

THE TYPES AND CATEGORIES OF OLD ENGLISH RECURSIVE COMPOUNDING¹

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Abstract: This article deals with the recursive compounding of Old English nouns, adjectives, verbs and adverbs. It addresses the question of the textual occurrences of the compounds of Old English by means of a corpus analysis based on the Dictionary of Old English Corpus. The data of qualitative analysis have been retrieved from the lexical database of Old English Nerthus. The analysis shows that the nominal, adjectival and adverbial compounds of Old English can be recursive. Nominal compounding allows double recursivity, whereas adjectival and adverbial compounding do not. The conclusion is reached that both the type and token frequencies of recursive compounds are very low; and recursive compounds from the adjectival class are more exocentric as regards categorisation.

Keywords: composition, recursivity, hapax legomena, dislegomena, Old English.

1. AIMS, SCOPE AND TERMINOLOGY

The topic of this article is the formation of words in Old English. To be more precise, it deals with compounding, which is understood as the combination of free forms, as in *cēaphūs* 'storehouse', from *cēap* 'purchase' and *hus* 'house'. The research focuses on the recursive formation in the compounding phenomena of Old English, that is to say, compounds that can be analysed into three or more lexemes.

The topic of recursivity in Old English word-formation has drawn no attention in previous research, which is reviewed in this article through three representative works: Carr (1939), Gardner (1968) and Kastovsky (1992). The description by Kastovsky (1992) is the most comprehensive, given that it pays heed to all lexical categories, however, no reference is made to recursive compounding. Carr (1939) and Gardner (1968) focus on nominal compounds. With these aims and scope, the results of this analysis may contribute to the research programme in the linguistic analysis of Old English carried out by García García (2012, 2013), González Torres (2010a, 2010b, 2011), Martín Arista (2012a, 2012b, 2013, 2014, fc.-a, fc-b), Mateo Mendaza (2013, 2014, 2015a, 2015b, 2016), Novo Urraca (2015, 2016a, 2016b), Torre Alonso (2011a, 2011b) and Veá Escarza (2012, 2013, 2014, 2016a, 2016b.).

Regarding the terminology used in this article, recursive compounding entails the repetition of the process of compounding, so that the input to compounding is a compound itself. When this is the case, the formation takes place in a stepwise manner, in such a way that a compound combines with a free form to produce a recursive compound, as in *liġfāmbilāwende* 'vomiting flame of fire', from *liġ* 'flame' and *fāmbilāwende* 'emitting foam'. In this research, the element to the right of the compound is called *adjunct* and the leftmost element is called *base*. These terms have been selected by analogy with affixation (thus, base) and syntax (the leftmost element is usually a modifier or an adjunct). The analysis that follows combines type analysis (the lemmas from lexicographical sources)

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and token analysis (the attestations of inflectional forms in the DOEC). Ultimately, productivity, understood as the possibility of forming new complex words (Plag, 1999), is assessed in a historical language as Kastovsky (1992) suggests, by considering textual frequency. Compounds with one occurrence are called *hapax legomena* and those with two occurrences *dislegomena* (Baayen and Lieber, 1991; Bauer, 2008).

The article is organised as follows. Section 2 reviews the research that has been carried out before in the area of Old English compounding. Section 3 addresses the question of the status of compounds, that is to say, it describes the various data available from the sources and selects the data relevant for the analysis. Section 4 analyses the data by category: nominal, adjectival, verbal and adverbial compounds. To close this article, section 5 draws the main conclusions.

2. COMPOUNDS IN OLD ENGLISH: PREVIOUS ANALYSES

Previous works in the compounding of Old English such as Carr (1939), Gardner (1968), and Kastovsky (1992), propose different approaches to this word-formation process. Both Carr (1939) and Gardner (1968) concentrate on nominal compounding, whereas Kastovsky (1992) also includes adjectival and verbal compounding.

Carr (1939) compares compounding in the old Germanic languages and analyses 1,296 Old English nominal compounds. This author differentiates between primary compounds and secondary compounds, depending on, respectively, the absence or the presence of inflection to the adjunct of the compound. Considering the internal structure of the items, Carr identifies twelve kinds of compound nouns: triple compounds (*eaforhēafodsegn* 'boarhead banner'); compounds with a past participle in the adjunct both from strong verbs (*blandenfeax* 'grey-haired'); compound nouns with a present participle in the adjunct (*helpendrāp* 'oppifera'); compounds with comparatives and superlatives in the adjunct (*ærdagas* 'former days'); compound nouns with a past participle as the base (*cyneboren* 'of royal birth'); present participles in the base (*ceasterbūend* 'citizen'); compounds with *nomina agentis* and low Ablaut grade in the base (*wærlōga* 'plege-breaker'); compounds with suffixed predicates in the adjunct (*eardunghūs* 'tabernacle'); suffixed constituents as the base (*ārgēotere* 'brass-founder'); compounds in which the base is declined differently from the simple form (*æfenglōma* 'gloaming'); prefixes in the base (*æbbeod* 'command of the law'); and extended *bahuvrīhis* (*manlīca* 'effigy'). Regarding the syntactical relation of the constituents, Carr makes a classification into three groups: copulative compounds (*wiðbrād* 'widespread'), determinative compounds (*middangeard* 'the earth') and exocentric compounds (*bærfōt* 'barefooted').

Gardner (1968) studies 1,500 nominal compounds by looking at the internal relationship of the constituents and the relationship between the compound and its referent. The first analysis allows for a classification of compounds into three groups: structures of complementation, structures of modification and structures of coordination. Gardner proposes further subdivisions within each group. Structures of complementation are of two types, namely *nomen agentis* + objective complement of the underlying verb (as in *heretoga* 'commander, general') and *verbale abstratum* + complement of the underlying verb (as in *beagðegu* 'receiving of rings'). Structures of modification can be divided into the ones involving purely attributive modifiers (as in *heahsele* 'high hall') and structures of causal (and prepositional) modification (as in *eorlgestreon* 'treasure, wealth'); while structures of coordination are identified only in one type in Old English, namely *suhtorgefæderan* 'uncle and nephew'. Furthermore, the analysis of the relation of the compound with its referent allows Gardner to break down nominal compounds into literal compounds, metonymous compounds, and metaphorical compounds. Thus, literal compounds can be classified into pleonastic compounds (*sæbat* 'sea-boat'), intensifying compounds (*mægenwundor* 'striking wonder') and tautological compounds (*mægencræft* 'main force, great strength'). Metonymous compounds can be broken down into those expressing cause and effect or container and contained (*wigheafola* 'helmet'); those whose base expresses one function or one activity of the referent (*hellehinca* 'hell-limber, devil'); and those whose base involves part of the referent, its material or one of its essential qualities (*wægdæl* 'ship, vessel'). Finally, metaphorical compounds are classified into the general class whose metaphors show a relevant similarity between the figurative and the literal referents (*sæhengest* 'sea-horse, ship'), and a miscellaneous type that includes instances like *goldleaf* 'gold leaf or plate' and *eoforðrote* 'carline thistle'.

Finally, Kastovsky (1992) describes Old English nominal, adjectival and verbal compounds on the grounds of the category of the resulting element and the semantic function performed by the adjunct. Considering the combination of categories, Kastovsky proposes six types of nominal compounds: noun + noun (*rahdeor* 'roebuck'), noun (genitive) + noun (*Sunnandæg* 'Sunday'), adjective + noun (*ealdfæder* 'ancestor'), verb (verbal stem) + noun (*fealdestol* 'folding-stool'), past participle + noun (*nægledcnearr* 'nail-fastened vessel'), and adverb + noun (*oferbiterness* 'excessive bitterness'). Nominal compounds formed by two nouns can be additive, copulative or rectional. When the pattern is that of adjective + noun, the relation between the two elements is of attribution (*cwīlcseolfor* 'mercury'). If the combination is verbal stem + noun, the base is considered an argument of the adjunct (*wigmann* 'warrior'). *Bahuvrīhi* or exocentric compounds are found in the combination of a past participle as adjunct and noun as base (*etenlæs* 'pasture'). Finally, when the pattern of a nominal compound is adverb + noun

there are two types, one formed by the combination of an adverb and a basic or derived noun (*oferealdormann* 'chief officer'), and a second one that is a derivative from a verbal compound (*ofersceawigend* 'overseer, bishop'). As regards adjectives, Kastovsky identifies five types of adjectival compounds: noun + adjective (*eagsyne* 'visible to the eye'), adjective + adjective (*nearofah* 'difficult and hostile'), noun/adjective + present participle (*hunigflowende* 'flowing with honey'), noun/adjective + past participle (*windfyllend* 'blown down by the wind'), and adverb + adjective (*ofereald* 'very old'). In adjectival compounds, the adjunct can act as a complement of the base, or the base can be an attribute of the adjunct or is compared with respect to a property. When the category combination is adjective + adjective, the relation between the items can be of addition, subordination and intensification. If the pattern is noun/adjective + present participle, the adjunct functions as an argument of the verb (*hunigflowende* 'flowing with honey'). In compounds formed by noun/adjective + past participle, the adjunct can function as the subject of the construction (*windfyllend* 'blown down by the wind'), or it can be an instrument, a locative, imply manner, or perform adjectival, complement or adverbial functions. As to verbs, Kastovsky distinguishes two types: adverb/adposition + verb (*oferfeohthan* 'to conquer') and verbal derivatives from nominal compounds (*cynehelm* 'crown').

To summarise, previous research in the compounds of Old English has paid more attention to nominal than to adjectival, verbal and adverbial compounds. The research reviewed above has not considered the tokens of compounds or, in other words, it is not based on the analysis on attested inflectional forms. Therefore, it has not addressed the question of the status of compounds, that is, whether or not a given segment constitutes an instance of compounding. At the same time, the works cited above describe the morphological and semantic patterns of compounding but do not study two related questions, the recursive formation of compounds (which poses the question of the internal structure of the constituents) and the exocentric patterns of recategorisation, whereby the compound does not belong to any of the categories of its constituent parts. Section 3 is devoted to the status of compound whereas section 4 concentrates on the questions of morphological complexity and categorial exocentricity.

3. THE STATUS OF RECURSIVE COMPOUNDS

This section selects the data of the analysis of Old English recursive compounds on the grounds of the number and type of textual occurrences. The discussion also raises questions relating to the divergences between lexicographical and textual sources.

The categories under the scope of this analysis comprise the noun, the adjective, the verb and the adverb. The data have been retrieved from the lexical database of Old English *Nerthus* (www.nerthusproject.com, consulted in May 2016), which comprises around 30,000 lexical entries based on the standard dictionaries of Old English: *An Anglo-Saxon Dictionary* (Bosworth and Toller, 1973), *The student's Dictionary of Anglo-Saxon* (Sweet, 1976), *A Concise Anglo-Saxon Dictionary* (Hall, 1996), including the *Supplement* to Bosworth-Toller (Toller, 1921) as well as the *Enlarged addenda and corrigenda* (Campbell, 1972), and the revised edition of *A Concise Anglo-Saxon Dictionary* by Merritt (1996). Finally, these data are checked against the textual evidence gathered in the *Dictionary of Old English Corpus* (hereafter DOEC, Healey *et al.*, 2004).

All in all, compounding, as retrieved from *Nerthus* can be broken down into 18,844 nouns of which 8,802 are nominal compounds; 6,318 adjectives of which 1,489 are adjectival compounds; 5,797 verbs of which 413 verbal compounds; and 1,755 adverbs of which 158 are adverbial compounds. A total of 408 compounds are recursive, including 362 recursive nominal compounds, 39 recursive adjectival compounds, and 7 recursive adverbial compounds. The fact that no recursive verbal compounds have been found can be attributed to the process of grammaticalisation resulting in a telic marker (Brinton and Traugott, 2005; Martín Arista and Cortés Rodríguez, 2014), through which temporal adverbs and prepositions are going. As a result of this process, complex verbs like *ofāceorfan* 'to cut off', *ūpāblāwan* 'to blow up' and *ūtāberstan* 'burst out' fall out of the scope of compounding, rather constituting instances of prefixation.

Beginning with recursive nominal compounds, 23 compounds available from the lexical database have not been found in the DOEC: *ærgystrandæg* 'ere-yesterday, the day before', *æwintrecyning* 'king or ruler for one winter', *āndrencefæt* 'a cup emptied at one swallow', *burggeatsetl* 'town-gate-seat, where a court was held for trying causes of family and tenants', *dægmælespinn* 'style of a dial', *dihftæstendæg* 'appointed fast', *Elebearumōr* 'mounts of olives', *fæderēdstōl* 'father-land, paternal seat', *faldgangōdenig* 'fold-going money, money paid by a vassal to be free from sending sheep to fold on his lord's land', *forannihtsang* 'compline', *gēarcyningdōm* 'an enclosure, enclosed place, yard, garden, court, dwelling, home, region, land', *morðcrundel* 'barrow raised over a dead body? deadly pool? corpse-pit?', *rihthāmsōcn* 'actual hāmsōcn', *sūðanēastanwind* 'south-east wind', *sūðēasthealf* 'the south-east', *wēofodheorð* 'altar-hearth', *weoruldgirela* 'secular apparel', *wingeardbōg* 'vine-tendrils', *wingeardewealh* 'worker in a vineyard', *winterrædingbōc* 'lectionary for the winter', *woruldsceāt* 'part of the world, region', *woruldwæter* 'ocean, sea', *woruldwilla* 'earthly good'. Of the recursive compounds attested in the DOEC, 24 never occur as one word: *biterwyrtdrenc* 'drink of bitter herbs', *Cantwaramægð* 'county of Kent, men

of Kent', *cealccrundel* 'a chalk ravine', *dægmælsþīlu* 'the style of a dial', *efenhādabisceop* 'co-bishop', *ēoredgerīd* 'troop of horsemen', *hēahlandrīca* 'irenarcha', *Langafrīgedæg* 'Good Friday', *lēahmealtwurt* 'some kind of wort', *mæggcynren* 'race, family', *middangeardtōdælend* 'cosmographer', *nænīgdæl* 'not a particle', *norðanēastanwind* 'north-east wind', *norðanwestanwind* 'north-west wind', *portherpað* 'main road to a town', *rihtlandgemære* 'lawful boundary (of land)', *sixhyndeman* 'one of the sixhynde class', *slāhðornragu* 'blackthorn, lichen', *slāhðornweg* 'a road along which blackthorns grow', *sundorgerēfland* 'land reserved to the jurisdiction of a *gerēfa*', *sunnansetlgong* 'sunset', *Twelftamæsseæfen* 'Eve of the Epiphany', *ðusendealdorman* 'captain of a thousand men', *wīngeardseax* 'vine pruning-knife'.

A total of 175 recursive nominal compounds constitute *hapax legomena*: *æworuld* 'ancient world', *æscstederōd* 'a cross marking a battlefield', *bedwährift* 'bed-curtain', *bisceopweorod* 'bishop's company', *blæcernlēoht* 'lantern-light', *blæcðrustfel* 'leprosy', *blōdlæstīd* 'time for blood-letting', *burhwarumann* 'burgess, citizen', *Candelmæsseæfen* 'Candlemas eve', *carcernðystru* 'prison darkness', *ceasterherpað* 'high road?', *ciricsceatweorc* 'work connected with the grain given as church-scot', *cristelmælbēam* 'tree surmounted by a cross? upright shaft of a cross?', *cwearternweard* 'jailor', *dædbōtlihting* 'mitigation of penance', *dægrēdlēoma* 'light of dawn', *dægrēdoftung* 'morning sacrifice', *dēofolgielhdūs* 'idol-temple', *dryhtealdorman* 'paranymphus, bridesman', *ēalandcynīng* 'island king', *ealdhlāfordcynn* 'the old royal family, the rightful royal line', *ealdhryðerflæsc* 'meat that has been stored away', *ēastannorðanwind* 'north-east wind', *ēastansūðanwind* 'south-east wind', *Ēasterfrēolsdæg* 'the feast day of the Passover', *Ēastersunnandæg* 'Easter Sunday', *ēastgārsecg* 'eastern ocean', *ēastsūðdæl* 'south-east part', *efenwerod* 'band of comrades', *elebēamstybb* 'stump of an elder', *ellenwyrtruma* 'root of elder', *eoforhēafodsegn* 'banner with a boar's head design?', *ēoredgeatwe* 'military apparel', *ēoredhēap* 'troop, host', *ēoredmæcg* 'horseman', *ēoredðrēat* 'troop, host', *ēoredweorod* 'band, company', *eorlweorod* 'host of noble warriors', *færelðfrēols* 'Passover-feast', *felðbisceopwyrft* 'field-bishopwort', *feltūngrēp* 'dunghill; privy', *fletwerod* 'hall-troop, body-guard', *friðherpað* 'king's highway', *gātānstīg* 'a goat-path', *gēosceaftgāst* 'doomed spirit', *godwebbcyn* 'purple (cloth)', *godwebgyrla* 'cloth of purple', *godwebwyrhta* 'weaver of purple', *goldhordhūs* 'privy', *hæftworld* 'world under bondage', *hæðfeldland* 'moorland', *hāmwerod* 'household', *hēahdēorhunta* 'stag-hunter', *hēahfrēolsdæg* 'great feast-day', *hēahfrēolstīd* 'great festival', *hēahmæssedæg* 'high mass day', *hēahscīreman* 'a procurator', *hēahwēofod* 'high altar', *heallwährift* 'wall-tapestry', *henneægscill* 'shell of a hen's egg', *heorotbrembellēaf* 'leaf of the buckthorn', *heregeatland* 'heriot-land', *herepaðford* 'a ford where a *herepaðford* crosses a stream', *hīnsīðgyre* 'fear of death', *hīwcūðrædnes* 'familiarity', *hlāfmæssetid* 'Lammastide', *hrycgmearglið* 'spine', *hwēolgodweb* 'robe with a circular border?', *īdelgildofftung* 'offering to an idol', *lādrīncman* 'conductor, escort', *lēactūnweard* 'gardener', *lēodwerod* 'host of people', *līnsædcorn* 'linseed corn', *mægenfultum* 'mighty help', *mæsseprēostscīr* 'district for which a mass-priest officiated', *marmstāngedelf* 'quarrying of marble', *meluhūdern* 'meal-house', *morgengebedtīd* 'morning prayer', *nēahēaland* 'neighbouring island', *nihtbutorflēoge* 'beetle or moth which flies by night', *norðēastende* 'north-east end', *norðēasthryne* 'north-east corner', *norðēastrodor* 'north-east quarter', *norðgārsecg* 'northern ocean', *norðsciphere* 'Danish fleet', *norðwestgemære* 'north-west boundary', *orcerdlēh* 'orchard', *reādgoldlæfer* 'plating of (red) gold', *rihtædelcwēn* 'lawful wife', *rihtgesamhīwan* 'lawfully married persons', *rihtthanddæde* 'having a true belief, faithful', *rihtlīflād* 'right way of life', *rihtmēdrencynn* 'direct mother's line', *rihtnorðanwind* 'north wind', *rihtwestende* 'extreme western limit', *sealtærnsteall* 'a place where there is a house for preparing salt', *sealtherpað* 'road to salt-works', *siðwerod* 'travelling troop', *sumorrædingbōc* 'summer lectionary', *sunderanweald* 'monarchy', *sūðēastende* 'south-east end', *sūðgārsecg* 'southern ocean', *swēorracentēh* 'neck-chain', *tungolcræftwīse* 'astronomy', *ðegnweorud* 'band of followers', *ðēnungwerod* 'serving-men', *ðunorrādsteftn* 'voice of thunder', *weaxhlāfsealf* 'wax salve', *wēofodhrægl* 'altar-cover', *wēofodsteall* 'place of the altar', *wēofodðegn* 'altar-attendant, priest', *wēofodwiglere* 'soothsayer', *wergildðēof* 'thief who might be redeemed by payment of his wergild', *westnorðwind* 'north-west wind', *westsūðende* 'south-west extremity', *wīcherpað* 'a public road to a *wīc*', *wīngeardhōc* 'vine-tendrils', *wīngeardhring* 'cluster of fruit; vine tendrils', *woruldbearn* 'man', *woruldbebod* 'universal command; secular edict', *woruldbīsmēr* 'worldly reproach', *woruldbliiss* 'worldly bliss', *woruldbōt* 'compensation prescribed by the secular power', *woruldcamp* 'secular warfare', *woruldcandel* 'sun', *worulddæd* 'worldly business', *worulddrihten* 'world's lord, God', *woruldege* 'earthly fear', *woruldende* 'end of the world', *woruldfægernes* 'earthly beauty', *woruldfēoh* 'earthly goods, wealth', *woruldfolgað* 'worldly occupation', *woruldfætung* 'worldly ornament', *woruldfrið* 'worldly peace', *woruldfruma* 'primeval man, patriarch', *woruldgālnes* 'lust of pleasure', *woruldgedāl* 'death', *woruldgefoht* 'earthly fight', *woruldgeflit* 'dispute, lawsuit', *woruldgeðōht* 'worldly thought', *woruldgewinn* 'earthly war', *woruldgewuna* 'customary law', *woruldgifu* 'worldly gift', *woruldgitsere* 'coveter of worldly things', *woruldgyrta* 'secular garment', *woruldhlīsa* 'worldly fame', *woruldhogu* 'worldly care', *woruldhyht* 'earthly joy', *woruldæce* 'earthly physician', *woruldlagu* 'civil law', *woruldlean* 'earthly reward', *woruldmæg* 'earthly kinsman', *woruldmēd* 'earthly reward', *woruldprýdo* 'worldly pride', *woruldrīcetere* 'worldly power', *woruldsacu* 'worldly strife', *woruldstēor* 'secular penalty', *woruldðēaw* 'worldly affair', *woruldðēowdōm* 'secular service', *woruldðrymm* 'worldly glory', *woruldwæpn* 'earthly weapon', *woruldwīdl* 'world-filth', *woruldwīlung* 'earthly desire', *woruldwrenc* 'worldly cunning', *woruldwuldor* 'worldly glory', *woruldrymðu* 'earthly wretchedness', *wuduherpað* 'public path through a wood', *wuldorweorud* 'heavenly host', *wulfhēafodtrēo* 'cross, gallows?', *wundorworuld* 'wonderful world', *wyrtcynren* 'the vegetable world', *wyrteceddrenc* 'herbal acid drink', *wyrttūnhege* 'garden enclosure', *yrfewardwritere* 'will writer, testator'.

Out of the recursive nominal compounds attested in the DOEC, 54 occur twice, thus representing *dislegomena*: *blōstmfrēols* ‘floral festival’, *burhwerod* ‘townsfolk; city-multitude’, *ciricfultum* ‘support from the church’, *cwicbēamrind* ‘aspen bark’, *dægmeāscēawere* ‘astrologer’, *dægrēdwōma* ‘dawn’, *efenceasterwaran* ‘fellow-citizens’, *efenmæsseprēost* ‘fellow-priest’, *ēoredmenigu* ‘legion’, *eorðwerod* ‘inhabitants of earth’, *frummynetslæge* ‘first coinage’, *gærstündic* ‘meadow-dike’, *godspellbōc* ‘book containing the four gospels’, *hēahsæðēof* ‘chief pirate’, *healsbeorggold* ‘neck ornament’, *hellewitebrōga* ‘horror of hell-torment’, *heofonwerod* ‘heavenly host’, *hiredwifman* ‘female member of a household’, *horsgærstūn* ‘meadow in which horses are kept’, *hypebānece* ‘sciatica’, *innanburhware* ‘residents within the walls of a town’, *manweorod* ‘collection of men, troop, congregation, assembly’, *Norðwēalcynn* ‘inhabitants of (North) Wales’, *norðwestende* ‘north-west end’, *rihtāndaga* ‘proper (fixed) day’, *rihtcynecynn* ‘legitimate royal family’, *rihtfæstentid* ‘duly appointed time of fasting’, *rihtlāfordhyldo* ‘loyalty’, *rihtscriftscir* ‘properly assigned district of a confessor, parish’, *salthaga* ‘robin redbreast?’, *sundorweormynt* ‘special honour, prerogative’, *ūtanburhware* ‘outside citizens, those living out of the town’, *wæterælfād* ‘a disease’, *wēofodðēnung* ‘altar-service’, *weoroldwuniend* ‘a dweller in this world; or dwelling in this world’, *westansūðanwind* ‘south-west wind’, *woruldbroc* ‘worldly trouble; use for secular purposes’, *woruldduguð* ‘worldly riches’, *woruldgebyrd* ‘worldly origin’, *woruldgeriht* ‘worldly justice, secular right or due’, *woruldgeswinc* ‘earthly toil, misery’, *woruldgeðincð* ‘worldly honour, dignity’, *woruldgeðingu* ‘worldly things’, *woruldgewritu* ‘secular writings’, *woruldgitsung* ‘covetousness’, *woruldhremming* ‘worldly hindrance’, *woruldľufu* ‘love of this world’, *woruldsceaft* ‘earthly creature’, *woruldsçir* ‘life in the world (i.e. non monastic), worldly affairs’, *woruldsçrift* ‘confessor’, *woruldðegen* ‘earthly or secular servant’, *woruldweorðscipe* ‘worldly honour’, *wræcworuld* ‘miserable world’, *wynwerod* ‘chorus, joyous band’.

A total of 82 recursive nominal compounds have three or more occurrences in the DOEC: *ælātēow* ‘legislator’, *ādfulum* ‘confirmation (confirmers) of an oath’, *campweorod* ‘army, host’, *Candelmæssedæg* ‘Candlemas day’, *carcernweard* ‘jailor’, *Cildamæssedæg* ‘Childermas, Innocents’ Day’, *dægrēdsang* ‘matins’, *ealdealdfæder* ‘great grandfather’, *ēastnorðwind* ‘north-east wind’, *efenyrfeweard* ‘co-heir’, *ēoredcist* ‘troop, company’, *ēoredmann* ‘trooper, horseman’, *feormfultum* ‘help in food’, *fēowertieneniht* ‘fortnight’, *fyrdwerod* ‘host, army’, *godspelbodung* ‘gospel-preaching, new dispensation’, *godspelltraht* ‘gospel commentary, homily’, *hagostealdman* ‘bachelor, warrior’, *hēahdēorhund* ‘deer-hound’, *hēahealdormann* ‘ruler, patrician’, *hellwerod* ‘host of hell’, *heorðwerod* ‘body of retainers’, *hlāfmæssedæg* ‘Lammas-day’, *lotwrencceast* ‘cunning’, *manfultum* ‘military force’, *nānwiht* ‘nothing, naught’, *palmunnandæg* ‘Palm Sunday’, *rihtfædrencynn* ‘direct paternal descent or pedigree’, *rihtfæstendæg* ‘duly appointed fast-day’, *rihtmēterfers* ‘correct hexameter verse’, *rihtymbrendagas* ‘duly appointed Ember days’, *scipfultum* ‘naval aid’, *scrūdfultum* ‘grant towards providing clothes’, *slāhðorrind* ‘blackthorn bark’, *stāncrundel* ‘a tumulus of stones’, *wēofodbōt* ‘fine for injuring a priest, which was applied in support of the altar’, *wēofodscēat* ‘altar-cloth’, *weoroldgerisene* ‘worldly propriety’, *westsūðwind* ‘south-west wind’, *woruldæht* ‘worldly possessions’, *woruldafo* ‘secular or worldly power’, *woruldār* ‘worldly honour; secular property’, *woruldbisgu* ‘worldly occupation’, *woruldbūend* ‘world-dweller’, *woruldcearu* ‘worldly care’, *woruldcempa* ‘earthly soldier’, *woruldcræft* ‘secular art’, *woruldcyning* ‘earthly king’, *worulddream* ‘earthly joy’, *woruldearfoð* ‘earthly misery’, *woruldfreond* ‘friend in this world’, *woruldgerysnu* ‘secular customs’, *woruldgesælða* ‘worldly fortune’, *woruldgesceaft* ‘creature of this world; world’, *woruldgestreōn* ‘worldly riches’, *woruldðearf* ‘this world’s needs’, *woruldðing* ‘worldly affair, thing; earthly riches’, *woruldgielp* ‘pride of this world, glory’, *woruldglenge* ‘worldly pomp’, *woruldgōd* ‘worldly good’, *woruldhlāford* ‘secular lord’, *woruldľaga* ‘civil law’, *woruldľif* ‘life in this world; secular life’, *woruldlust* ‘worldly pleasure’, *woruldman* ‘human being, man of the world, layman’, *woruldnēod* ‘temporal need’, *woruldnytt* ‘worldly use or profit’, *woruldrīca* ‘great man’, *woruldrīce* ‘earthly kingdom’, *woruldriht* ‘secular or civil law; God’s law for the world’, *woruldscamu* ‘public disgrace’, *woruldsælða* ‘earthly blessings’, *woruldsorg* ‘earthly care’, *woruldspēd* ‘worldly wealth, success in the world’, *woruldspræc* ‘worldly talk’, *woruldstrūdere* ‘spoliator, robber’, *woruldwela* ‘worldly wealth’, *woruldweorc* ‘secular work; mechanics’, *woruldwig* ‘worldly contest’, *woruldwita* ‘learned layman, sage’, *woruldwite* ‘punishment, fine’, *woruldwlenco* ‘magnificence, ostentation’.

Turning to recursive adjectival compounds, 3 are unattested in the DOEC, *ānwiggearo* ‘prepared for single combat’, *sixtynenihte* ‘sixteen days old’ and *welrūmmōd* ‘gracious’, while 5 do not have occurrences written as one word: *hundnigontiggēare* ‘ninety years’, *hundseofontiggēare* ‘seventy years (old)’, *hundtēontiggēare* ‘a hundred years old’, *seofontienenihte* ‘seventeen days old’, *ðrēotīnegēare* ‘thirteen years old’.

A total of 16 recursive adjectival compounds are *hapax legomena*: *ēaðmōdheort* ‘humble-minded’, *felaīdelspræce* ‘emptily chattering’, *hundseofontigseofonfeald* ‘seventy-seven-fold’, *hundtwelftigwintre* ‘aged a hundred and twenty’, *hundtwentigwintre* ‘aged a hundred and twenty’, *ľigfāmlāwende* ‘vomiting fire’, *norðēastlang* ‘extending north-eastwards’, *seofonhundwintre* ‘seven hundred years old’, *sixtynewintre* ‘sixteen years old’, *ðrēohundwintre* ‘of the age of three hundred years’, *welgelicwirðe* ‘well-pleased, acceptable’, *worulddēad* ‘dead’, *woruldgesælig* ‘prosperous’, *woruldstrang* ‘having worldly power’, *woruldstund* ‘sojourn upon Earth’, *woruldðearfende* ‘poor in worldly goods’.

The DOEC contains 9 *dislegomena* that can be classified as recursive adjectival compounds: *ānhundwintre* ‘a hundred years old’, *fēowertienewintre* ‘fourteen years old’, *fifftieneniht* ‘fifteen days old’, *firenlustgeorn* ‘wanton’, *hundseofontigwintre* ‘seventy years old’, *hundtēontigwintre* ‘a hundred years old’, *seofontienewintre* ‘seventeen years old’, *wellicwyrðe* ‘well-pleasing’, *woruldwuniende* ‘dwelling’.

Finally, a total of 5 recursive adjectival compounds can be found in the DOEC that have three or more occurrences: *eahtatȳnewintre* ‘eighteen years old’, *fēowertȳneniht* ‘fourteen nights old’, *fifftienewintre* ‘fifteen years old’, *hundeatigwintere* ‘eighty years old’, *hundnigontigwintre* ‘ninety years old’, *woruldsnotor* ‘world-wise; scientific’.

All recursive adverbial compounds provided by the database are attested in the DOEC, although 2 have not been found as a single word, *nānigðinga* ‘not at all’ and *ðārongēn* ‘on the contrary’. There are 2 *hapaxes* (*ēastsūðlang* ‘from east to south’, *westnorðlang* ‘extending north-westwards’) and 3 with more than three occurrences: *nānigwuht* ‘in no wise, nothing’, *nāðylæs* ‘nevertheless’, *swāðēahhwæðre* ‘however’.

To conclude this section, it is necessary to select the data of analysis in a principled way. Recursive compounds that have not been found in the DOEC cannot be considered because their occurrences, provided that they appear in texts not included into the DOEC, cannot be quantified. What seems to be ghost entries to the dictionaries highlights the discrepancies between lexicographical sources and textual evidence, especially when dictionaries are not based on reliable corpora. On the other hand, there is no problem in accepting compounds that appear in the corpus as two independent words. Given that the spelling of compounds is rather inconsistent even in Present Day English, leave alone Old English, these recursive compounds will be taken into account in the analysis that follows. Regarding compounds with less than 3 occurrences, they will also be part of the analysis because in an inflective language like Old English it is possible to distinguish compounds from noun phrases given that the adjunct of a compound is not inflected for the adjectival declension as its counterpart in a noun phrase (the modifier) is. In short, all recursive compounds that are attested in the DOEC will be considered in the analysis.

4. CATEGORIES AND TYPES OF RECURSIVE COMPOUNDS

This section analyses the recursive compounds selected as relevant data in the previous section by category. The analysis deals with recursivity from two perspectives: the degree of recursivity and the type of recursivity. Compounds analysable into four free forms are the result of double recursivity, while those analysable into three free forms have been produced by recursivity. As for the type of recursivity, a distinction is in point between the combination of simplex free forms and the combination of free forms that result from other word-formation processes, such as zero derivation, prefixation and suffixation. In terms of morphological complexity, compounds that require the previous derivation of one of their constituents are more complex than those that consist of simplex forms. The analysis also engages in the question of recategorisation and classifies compounds as categorially endocentric or exocentric. Compounds can be exocentric in two ways. The first may be called *absolute exocentricity* and applies when the output category is not inputted to the compounding process. The second type of exocentricity may be dubbed *relative exocentricity* and obtains when the output category is not determined by the class of the rightmost element.

Beginning with nominal compounds, *Nerthus* contains 362 nouns which qualify as recursive compounds, including 249 recursive compounds with a compound adjunct and 119 with a compound base. Among them, only 2 instances constitute double recursivity in the sense of requiring a double repetition of the process of compounding: *fēowertieneniht* ‘fourteen’ < *fēowertiene* + *tiennihte*, and *norðēastrodor* ‘north-east quarter’ < *norðēast* + *ēastrodor*. Table 1 tabulates the results of the analysis of nominal compounds as to the combination of morphological processes (necessary to determine the type of recursivity involved) and as to the combination of categories (relevant for classifying compounds as categorially endocentric or exocentric).

Table 1: Word-formation processes and category combinations in recursive nominal compounds in Old English.

Word-formation process combination	Instances	Category combination	Instances
compound adjunct and compound base	2	N + N	1
		Num. + Adj.	1
compound adjunct and prefixed base	1	N + V	1
compound adjunct and simplex base	139	Adj. + N	3
		Adv. + N	13
		N + Adj.	1
		N + N	120
		N + V	1
		V + N	1
compound adjunct and suffixed base	31	Adj. + N	1
		N + N	30
compound adjunct and zero derived base	57	N + N	56
		N + V	1
compound adjunct total			230
simplex adjunct and compound base	79	Adj. + N	18
		Adv. + N	3
		N + N	57
		Num. + N	1
suffixed adjunct and compound base	6	Adj. + N	1
		Adv. + N	3
		N + N	2
zero derived adjunct and compound base	22	Adj. + N	1
		Adv. + N	1
		N + N	20
compound base total			107

As table 1 shows, compound bases are more restricted as input to compounding than compound adjuncts. Whereas compound bases combine with simplex, zero derived and suffixed adjuncts, compound adjuncts combine with simplex, zero derived, prefixed, suffixed and even compound bases. That is, compound bases do not combine with suffixed and compound adjuncts. Quantitatively speaking, the preference for the combination with simplex bases is remarkable. Moreover, compound adjuncts clearly outnumber compound bases. In the same line, it is also noteworthy that the simplex form is favoured as base of compounding, as in *æscstederōd* ‘cross marking a battlefield’ < *æscstede* + *rōd*, than as the adjunct, as happens in *ǣlātēow* ‘legislator’ < *ǣ* + *lātēow*. Overall, there is a clear tendency to concentrate complexity in the left of the compound and, conversely, to lighten the right of the compound. Such a tendency may be interpreted in the following terms: recursive compounds, as such, are considerably complex even though they consist of three simplex forms, because recursive compounding entails at least one repetition of this process of word-formation. As for the category combinations, there is a clear preference for the patterns with nouns in recursive nominal compounds with compound adjuncts, including Adj. + N, Adv. + N, and, above all, N + N. The noun can function as both base and adjunct with adjectives, verbs and other nouns. In recursive nominal compounds with compound bases, the noun does not combine with verbs, while it is the base of all categorial patterns (either because both adjunct and base are nouns or because the noun functions as base of the compound, thus Adj. + N, N + N, Adv. + N and Num. + N). With these categorial patterns, two types of exocentricity arise in the recursive compounding of nouns. Absolute exocentricity, which applies when the output category is not inputted to the compounding process, turns up in the categorial pattern Num. + Adj. (*fēowertieniht* ‘fortnight’). Relative exocentricity, which is the case when the output category is not the rightmost category, can be identified in the categorial patterns N + Adj. (*woruldgōd* ‘worldly good’) and N + V (*ēoredgerīd* ‘troop of horsemen’). From a qualitative as well as a quantitative point of view, categorial exocentricity is very infrequent in the recursive compounding of nouns.

Turning to adjectives, *Nerthus* contains only 39 recursive adjectival compounds in the sense that one of the constituents of the compound is also a compound itself. Table 2 presents the results of the analysis of adjectival compounds with respect to morphological processes and the combination of categories.

Table 2: Word-formation processes and category combinations in recursive adjectival compounds in Old English.

Word-formation process combination	Instances	Category combination	Instances
compound adjunct and simplex base	24	N + Adj.	5
		N + N	2
		Num. + N	17
compound adjunct and suffixed base	2	N + Adj.	1
		Num. + Adj.	1
compound adjunct and zero derived base	3	Adj. + Adj.	1
		N + Adj.	1
		N + V	1
compound adjunct total			31
simplex adjunct and compound base	7	Adj. + Adj.	2
		Adv. + Adj.	2
		N + Adj.	1
		Num. + Adj.	2
compound base total			7

As can be seen in table 2, there are no instances of double recursivity involving adjectives consisting of both a compound adjunct and a compound base. Compound adjuncts in adjectival compounds distribute more freely than compound bases: whereas compound adjuncts combine with simplex, zero derived and suffixed bases, compound bases can only combine with simplex adjuncts. Overall, the preference is for compound adjuncts (*ānwīggearo* ‘prepared for single combat’), which stand out with respect to compound bases (*felaīdelspræce* ‘emptily chattering’). There is also a clear tendency to combine a compound form with a simplex form (*firenlustgeorn* ‘wanton’) rather than an affixed (*woruldgesælig* ‘prosperous’) or a zero derived form (*ēaðmōdheort* ‘humble-minded’). From a quantitative point of view, table 2 shows that the default option in recursive compounding is the combination with a simplex element. This is the only possibility when the recursive formation of adjectival compounds involves a compound base. It is also worth noting that when affixation is involved, the combinable process turns out to be suffixation. As regards categorial patterns, the patterns with adjectives are preferred in recursive adjectival compounds with compound adjuncts, including Adj. + Adj., Num. + Adj., and, especially, N + Adj. It is noteworthy that the adjective cannot be base of the compound except when the adjunct also belongs to this category (with the exception of the numeral, whose function is also adjectival). The adjective is also the category of the base in all instances of recursive adjectival compounds with compound bases, although the adjunct varies, thus Adj. + Adj., Adv. + Adj., N + Adj., and Num. + Adj. Finally, it turns out that the verb does not partake in any categorial pattern of recursive adjectival compounding. With these categorial patterns, absolute exocentricity arises in the categorial patterns N + N (*woruldstund* ‘sojourn upon earth’), Num. + N (*fifteenewintre* ‘fifteen years old’) and N + V (*woruldwuniende* ‘dwelling’), in which the output category is not inputted to the compounding process. Relative exocentricity does not turn up because, except when absolute exocentricity is the case, the output category is consistently the rightmost category.

The last category considered in this analysis is the adverb. *Nerthus* contains 7 recursive adverbial compounds. All of them combine a compound and a simplex predicate, 5 present a compound as adjunct (*ðærongēn* ‘on the contrary’) whereas 2 have it as base of derivation (*nāðylæs* ‘nevertheless’). There are no instances of double recursivity. Moreover, 6 of the 7 recursive adverbial compounds are endocentric, the only exocentric one consist of two adjectives: *westnorðlang* ‘extending north-westwards’ < *west* + *norðlang*.

Table 3: Word-formation processes and category combinations in recursive adverbial compounds in Old English.

Word-formation process combination	Instances	Category combination	Instances
compound adjunct and simplex base	5	Adv. + Adv.	1
		Adv. + Adj.	2
		Adv. + N	2
compound adjunct total			5
simplex adjunct and compound base	2	Adv. + Adv.	1
		Adv. + Adj.	1
compound base total			2

5. CONCLUSION

This article has dealt with the recursive compounding of Old English nouns, adjectives, verbs and adverbs. This has raised the previous question of the textual occurrences of the compounds of Old English and, ultimately, the status of the compounds provided by the lexicographical sources of this historical stage of the English language. A corpus-based analysis has allowed us to exclude the recursive compounds available from the lexicographical sources but that are not attested in the DOEC, including 23 nominal and 3 adverbial compounds. Compounds that appear in the DOEC as two independent words have been considered if listed by the lexicographers. The quantitative analysis has also shown the low type and token frequencies of compounds: 197 out of a total of 408 are *hapax legomenona*, 63 *dislegomena*, and only 90 have 3 or more occurrences.

On the qualitative side, the nominal, adjectival and adverbial compounds of Old English can be recursive. Nominal compounding allows double recursivity, whereas adjectival and adverbial compounding do not. Recursivity can be endocentric or exocentric in the three lexical categories examined in the article, although it is more significant in adjectival compounding. Overall, one of the members determines the category of the compound. However, whereas nominal compounds and adverbial compounds usually take a noun or and adverb respectively as adjunct, in the case of adjectives, it is the base of derivation that belongs to the adjectival category.

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