\text{'}; \text{ s.c.: } Adj/Adv/N/V>$*unmǣrlic* from MǢRLIC 'great'

The next methodological step requires a definition of the syntactic rules that are responsible for lexical category and meaning changes without change of form, as in (7):

(7) $\Sigma R_1 <\Sigma_N \rightarrow S_{ADJ}; \text{ '}\Sigma R_1\text{'}; \text{ s.c.: } N>$*ǣcen* 2 'oaken' from ǢCEN 1 'wood of oaks'

Before concentrating on the analysis itself, it is necessary to mention the question of morphological relatedness. While most adjectives have been assigned to a base of derivation, thus acknowledging their morphological inheritance, this is not always the case. For a total of 69 predicates no base of affixation has been found, probably as a result of the scarcity and fragmented character of the linguistic dataavailable. The predicates in question are *æltǣwe, ætbrēdendlic, ahwlic, Arabisc, Arrianisc, bebbisc, bodigendlic, Bulgarisc, cicropisc, Cillinesc, clæclēas, clincig, dalisc, (ge)drȳme, duniendlic, (ge)dwǣs 1, ēawisclic, Eficisc, ēowigendlic, eretic, farendlic, Fariseisc, Frencisc, geærwe, geanul, gecneord, geēane, gefæd 1, gefrēdra, gegēorendlic, gehwǣde, gelǣr, geneorð, gerēðre, geresp, gerislic, getricce, getwis, grammatic, grandorlēas, hrurul, Libanisc, (ge)lōme 1, Lundonisc, lytig, Mailrosisc, mealmeht, mechanisc, Memfitisc, Nazarenisc, Nicēnisc, nihstig, pierisc, Pirenisc, (ge) risne 1, ryplen 1, selden, sēoslig, singal, Spēonisc, Steornede, (ge)tǣse 1, Tirisc, towlic, twiblēoh, þrisnæcce, uncamprōf,* and*dundergendlic*. It is necessary, therefore, to provide the derivation base so as to ascertain whether we are dealing with defective derivations requiring the insertion of a hypothetical (reconstructed) predicate that preserves the graduality of derivation or with basic lexical items.

With these theoretical and methodological premises, an analysis of the syntactic and semantic rules involved in the formation of Old English adjectives follows in sections 5 and 6.

5. Syntactic rules

The syntactic rule is the third element of the *signifiant* of the operation (apart from the form and semantic rules). The syntactic rule may be considered a sign consisting of *signifiant*, *signifié*, and syntactics, the latter referring to the formal properties of signs and symbols. The *signifiant* of the syntactic rule in word-formation expresses a modification of the syntactic properties of a lexeme in producing a new lexeme. The rule has this general representation: $\Sigma R_x = <\Sigma_x \rightarrow \Sigma_Y$; '$\Sigma R_x$' ; $\Sigma>$. The syntactic rule often involves a grammatical category such as a lexico-syntactic class as in $<\Sigma_N \rightarrow \Sigma_V>$, where N stands for Noun and V for verb. Other examples are the changes of transitivity or the changes of gender. Two syntactic rules are found in the formation of Old English adjectives, as exemplified in (8) and (9). Both assign adjectival combinatorial properties to the base, thus cancelling the properties of other lexical categories. The derivatives follow the rule.

The syntactic rule in (8) changes the category of the derivation base from noun into adjective, as in *ǣcen 2* 'oaken':

(8) $\Sigma R_1 <\Sigma_N \rightarrow S_{ADJ}$; 'ΣR_1' ; s.c.: N>   (66 predicates)

　　ǣcen 2 'oaken' from ǢCEN 1 'wood of oaks'

ǣlǣte 2 'desert place', *ǣlenge 1* 'lengthy', *ǣtern 2* 'poisonous', *ælmihtig 1* 'almighty', *æscen 2* 'ashen', *crīsten 1* 'Christian', *dīegol 1* 'hidden', *dysig 1* 'ignorant', *þēodisc 2* 'gentile', *eallwealda 1* 'all-ruling', *forðweard 1* 'inclined forwards', *fyrlen 1* 'distant', *(ge)dwǣs 1* 'stupid', *(ge)risne 1* 'suitable', *(ge)tǣse 1* 'pleasant', *geðafa 2* 'agreeing', *gefǣd 1* 'orderly', *gemēde 2* 'agreeable', *gerād 2* 'conditioned', *getæl 2* 'ready', *getīeme 1* 'suitable', *hālig 1* 'holy', *hæðen 1* 'heathen', *heolstor 2* 'dark', *lǣwede 1* 'lay', *lygen 2* 'lying', *lyswen 1* 'full of matter', *mēdren 1* 'maternal', *medmicel 1* 'small', *mennisc 1* 'human', *midfeorh 2* 'middle-aged', *midlen 2* 'midmost', *oferhygdig 2* 'proud', *ofermēde 2* 'proud', *ofermōd 2* 'proud', *oferprūt 1* 'over-proud', *Scyttisc 1* 'Scottish', *singrēne 2* 'evergreen', *slidor 1* 'slippery', *stāniht 1* 'stony', *twihynde 1* 'having *wergild* of 200 shillings', *ūtlendisc 1* 'stranger', *ufeweard 1* 'upper', *ungeðwǣre 1* 'discordant', *ungefōg1* 'immense', *ungerād 1* 'ignorant', *ungerīm 2* 'countless', *ungerȳde 1* 'rough', *ungetǣse 2* 'inconvenient', *ungewiss 2* 'unwise', *ungōd 1* 'bad', *unmiht 2* 'impossible', *unnyt 1* 'useless', *unriht 2* 'wrong', *unsǣd* 'unsaid', *unsōð 1* 'false', *untȳdre 1* 'firm', *wāðol 2* 'wandering', *wǣpned 1* 'male', *wēsten 2* 'desolate', *welig 1* 'wealthy', *werod 2* 'sweet', *westweard 2* 'west', *wiðerhȳdig 1* 'refractory', *wiðerhycgende 1* 'refractory', *wylfen 1* 'wolfish'

In the syntactic rule represented in (9), there is a change of category from adposition, adverb and pronoun into adjective, as in *andlang 2* 'along', *allefne2* 'universally' and *ǣnig 2* 'any, any one':

(9) $\Sigma R_2 <\Sigma_X \rightarrow \Sigma_{ADJ}$; 'ΣR_2' ; s.c.: Adp, Adv, Pron>   (33 predicates)

       *andlang*2 'along' from ANDLANG 1 'entire, continuous'

tōweard 1'approaching', *ufanweard 1*'highest'

       allefne 2 'universally' from ALLEFNE 1 'quite equal'

ætrihte 1'right at', *allefne 1*'quite equal', *frēolslic 1*'free', *Fresisc 1*'Frisian', *fulnēah 1*'very near', *gehende 1*'near', *hiderweard 1*'hitherward', *inweard 1*'internal', *(ge) lōme 1*'frequent', *lustbǣre 1*'pleasant', *lȳtel 1*'a little', *middeweard 2*'middle', *nēadwīs 1*'necessary', *nihterne 1*'nightly', *norðweard 1*'north', *onriht 1*'right', *ormǣte 1*'immense', *sūðerne 1*'southern', *twigilde 1*'paying double', *(ge)tynge 1*'fluent', *þrigylde 1*'to be paid three fold', *undēore 1*'cheap', *undierne 1*'open', *unēaðe 1*'not easy', *ungefēre 1*'inaccesible', *ungemǣte 1*'immeasurable', *unhīere 1*'horrible', *unnēah 1*'not near', *unsȳfre 1*'unclean', *unweorð 1*'unworthy'

       ǣnig 2 'any, anyone' from ǢNIG 1 'any, anyone'

ǣnig 2'any, anyone'

6. Semantic rules

The semantic rule is the second element of the *signifiant*. Semantic word-formation rules cover only a part of the semantics relevant to word-formation: they are restricted to a finite list of relations that are familiar to speakers and that are independent of lexical items. The simplest semantic rule is the identity rule; this means that the operation contains only a full formal rule and/or a syntactic rule. Regarding the semantic side, the function of the lexical meaning of the stem concerned is an identity function that does not modify this meaning. The semantic rule can be considered a sign consisting of *signifiant, signifié*, and syntactics. The semantic rule is a description of the semantic modification and the accompanying conditions. The representation of the semantic rule has the following general form:$SR_x = <f('X');$ 'SR_x' ; Σ>. In the semantic rule the meaning of the complex item is described as a function *f* of the meaning of the basic item *X*. The syntactics of the semantic rule is structured according to the same general principles as other signs. It includes information as to what semantic lexical classes the rule applies to, and also to what lexico-syntactic classses the rule applies. A comparison relation, for example, can be represented as $SR_x = <LIKE('X')$; 'SR_x' ; 'SR_x' ; s.c.: N,V…>.

By way of illustration, these follow some of the semantic rules applicable to Old English adjective formation. The semantic rule in (10) inserts the DIM(X) lexical function, so that a derived adjective such as *medwīs*'dull', *twisliht*'forked' and *sāmstorfen*'half-dead' are produced:

(10) SR$_2$<DIM(X); 'SR$_2$'; s.c.: Adj/N/V>   (41 predicates)

       medwīs from WĪS 1 'wise'

healfclypigende'semi-vowel',   *healfcwic*'half-dead',   *healfdēad*'half-dead', *healffrēo*'half-free', *healfhār*'half-hoary', *healfhrūh*'half-rough', *healfhwīt*'half-white', *healfrēad*'reddish', *healfscyldig*'half-guilty', *healfsinewealt*'half-round', *medrīce*'of little power', *medspēdig*'unprosperous', *medstrang*'of moderate means', *medtrum*'weak', *medwīs*'not wise', *sāmcwic*'half-dead', *sāmgrēne*'half-green', *sāmlǣred*'imperfectly taught', *twiwyrdig*'ambiguous'

       twisliht from SLIEHT 'stroke'

*healffēðe*half-lame, *healfhundisc*'semi-canine', *healfnacod*'half-naked', *twigǣrede*'cloven', *twisliht*'forked'

       sāmstorfen from STEORFAN 'to die'

healfbrocen'half-broken',   *healfclǣmed*'half-plastered',   *healfclungen*'half-congealed', *healfeald*'half-grown', *healfgewriten*'half-written', *healfslǣpende*'half-asleep', *healfsoden*'half cooked', *sāmbærned*'half-burned', *sāmboren*'born out of due time', *sāmlocen*'half-closed', *sāmmelt*'half-digested', *sāmsoden*'half-cooked', *sāmstorfen*'half-dead', *sāmswæled*'half-burned', *sāmweaxen*'half-grown up', *sāmwīs*'stupid', *twirǣde*'uncertain'

The lexical function DIST(X) partakes in the semantic rule that appears in example (11), thus giving rise to a total of 79 derived adjectives:

(11) SR$_3$<DIST(X); 'SR$_3$'; s.c.: Adj/N/Num/V>   (78 predicates)

       twifēre from FĒRE 'able to go'

felafeald'manifold',   *manigfeald*'various',   *nēahfeald*'intimate',   *twidæglic*'lasting two days', *twifēre*'having two ways', *twiscyldig*'liable to a double penalty', *twiseht*'disunited', *þridæglic*'lasting three days', *þrigǣrede*'cloven into three parts'

       þrifēte from FŌT 'foot'

hundfeald'hundredfold', *hundwelle*'hundredfold', *twibēte*'subject to double compensation', *twiecge*'two-edged', *twifēte*'two-footed', *twifeðerede*'double-winged', *twifingre*'two fingers thick', *twihǣmed*'one who marries twice', *twihēafdede*'double-headed', *twihīwe*'of two colours', *twihlidede*'double-lidded', *twihwēole*'double-lidded', *twilafte*'two-edged', *twinebbe*'having two faces', *twinihte*'two days old', *twisestre*'containing two sesters', *twistrenge*'two-stringed', *twitælged*'double-dyed', *twiwintre*'two years old', *þribeddod*'having three beds', *þrifēte*'having three feet', *þrifingre*'three fingers broad', *þriflēre*'having three floors', *þrifōtede*'three-footed', *þrigēare*'three years old', *þrihēafdede*'three-headed', *þrihīwede*'having three forms', *þrihlidede*'three-lidded', *þrihyrne*'three-cornered', *þrilēfe*'three-leaved', *þrirēðre*'having three rows of oars', *þriscȳte*'triangular',

þrislite'three-pointed', *þristrenge*'three-stringed', *þriwintre*'of three years', *þrysumer*'three years old'

    fīffeald from FĪF 'five'

ānfeald'single', *eahtafeald*'eightfold', *endlyfenfeald*'elevenfold', *fēowerfeald*'fourfold', *fēowertigfeald*'fortyfold', *fīffeald*'fivefold', *fīftigfeald*'fiftyfold', *fiðerfeald*'fourfold', *hundseofontigfeald*'seventyfold', *hundseofontigseofonfeald*'seventy-sevenfold', *hundtēontigfeald*'hundredfold', *nigonfeald*'ninefold', *seofonfeald*'sevenfold', *siexfeald*'sixfold', *sixtigfeald*'sixtyfold', *tīenfeald*'tenfold', *twēntigfeald*'twentyfold', *twelffeald*'twelvefold', *þrifeald*'threefold', *þrītigfeald*'thirtyfold', *þūsendfeald*'thousandfold'

    twifȳrede from (GE)FŪRIAN 'to furrow'

twibrowen'twice-brewed', *twidēagod*'double-dyed', *twifȳrede*'two-furrowed', *twimylte*'twice melted', *twisnæcce*'double-pointed', *twisnēse*'double-pointed', *twispunnen*'twice-spun', *twiðrāwen*'twice thrown', *ðridǣled*'divided into three parts', *þrifeðor*'triangular', *þrifȳrede*'triangular', *þrihǣmed*'one who marries thrice'

Example (12) shows the lexical function LIKE(X) and the derivatives that can be attributed to the insertion of this lexical function.

(9) SR_8<LIKE(X); 'SR_8'; s.c.: N>   (15 predicates)

    wyrtig from WYRT 'herb'

æppled'shaped like an apple', *āncorlic*'anchoretic', *ātorlic*'poison-like', *buclic*'like a goat', *flǣscen*'of flesh', *hellfenlic*'like a fen of hell', *hundlic*'of or like dogs', *hunigtēaren*'sweet as honey', *hunigtēarlic*'nectar-like', *hwælen*'like a whale', *lārēowlic*'like a teacher', *wilddēoren*'fierce', *wīnlic*'vinous', *wudiht*'forest-like', *wyrtig*'full of herbs'

7. Conclusions

In the light of the results, the conclusion can be drawn that a one-to-one correspondence between derivational functions and affixes in the formation of adjectives in Old English is the exception rather than the rule.In quantitative terms, the number of predicates included in the first group, namely those whose functions are realized by one affix reaches 394; the rest of the predicates belong in the second group, which make a total of 2,971.

Thus, the findings of this research are relevant to two different areas: (i) in the first case, each affix is analysed in terms of the derivational functions that are assigned to them, whereas in (ii) each derivational function is analysed in terms of the affixes that perform each function.

Regarding the combination of affixes and derivational functions originated from the analysis, figures 3 and 4 provide an abridged account of this relationship along with an example of each:

Prefix	Functions performed	Example
ǣ-	I('X')	*ǣlǣte 2* from (GE)LǢTAN 'to allow to remain'
	PRIV('X')	*ǣcnōsle* from CNŌSL 'kin'
æfter-	TEMP('X')	*æfterboren* from (GE)BERAN 'to bear, carry'
æl-	I('X')	*ælmihtig 1* from MIHTIG 'mighty'
	INTENS('X')	*ælceald* from CEALD 1 'cold'
æle-	INTENS('X')	*ælegrǣdig* from GRǢDIG 'greedy'
æt-	I('X')	*ætrihte 1* from (GE)RIHT 2 'straight'
	INTENS('X')	*ætealdod* from EALD 'old'
	PRIV('X')	*æthȳd* from HȲD 1 'hide, skin'

FIGURE 3: Relationship between prefixes and functions

Suffix	Functions performed	Example
–ad	WITHPROP('X')	*geillerocad* from ILLERACU 'surfeit'
–ade	WITHENT('X')	*hēlade* from HĒLA 'heel'
-bǣre	I('X')	*lustbǣre 1* from LUST 1 'desire'
	WITHENT('X')	*hunigbǣre* from HUNIG 'honey'
	WITHPROP('X')	*lofbǣre* from LOF 'praise'
-cund	REL('X')	*sāwolcund* from SĀWOL 'soul, life'
–e	I('X')	*gehende 1* from HAND 1 'hand'
	REL('X')	*unsǣle* from UNSǢL 'unhappiness'
-ed	I('X')	*wǣpned 1* from WǢPEN 'weapon'
	LIKE('X')	*æppled* from ǢPPEL 'fruit in general'
	WITHENT('X')	*gewīred* from WĪR 'wire'
	WITHPROP('X')	*āblered* from BLERE 'bald'

FIGURE 4: Relationship between suffixes and functions

The whole analysis demonstrates that the prefixes that perform a single derivational function include *æfter-* (TEMP('X')), *æle-* (INTENS('X')), *al-* (I('X')), *am-* (OPP('X'), *eal-* (INTENS('X')), *for-* (INTENS('X')), *frēa-* (INTENS('X')), *full-* (INTENS('X')), *gēan-* (INTENS('X')), *healf-* (DIM('X')), *mid-* (I('X')), *ō-* (PRIV('X')), *sām-*

(DIM('X')), *sine-* INTENS('X'), *þurh*-INTENS('X'), *ūp-* LOC('X'), *ūð-* (INTENS('X')), *wan-* (PRIV('X')), *wiðer-* (LIKE(LOC('X')). As for suffixes, the ones that realize a derivational function only are *–ad* (WITHPROP('X')), *–ade* (WITHENT('X')), *-cund* (REL('X')), *–eg* (REL('X')), *–ehte* (WITHENT('X')), *–end* (STA('X')), *-er* (INTENS('X')), *–ern* (EX('X')), *–feald* (DIST('X')), *–ic* (EX('X')), *–iende* (STA('X')), *-ige* (REL('X')), *–igend* (STA('X')), *–ihte* (WITHENT('X')), *–ing* STA('X'), *-lēas* (PRIV('X')), *-ode* (WITHENT('X')), *–sum* (WITHPROP('X')), *–te* (REL('X')), *–ud* (WITHENT('X')), *–ul*STA('X'). All in all, 19 prefixes out of 56 perform a single derivational function, as opposed to 21 suffixes out of a total of 51, which means that the degree of polysemy displayed by prefixes is slightly higher than polysemy in suffixes.

Concerning the relationship between derivational functions and affixes, figure 5 includes a selection of functions and the corresponding affix or affixes:

Function	Affix	Example
PEJ('X')	*mis-*	*misboren*from (GE)BERAN 'to bear, carry'
PRIV('X')	*ǣ-*	*ǣfelle* from FELL 'skin, hide'
	æt-	*æthȳd* from HȲD 1 'hide, skin'
	and-	*andfeax* from FEAX 'hair'
	-lēas	*mæðlēas*from MǼð 1 *'measure'*
	ō-	*ōmihte*from MAGAN 'to be able'
	or-	*orfeorme* from (GE)FEORMIAN 'to entertain'
	wan-	*wanes:oc*from SĒOC 'sick'
OPP('X')	*am-*	*ambyre*from (GE)BYRE 'time, occurrence'
	an-	*anspilde*from SPILD 'destruction'
	in-	*incūð*from (GE)CUNNAN 'to be or become acquainted with'
	on-	*onspornend*from (GE)SPURNAN 'to strike against'
	un-	*unwæterig*from WÆTERIG 'watery'
COUNTFACT('X')	*un-*	*ungeðinged* from UNGEðINGAN 'unexpected'

FIGURE 5: Relationship between functions and affixes

Overall, only two functions are realized by one affix: PEJ('X') and COUNTFACT('X'), whereas the functions that are realized by more than one affix include PRIV('X'), OPP('X'), DIST('X'), DIM('X'), INTENS('X'), WITHENT('X'), WITHPROP('X'), EX('X'), STA('X'), TEMP('X'), LOC('X'), LIKE(LOC('X')), LIKE('X'), REL('X'), and I('X').

Notes

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