Linguistic Research 32(2), 419-450
DOI: 10.17250/khisli.32.2.201508.006

Demarcation of compounding and prefixation in Old English*

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Kim, Yookang. 2015. Demarcation of compounding and prefixation in Old English. *Linguistic Research* 32(2), 419-450. This article investigates the morphological character of the eleven Old English morphemes (*æfter-* "after," *æt-* "at," *fram-* "from," *in-* "in," *of-* "of," *ofer-* "over," *þurh-* "through," *under-* "under," *up-* "up," *ut-* "out," and *wiþ-* "to, against") that were used both as free words (adverbs or prepositions) and as the first elements of complex words. The morphemes as parts of complex words can differ in meaning from their independent counterparts even though they are identical in form (e.g., *under* "under" + *standan* "to stand" = *understandan* "to understand," not "to stand under"). It is not an easy task to determine whether the morphemes used as parts of complex words are words or prefixes. To identify such affix-like elements, the previous literature introduced intermediate categories like "affixoid" and "semi-affix" (Fleisher 1969, Marchand 1969), and the concept of a "morphological cline" (Bauer 1983). In accordance with the three factors that have been proposed in the previous literature as the criteria for distinguishing compounds and affixes－type frequency, semantic change, and productivity－I attempted to evaluate and rank the Old English borderline morphemes in terms of the degree of grammaticalization. This paper shows that the Old English morphemes vary in terms of the degree of transition from a free word to a prefix. I argue that the concept of a morphological cline is more useful and adequate than the introduction of intermediate categories for the synchronic characterization of the Old English borderline morphemes. **(Hankuk University of Foreign Studies)**

Keywords compound, prefix, Old English, grammaticalization, semantic bleaching, morphological cline

* This work was supported by the research fund (2015) of Hankuk University of Foreign Studies. I am thankful to anonymous reviewers for their helpful comments and suggestions. Any remaining shortcomings are entirely my responsibility.

1. Introduction

The characterization and classification of morphological processes has been an important issue in morphology handbooks, textbooks, and articles, including Wilmanns 1896, Paul 1920, Henzen 1965, Marchand 1969, Ralli 2010, and Booij 1993, 2005, 2010; for example, the demarcation of compounds and syntactic units (e.g., noun phrases) and the demarcation of inflection and derivation have been intensively discussed in the previous literature.[1] The issue regarding the demarcation of compounding and affixation, however, has received less attention even though it has also been examined in some morphological studies (cf. Bauer 1983, ten Hacken 2000, Booij 1993, Trips 2009, Dimela and Melissaropoulou 2009). The demarcation issues between compounding and affixation concern the differences between the two processes, and the question of whether they constitute distinct morphological phenomena.

To determine the features distinguishing the two processes, a number of criteria have been proposed (cf. section 3); however, the differences between the two processes are not always clear-cut (Ralli 2010, Booij 2005, Bauer 2005). In a number of borderline cases, it is not always easy to determine whether the right or left part of a complex word is a word or an affix; therefore, to account for the morphological character of the borderline morphemes, the terms "*affixoid*" and "*semi-affix*" were introduced by Fleisher (1969) and Marchand (1969), respectively. Instead of the introduction of the intermediate category, Bauer (1983), alternatively, proposed a "morphological cline"—a continuum comprising two poles held by prototypical compounds and affixes—in preference to the introduction of an intermediate category.

This paper focuses on Old English (henceforth, OE) in an examination of the demarcation issue between compounding and prefixation including the following eleven morphemes that were used as the first parts of complex words, as well as free words like adverbs and prepositions: *æfter-* "after," *æt-* "at," *fram-* "from," *in-* "in," *of-* "of," *ofer-* "over," *þurh-* "through," *under-* "under," *up-* "up," *ut-* "out," and *wiþ-* "to, against". The main task of this paper is to determine whether the borderline morphemes in complex words are free words or prefixes, thereby identifying their

[1] See Olsen (2000) for a critical review of previous works on the demarcation of compounds and syntactic phrases, and Booij (2000) regarding the demarcation of derivation and inflection.

morphological character. This paper shows that the OE morphemes vary in terms of the degree of transition from a free word to a prefix. I argue that the morphological cline is more useful than the introduction of an intermediate category for the synchronic classification of the OE borderline cases.

This paper is organized in the following manner: Section 2 is a review of how the borderline cases between compounding and derivation have been discussed in the previous literature; Section 3 presents the criteria that were proposed in previous morphological studies to distinguish between free words and affixes; Section 4 is a discussion of the OE borderline morphemes; in Section 5, I determine the morphological character of the OE morphemes, and argue in favor of using the morphological cline as a morphological tool to classify the borderline morphemes; and Section 6 is the conclusion.

2. Borderline cases between compounding and derivation

It is generally known that compounds consist of two or more lexemes (words or stems), whereas derivation is a process involving the addition of an affix (a bound morpheme) to its base, e.g., *green* + *house* (combination of two lexemes) versus *un* + *happy*, *happy* + *ness* (addition of a prefix or a suffix to a base lexeme). As Booij (2005) correctly points out, though, it is not synchronically easy to make a distinction between compounds and derivatives. In some cases, a sharp boundary is nonexistent between compounding and affixal derivations, and examples of the borderline cases between the processes are shown in (1), as follows:

(1) Borderline cases between compounds and derivatives in the Dutch language (Booij 2005)

Independent words	**Base words**	**Complex words**
aan "at"	*bid* "to pray"	*aan-bid* "to worship"
onder "under"	*breek* "to break"	*onder-breek* "to interrupt"
vol "full"	*maak* "to make"	*vol-maak* "to bring to perfection"

As shown in (1), the Dutch free morphemes *aan*, *onder*, and *vol* can appear as

the first parts of complex words (e.g., *aan* vs. *aan-bid*). Notably, the meaning of the same morpheme can differ depending on whether it forms part of a complex word or is used as an independent word; for example, the meaning of the morpheme *aan* as an independent word is "at," whereas its meaning cannot be clearly identified when it is used as the first part of the complex word *aan-bid* (*aan* "at" + *bid* "to pray" = *aan-bid* "to worship," not "to pray at"). Despite the semantic difference, the phonological forms of the independent words in (1) and their corresponding bound elements are identical, so it is not easy to determine the morphological status of the morphemes. Are they the same morphemes or not? If the morpheme *ann-* in *ann-bid* is the same morpheme as the independent word *ann*, the complex word *ann-bid* must be considered a compound; otherwise, it should be a derivative composed of the prefix *ann-* plus the base *bid*.

Many suffixes and prefixes were historically derived from the first or second components of compounds (of. Wilmanns 1896, Paul 1920);[2] this is true of the German suffixes *-heit, -schaft,* and *-tum*, as well as their historically-related English equivalents *-hood, -ship,* and *-dom* (Henzen 1965, Marchand 1969). Fleischer (1969) illustrated the diachronic development of a suffix from a free word with the German suffix *-heit.* The German suffix *-heit* typically derived de-adjectival nouns (e.g., *dumm* "stupid" vs. *dummheit* "stupidity, ignorance"), but in Middle High German, it occurred as a free noun with a sense of "manner, property, state." According to Olsen (2000), a historical free word that has been used as the first or second element of a compound is the beginning of the basis for an entire pattern of compounds. Once such a pattern takes hold and becomes productive, the original constituent may begin to deviate from its free equivalent in form or meaning, and can develop into an affix-like element.

The diachronic-development process of an affix from a free word presents a situation where the demarcation of a compound and a derivative is not clear-cut. As illustrated by the Dutch morphemes in (1), some morphemes are productively used as the first (or second) members of morphologically complex words, although they are still recognizable as free words. In past morphological studies, most of these

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2 Marchand (1969) described the following two ways to explain suffix formation: i) a suffix historically developed from a free word; ii) a suffix which has originated as such. The former case can be illustrated with the Old English free word *had*: free morpheme (Old English *had*) > compound (Middle English *child hod*) > derivative (Present-day English *childhood*).

morphemes were considered as intermediate categories between a free word and a bound affix. Bauer (1983, 2005), however, claimed that derivation and compounding are not distinct processes, but are actually prototypes at each end of a single dimension (continuum or cline). Even though he does not offer an explicit discussion of the diachronic development of an affix from the free element of a compound, his position can be illustrated with a morphological cline (or continuum) in which the two poles are held by prototypical free words and prefixes.

(2) Morphological cline from compounding to derivation (based on Bauer 1983, 2005)

Stage 1	Stage 2	Stage 3
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Prototypical Compounds		Prototypical Derivatives
Word 1 + Word 2		**Prefix** + Word 2
		Word 1 + **Suffix**
	ann-*bid* (vs. *ann*)	*dumm-**heit*** (**heit*)
	*god-**like*** (vs. *like*)	*child-**hood*** (**hood*)

As shown in (2), the historical development can be roughly divided into three different stages: (i) Stage 1 for a prototypical compound whose elements are used as independent words with the same meaning; (ii) Stage 2 for borderline cases where one element of a complex word appears different in meaning from its independent counterpart, although it is still recognizable as a free word (e.g., *ann-* in *ann-bid*, *-like* in *god-like*); and (iii) Stage 3 for a prototypical derivative where the element in question is only used as an affix, thereby ceasing its use as an independent word (e.g., *-heit* in *dumm-heit*, *-hood* in *child-hood*).

3. Criteria for distinguishing affixes from independent words

For the synchronic identification of morphemes used as the first or second part of complex words (compounds or derivatives), various criteria have been proposed (cf. Schmidt 1987:55-78, ten Hacken 2000:355), but it is common to accept at least the following three: (i) an increased productivity; (ii) a decreased semantic specificness; and (iii) an etymological and formal link to an existing free stem. The

last of the three can be used to distinguish affixoids (Stage 2) from affixes (Stage 3), and the other two distinguish affixoids (Stage 2) from their corresponding free stems (Stage 1) (cf. (2)). To further explain, the first criterion is applied to an element that has been productively used as part of a compound; the second criterion is for cases where an element of a compound begins to deviate from its free counterpart in meaning and develops into an affix-like morpheme; and the last criterion is applied in a case where an element of a complex word has no independent counterpart. The first two criteria are related to the borderline cases between compounding and derivation.

The following discussion investigates the first two criteria in greater detail. The rise of borderline morphemes is a typical case of grammaticalization. It is generally agreed that semantic change occurs prior to formal change. In terms of the Dutch morphemes in (1), semantic change had already taken place, but there was no phonological weakening involved. We also observed the layering that is characteristic of grammaticalization, whereby, in addition to the bound use of these morphemes, their use as free words is still recognizable with a greater range of meanings. According to Booij (2005:85), if a change in meaning between the still-exiting free morpheme and the element that is a part of a morphological complex can be observed, then we can assume that the element has developed into a bound morpheme. The semantic distinction between the involved morphemes should therefore be considered as one of the criteria.

Frequency and productivity criteria can also be employed in this study of the transition from a stage in which an element is the head of a compound to a stage where it functions as the prefixal head of a derivation. Bauer (2001:98) stated that, from a diachronic perspective, the stage in which frequency becomes relevant precedes the stage when productivity is introduced; he further stated that type frequency[3] is a factor that aids productivity. In line with Bauer's view, a morphological reanalysis (from compounding to derivation) occurs as a free element of a compound that undergoes semantic change, whereby a new derivation pattern begins. The element eventually serves as the bound morpheme for the new

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[3] "Type frequency" refers to the number of different words that occur with the morphological category under consideration. For example, *happiness, sickness* and *sadness* are three types of the category *-ness*. "Token frequency" refers to the actual number of occurrences in consideration of the morphological category.

formation, and the derivational pattern increasingly affects more simplex words. Under this assumption, type frequency would be an indicator for the transition from a free word to an affix; therefore, Trips (2009:29) argues that a high type frequency allows free elements to develop into affixes.

Productivity has also been used as a valid indicator for the transition. According to Bauer (2001:98), an increase in the number of affixes also correlates with an increase of productivity, as well as type frequency. Hay (2003) claimed that a low relative frequency correlates with high productivity, and that a characteristic of productive processes is a high number of low-frequency words. In accordance with Bauer and Hay, an element in the transitional process from a free word to an affix shows an increased level of productivity, and the productive process (attaching the element to different bases) correlates with a high number of low-frequency words like a *hapax legomena*. A *hapax legomena* is a word with a very low token frequency, occurring only once in a corpus. For Bauer and Hay, the degree of the transition (grammaticalization) of an element (from a free word to a prefix) can therefore be estimated by counting the number of *hapax legomena* of the element in a corpus: The higher the number of *hapax legomina*, the more grammaticalized the element is.

According to Baayen (2008), potential productivity is one of the ways to measure productivity and is obtained by measuring the *hapax legomena* for a morphological category in a corpus divided by the total number of tokens with the affix (P = V(1,C,N)/N(C)), where V (1,C,N) indicates the *hapax legomena* of the morphological category and N(C) is the total number of the tokens of that category in the corpus. This type of productivity, measured using *hapax legomena*, can be used to determine the degree of transition of the OE morphemes.

I will investigate the rise of affixes from free words in OE using the following three criteria that were previously mentioned: semantic change, type frequency, and (potential) productivity.

4. Old English prefix-like morphemes

In OE, some adverbs or prepositions are used as the first elements of complex words (e.g., *under* “under” + *standan* “to stand” > *understandan* “to understand”).

Like the Dutch morphemes in (1) (e.g., *ann*-), the elements as parts of complex words appear to differ in meaning from their corresponding free words, even though they remain identical with their independent counterparts in form. The method for determining the morphological category of the morphemes has been controversial among Germanic linguists. Kastovsky (1992) used the term "particle" to denote such morphemes when they are used as parts of complex verbs,[4] and made a distinction between prefixes and particles, as shown in the following list (Kim 2012:90):[5]

(3) List of OE prefixes and particles (Kastovsky 1992:376-381)[6]

a. Prefixes

a-, æ-, æf-, and-, be-, bi-, ed-, fær-, for-, ge-, mis-, or-, sam-, sin-, un-, wan-

b. Particles

æfter-, æt-, be-, efen-, eft-, for-, fore-, forþ-, fram-, geond-, in(n)-, niðer-, of-, ofer-, a(o)n-, þurh-, under-, up-, ut-, wiþ-, wiþer-, ymb(e)-

The prefixes in (3a) are bound morphemes that cannot occur as free words, whereas the particles in (3b) can be used both as free words (prepositions or adverbs) and as prefixes. My focus was on the particles because their morphological character is similar to that of the borderline cases discussed in the previous section. Among the particles in (3b), I selected eleven morphemes that still exist in Present-day English: *æfter*- "after," *æt*- "at," *fram*- "from," *in*- "in," *of*- "of," *ofer*- "over," *þurh*- "through," *under*- "under," *up*- "up," *ut*- "out," and *wiþ*- "with." Table 1 presents a list of the morphemes, their semantic functions, and examples of complex words that have been combined with them. Bosworth and Toller's (2010)

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4 In early Germanic, such prefix-like elements could be separated from their verbal bases, whereas nominal and adjectival bases were inseparably prefixed (Hogg 2002:105).

5 In my previous study of Old English prefixes (Kim 2012), I simply considered the morphemes (viewed as particles by Kastovsky) as prefixes without distinguishing prefixes from particles. I did not provide a discussion of the demarcation between compounding and derivation in the paper because the issue was beyond the scope of the study.

6 Kastovsky placed *be*- and *for*- in both categories. He stated that the particle *for*- with a sense of 'before' is a different morpheme from its homophonous prefixal counterpart *for*- which has the meaning 'loss, destruction' (ibid.:376). Concerning the dual membership of the form *be*-, he did not provide any descriptions. He simply wrote the meaning of the particle *be* is not clear and it is not easily distinguishable from the prefix *be.* These two particles were excluded in this analysis.

Online Anglo-Saxon Dictionary (www.bosworthtoller.com) and the *Nerthus* lexical database (www.nerthusproject.com) were consulted for the lexical information of the morphemes.[7]

Table 1. OE prefix-like morphemes

Free forms	Word classes		Meaning	Word classes of derivatives	Complex words
	BT	Nert			
æfter	Adv P	Adv	"after, then, later, back, afterwards"	N, V, Adj, Adv	*æfter-eala* "after-ale" (*eala* "ale") *æfter-sprecan* "to claim" (*sprecan* "to speak")
æt	P	Adv	"at, to, near, before, next"	N, V, P, Adv, Adj	*æt-flowan* "to flow to" (*flowan* "to flow") *æt-habban* "to retain, withhold" (*habban* "to have")
fram	P	Adv	"from, away, concerning"	N, V, Adj	*fram-standan* "to stand away" (*standan* "to stand") *fram-bugan* "to turn away" (*bugan* "to trun, bend")
in	P	Adv	"in, within, into"	N, V, Adj, P	*in-bend* "internal bond" (*bend* "bond") *in-frod* "very old" (*frod* "old")
of	P	Adv	"off, from, out of, away"	N, V, Adj, Adv	*of-hende* "out of one's hand" (*hende* "hand") *of-ridan* "to overtake by riding" (*ridan* "to ride")
ofer	P Adv	Adv	"above, across, beyond, from side to side"	N, V, Adj, Adv	*ofer-slype* "over-garment" (*slype* "garment") *ofer-seocness* "extreme sickness" (*seocness* "sickness")

7 See the appendix for a list of complex words combined with the eleven prefix-like morphemes.

þurh	P	Adv	"through, throughout"	N, V, Adj, Adv	*þurh-drifan* "to drive through" (*drifan* "to drive") *þurh-lad* "very hateful" (*lad* "hateful")
under	P Adv	Adv	"below, beneath"	N, V	*under-serc* "under-garment" (*serc* "garment") *under-þencan* "to look into, consider" (*þencan* "to think")
up	Adv	Adv	"up, upward"	N, V, Adj, Adv	*up-riht* "upright, erect" (*riht* "right") *up-heah* "tall, lofty" (*heah* "high")
ut	Adv	Adv	"out, without, outside"	N, V, Adj, Adv	*ut-healf* "outside" (*healf* "side, half") *ut-here* "foreign army" (*here* "army")
wiþ	P Adv		"to, toward, in the direction of, against"	N, V, Adj, Adv, P	*wiþ-gan* "to go against" (*gan* "to go") *wiþ-settan* "to oppose" (*settan* "to set")

* Abbreviations: N (noun), V (verb), Adj (adjective), Adv (adverb), P (preposition), BT (Bosworth and Toller"s *Online Anglo-Saxon Dictionary*), and Nert (*Nerthus* Lexical Database)

The free morphemes in the table are adverbs or prepositions, and they can be used as the first parts of those complex words that are nouns, verbs, adjectives, adverbs, or prepositions. It is important to note that the morphemes in complex words can differ in meaning from their free counterparts, even though in some complex words their original meaning is still recognizable: *in* "in" + *frod* "old" > *in-frod* "very old' versus *in* "in" + *bend* "bond" > *in-bend* "internal bond." Like the Dutch morphemes in (1), the morphemes as part of complex words remain identical in form with their corresponding free words, but there is a semantic distinction between the morphemes that are parts of complex words and those that are parts of free words. The following question concerning the morphological character of the

morphemes may therefore arise: Are they free morphemes (adverbs or prepositions) used as the first parts of compounds, or are they bound morphemes (prefixes) combined with bases? In the following section, I show that the OE borderline morphemes vary in terms of the degree of transition (grammaticalization) from free words to affixes; therefore, they should not be uniformly considered as an intermediate category (e.g., affixoid). I argue that they should be seen as morphemes placed somewhere on the cline between free words and affixes in accordance with the degree of grammaticalization (cf. (2)).

5. A Morphological analysis of the Old English borderline cases

In this section I attempt to determine how much the OE morphemes have been developed into prefixes by using the three criteria (semantic change, type frequency, and (potential) productivity) presented in section 3.

The semantic criteria indicate that the semantic distinction between an existing free morpheme and the element used as part of a complex word is an indicator of the transition of a free morpheme into an affix. To first determine the meaning of the elements used as the first part of complex words, I compared the meanings of the complex words with those of their second elements. Then I attempted to find any semantic distinction between the specific meanings of the first elements and those of their corresponding free words. Finally, the elements were subdivided into four groups in accordance with the types of semantic differences, as exemplified in (4).[8]

(4) Four types of semantic change of the OE prefix-like morphemes

Type A: Transparent (no semantic difference)

fram-anydan “to force from” (*fram* “from”, *anydan* “to force”)

æfter-boren “born-after” (æfter “after”, *boren* “born”)

in-gefeoht “civil war” (*in* “in”, *gefeoht* “fight, war”)

Type B: Abstraction/Intensifying

in-frod “very old” (*in* “in”, *frod* “old, wise”)

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8 See the appendix for the distribution of the eleven OE morphemes in accordance with their types of semantic change.

up-weg "the way to heaven" (*up* "up', *weg* "way")
æt-habban "to retain, withhold" (*æt* "at, near", *habban* "to have")

Type C: Opaque/Different
of-sendan "to reach by sending" (*of* "off, from, away", *sendan* "to send")
wið-metan "to compare" (*wið* "to, against", *metan* "to measure")
ut-fus "ready to sail" (*ut* "out", *fus* "ready, prepare")

Type D: Redundant (no meaning)
under-fon "to receive" (*under* "under", *fon* "to take, receive")
up-heah "tall, lofty" (*up* "up", *heah* "high, lofty")
in-buend "dweller, inhabitant" (*in* "in", *buend* "inhabitant")

In the case of Type A, the morphemes in complex words retained the original lexical meaning they had as free words. Since there is no change in the meanings and form between the morphemes and their free counterparts, they can be considered free words and the complex words have been combined with them to form compounds (e.g., *fram* "from + *anydan* "to force" = *fram-anydan* "to force from"); however, the meanings of the morphemes in the cases of the other three types are different from their independent counterparts. The first parts of the complex words in Type B underwent semantic bleaching so that they simply add a meaning of abstraction or intensify the second parts, instead of their original sense (e.g., *in* "in" + *frod* "old" = *in-frod* 'very old').[9] Type C includes morphemes whereby the meaning is opaque (e.g., *of* "off, from" + *sendan* "to send = *of-sendan* "to reach by sending") or different from their corresponding free words (e.g., *wið* "to, against" + *metan* "to measure" = *wið-metan* "to compare"). The occurrence of the first parts of the complex words in Type D is semantically redundant, adding no meaning to the second parts.

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[9] Numerous studies on grammaticalization have argued for a semantic unidirectionality that characterizes grammaticalization. Traugott (2003), for example has claimed that there are three tendencies to be found characterizing semantic change: words that start out with a purely "external" meaning acquire one that is more "internal", that is tied to perception or evaluation; "external" meanings turn into textual meanings that structure discourse; and meanings become increasingly subjective. These observations or principles governing semantic change can be seen as results of the cooperation of different semantic change mechanisms: metaphor, metonymy, and subjectification (Traugott 1982, Bybee 1988, Heine et al. 1991). Type B includes words that have underwent semantic change ("external" > "internal" > "subjective") driven by such mechanisms.

It is important to note that the degree of semantic bleaching increases from Type A to Type D, as follows: Type A (no semantic change) > Type B (abstraction/intensification) > Type C (semantic opaqueness) > Type D (loss of meaning). There is a stage at which the OE morphemes are only used as the first members of compounds, thereby maintaining their original meaning (Type A). In the following stage, the free elements gradually undergo semantic bleaching and occur as parts of complex words with abstract or intensified meanings (Type B). At the next stage, in which the meanings of the morphemes become opaque, it is difficult to distinguish the elements from the other parts of the complex words in terms of their meanings (Type C). Finally, their meanings are completely lost and their presence in complex words is semantically redundant (Type D).

The four stages of "wordhood" or "affixhood" clearly occurred at different points of time (Type A > Type B > Type C > Type D); accordingly, the OE borderline elements did not undergo this development at the same time, with each of them reaching the stages at different points of time. Furthermore, the four stages can partly overlap in the development of each morpheme, and each of the OE morphemes in Table 1 tends to therefore show more than one type of semantic change. For example, the morpheme *in* "in" remains at the stage of Type A in the complex word *in-gefeoht* "civil war" (*in* 'in', *gefeoht* 'fight, war'), but reaches the stage of Type B in the case of *in-frod* "very old" (*frod* "old, wise"). It also appears at the stages of Type C (e.g., *in-genga* "invader" (*genga* "goer")) and Type D (e.g., *in-buend* "dweller, inhabitant" (*buend* "inhabitant")).

The distributional features of the four types in the development of a specific morpheme can therefore be a good indicator of the degree of its transition (grammaticalization) from a free word to a prefix. More specifically, if the morpheme in question is more likely to show the semantic pattern of Type C or D rather than that of Type A or B, it can be considered a more prefix-like element, and is therefore placed closer to the right end (prototype of an affix) of the cline in (2). By contrast, there are morphemes that tend to maintain their original meaning (Type A), or that carry a sense of abstraction or intensification (Type B). In terms of morphological character, those morphemes that are more word-like should be placed closer to the left end (prototype of a free word) of the cline. Table 2 presents the distributional features of the four types of semantic change in the development of the OE morphemes used as first parts of complex words with their type frequency.

Table 2. Type frequency in accordance with types of semantic change of the OE prefix-like morphemes[10]

Form	Type A	Type B	Type C	Type D	Total
æfter	11 (52.4%)	2 (5%)	2 (5%)	6(28.6%)	21 (100%)
æt	14 (37.9%)	4 (10.8%)	9 (24.3%)	10(27.1%)	37 (100%)
fram	12 (100%)	0	0	0	12 (100%)
in	44 (39.6%)	5 (4.5%)	29 (26.1%)	33 (29.8%)	111 (100%)
of	8 (9.8%)	7 (8.5%)	47 (57.3%)	20 (24.4%)	82 (100%)
ofer	59 (27.9%)	40 (18.9%)	92 (43.6%)	20 (9.6%)	211 (100%)
Þurh	37 (62.6%)	11 (18.7%)	7 (11.9%)	4 (6.8%)	59 (100%)
under	14 (25.5%)	1 (1.8%)	30 (54.5%)	10 (18.2%)	55 (100%)
up	18 (45%)	10 (25%)	5 (12.5%)	7 (17.5%)	40 (100%)
ut	14 (41.1%)	11 (32.4%)	7 (20.6%)	2 (5.9%)	34 (100%)
wið	13 (30.3%)	8 (18.6%)	8 (18.6%)	14 (32.5%)	43 (100%)

With solely the exception of *fram* which has only Type A, the morphemes have more than one type. The distribution of the four types varies depending on the morphemes. In the cases of the morphemes like the *Þurh* and *up*, Types A and B are more dominant than Types C and D, whereas Types C and D are more common in the cases of the morphemes like *under* and *of*. In terms of the semantic criteria, the morphemes having the dominant distribution of Type A or B are more likely to be seen as word-like elements, while the elements with the dominant distribution of Type C or D are more affix-like.

To use the distribution of the semantic types as a criterion for determining the degree of the grammaticalization of the individual morphemes in a more precise way, we need to acquire an average value in the semantic distribution of each morpheme. For measuring the average of the distributions, I used a number scale (1 to 4) for each semantic type (A to D): value 1 for complex words with type A; value 2 for those with type B; value 3 for those with type C; and value 4 for those with type D. Next, I multiplied the number of words (type frequency) with each type

[10] In my previous study of the OE prefixes (OOO 2012), I also offered the type frequency of OE prefixes. The type frequency of the OE prefix-like elements in Table 2 is slightly different from that of the prefixes in the previous paper because some complex words considered in the study were excluded in this article (e.g., *æfter-rap, fram-siðan, in-standan, of-spræc, ofer-lad, Þurh-gefeoht, under-folgoÞ, ut-hleap,* etc.). The words eliminated here are not founded at all in the corpus of *The Dictionary of Old English Corpus* even though they are listed in Bosworth and Toller's (2010) *Online Anglo-Saxon Dictionary* or the *Nerthus* lexical database.

using the value number assigned to the type, and then calculated the average value of each morpheme; the calculation of the average value of each morpheme can be illustrated in (5) with the morpheme *æt*, as follows:

(5) Calculation of the average value in the semantic distribution of the morpheme *æt*

a. Type frequency of the morpheme *æt*
Type A (14), Type B (4), Type C (9), Type D (10)

b. Multiplication of the type frequency of each semantic type using an assigned number value
Type A (1 x 14 = 14), Type B (2 x 4 = 8), Type C (3 x 9 = 27), Type D (4 x 10 = 40)

c. Average value for measuring the degree of grammaticalization
(14 + 8 + 27 + 40) ÷ type frequency (37) = 2.41

In accordance with the number scale and the degree of grammaticalization, the higher the average value of a morpheme is, the more grammaticalized it has become. Table 3 presents the distribution of the OE morphemes in terms of their average values, and the morphemes can be placed in accordance with their values on the cline from a free word to a prefix (cf. (2)), as shown in (6).

Table 3. Distribution of the OE morphemes in accordance with their average values

æfter	æt	fram	in	of	ofer	Þurh	under	up	ut	wið
2.14	2.41	1	2.45	2.96	2.34	1.62	2.65	2.03	1.91	2.53

(6) The distribution of the OE morphemes on the cline from a free word to a prefix (in accordance with the semantic criterion)

Free word prefix
fram þurh ut up ofer in under of
æfter æt wið
<----------->
1 2 3 4

The different positions of the OE morphemes on the cline in (6) indicate their distinct degrees of transition (grammaticalization) from a free word to a prefix. As the morphemes vary depending on the degree of transition, it is not appropriate to characterize them in the same way with the single term "affixoid" or "semi-affix." The morphological cline (cf. (2)) serves as a more useful tool for classifying and characterizing the OE morphemes undergoing the diachronic development into affixes.

In a consideration of the criterion of type frequency in Table 2, the OE morphemes vary depending on their type frequency; for example, the type frequency of the morpheme *ofer* is highest (211), whereas the element *fram* has the lowest type frequency (12) (see the Appendix). The distribution of the morphemes in accordance with their type frequency is presented in Figure 1.

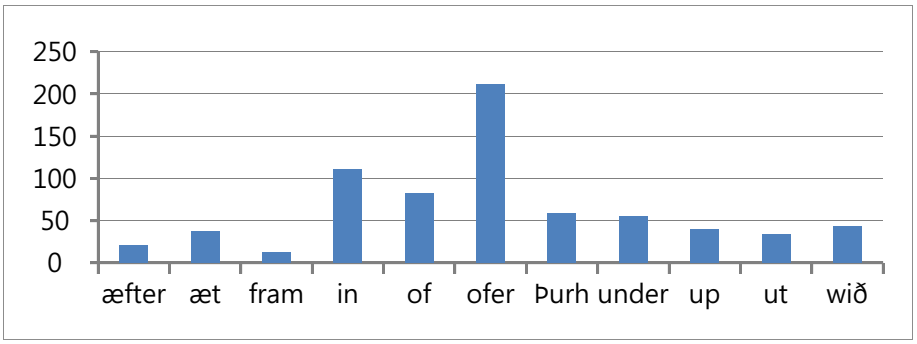

Figure 1. Distribution of the OE prefix-like morphemes in accordance with their type frequency

In accordance with the distribution of type frequency in Figure 1, the following morpheme ranking applies: *ofer* (1rst) > *in* (2nd) > *of* (3rd) > *þurh* (4th) > *under* (5th) > *wiþ* (6th) > *up* (7th) > *æt* (8th) > *ut* (9th) > *æfter* (10th) > *fram* (11th). As discussed in section 2, the type frequency of an affix-like element correlates with the degree of transition from a free word to an affix, so that this ranking can be an indicator of the morphemes' degree of transition: the higher the type frequency of a morpheme is, the more it has become grammaticalized. It can therefore be stated that, in accordance with the type frequency criterion, the morpheme *ofer* is the most affix-like element and needs to be placed on the rightmost side of the cline (cf. (2)), whereas *fram* is the most word-like element positioned at the leftmost end of the cline. The placement of the morphemes on the cline in accordance with the type frequency criterion is shown in (7).

(7) The distribution of the OE prefix-like morphemes on the cline from a free word to a prefix (in accordance with type frequency)

Free word prefix
fram æfter ut up wiþ æt up under þuh of in ofer
<---------->

Potential productivity is the last criterion to be applied to the OE morphemes and is obtained by dividing the *hapax legomena* by the total number of tokens with the element under consideration (Baayen 2008). To first measure the potential productivity of the OE morphemes, we need to obtain the token frequency of each morpheme and count the number of *hapax legomena* for each case of the elements; I used *The Dictionary of Old English Corpus* compiled by the University of Toronto for this purpose.[11] Table 5 presents the token frequency, the numbers of *hapax legomena*, and the potential productivity of the OE morphemes.

Table 4. Potential productivity of the OE prefix-like morphemes

Morphemes	Token frequency	# of hapax legomena	Potential productivity
æfter	270	9	0.0333
æt	1379	12	0.0087
fram	29	5	0.1724
in	1333	43	0.0322
of	2010	22	0.0109
ofer	2630	72	0.0273
þurh	899	32	0.0355
under	2583	3	0.0011
up	394	12	0.0304
ut	315	14	0.0444
wiþ	710	11	0.0154

According to the productivity criterion, the higher the productivity of an element, the more it has become grammaticalized (Bauer 2001, Hay 2003). The OE

[11] The corpus covers the period from 600 to 1150 and contains at least one copy of each surviving OE text. There are 3047 texts (about 3.5 million words) in the corpus, the categories of which include prose, poetry, glosses to Latin texts, and inscriptions. It is the largest Old English text corpus that is available online and can be found at http://www.doe.utoronto.ca.

morphemes can be ranked in terms of their potential productivity as shown in (8), and can be placed on the morphological cline in accordance with this ranking as shown in (9).

(8) Ranking of the OE morphemes in terms of their potential productivity
fram (0.1724) > ut (0.0444) > þurh (0.0355) > æfter (0.0333) > in (0.0322) > up (0.0304) > ofer (0.0273) > wiþ (0.0154) > of (0.0109) > æt (0.0087) > under (0.0011)

(9) The distribution of the OE morphemes on the cline from a free word to a prefix (in accordance with potential productivity)

Free word prefix
under æt of wiþ ofer up in æfter þurh ut fram
<---------->

I have thus far used the three criteria of type frequency, semantic change, and potential productivity to determine the extent of the grammaticalization of the OE morphemes and placed them on the morphological cline from a free word to a prefix in accordance with their rankings (cf. (6), (7) and (9)). The morpheme rankings in accordance with the three criteria are presented in Table 5, as follows:

Table 5. Rankings of the OE prefix-like morphemes in terms of the degree of transition from a free word to a prefix

Morphemes	Potential productivity	Type frequency	Semantic change
in	5	2	3
ofer	7	1	5
of	9	3	1
Þurh	3	4	10
under	11	5	2
ut	2	9	9
up	6	7	8
æt	10	8	4
æfter	4	10	7
wið	8	6	6
fram	1	11	11

According to Table 5, the ranking in terms of type frequency correlates with the ranking by the criterion of semantic change even though the two rankings are not identical; however, the potential productivity ranking is significantly different from the other two rankings.[12] For example, in terms of potential productivity, the morpheme *fram* ranks first (meaning that it is the most grammaticalized element), whereas it ranks 11th in terms of the other two criteria (which means it is the least grammaticalized among the eleven morphemes). As the criterion of potential productivity shows a very different result, it cannot be used together with type frequency and semantics as a criterion for an overall analysis of the OE morphemes. How then can we interpret the different results of the criteria?

As previously discussed in section 3 and from a diachronic perspective, semantic change and frequency are prerequisites for productivity in the development of an affix from a free word (Bauer 2001). Under this assumption, the transition from formations defined by frequency or semantics to formations defined by productivity is gradual, and frequency and productivity are different phenomena with different implications or consequences (Trips 2009). I speculate that the OE morphemes do not reach as far as the stage where productivity comes into play; that is, the OE morphemes are at the stage of the transition where they have been undergoing semantic change, and the number of complex words containing them as their first elements (type frequency) has been increasing, but not up to the stage where their productivity begins to rise.

Based on the type-frequency and semantic types of the morphemes, and the positions of the morphemes on the morphological cline of compounding and derivation (cf. (6) and (7)), the morphemes can be roughly placed on the cline as shown in (10).

(10) The distribution of the OE morphemes on the cline from a free word to a prefix (in accordance with type frequency and semantic change)

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12 When the rankings of the eleven prefixes for the three factors of productivity, type frequency, and semantic change were entered into a Pearson correlation analysis. Productivity and semantic change showed a significant negative correlation ($r = -0.84$, $p = 0.001$), and type frequency and semantic change showed a trend toward a positive correlation ($r= 0.58$, $p = 0.06$). The correlation between the ranking of the prefixes for the factors of productivity and type frequency were not significantly correlated ($r = -0.42$, $p =0.20$). I am very grateful to Prof. Jihyon Kim (Hankuk Univ. of Foreign Studies) for her time and help with the correlation test.

Free word prefix

fram (ut æfter) (up þurh wiþ) æt (under ofer) (of in)
---------->
(*The morphemes enclosed together in a parenthesis can be considered as equal in terms of the degree of transition.)

Considering type frequency and the degree of semantic change, the morpheme *fram* is placed closest to the leftmost end for the prototypical free word, whereas morphemes like *of* and *in* are positioned closest to the rightmost end for a prototypical prefix. The other morphemes can be placed in between the two ends in accordance with their rankings, which are measured with the two criteria.

It is beyond the scope of this paper to obtain the exact ranking of the OE morphemes based on the two criteria. However, it is important to note that the OE morphemes vary in terms of type frequency and the degree of semantic change, which have been considered as significant criteria for determining the morphological status of the borderline cases between a free word and an affix in this paper. I argue that the variant degrees of transition in the development of the OE morphemes can be best displayed on the morphological cline with two poles of prototypical free words and affixes at both sides. In accordance with the degree of transition, the borderline morphemes can be placed midway between the poles of prototyptical free words and prefixes. Intermediate terms like affixoid or semi-affix cannot be used to adequately capture the variant characters of the morphemes.

6. Conclusion

In summation, some morphemes in OE were used both as independent words and as the first parts of complex words. When the morphemes occurred as the first parts of complex words, they differed in meaning from their corresponding free words, even though they remained identical in form. To investigate the morphological character of the borderline morphemes (cf. Table 1), I used the three criteria—type frequency, semantic change, and productivity—that have been applied in previous studies. The results of this study revealed that the OE morphemes vary in terms of

the degree of transition from a free word to a prefix.

To examine in greater detail the extent that the individual morphemes have been developed into prefixes from free words, I evaluated and ranked the morphemes in accordance with the criteria (cf. (6), (7) and (9)). I found a meaningful correlation between the criteria of type frequency and semantic change, but the criterion of productivity does not correlate with the other two (cf. Table 3). Consistent with Bauer's (2001) view that increased type frequency and semantic change are prerequisites for productivity, it is possible to speculate that the OE borderline morphemes did not reach a stage where productivity is a contributive factor toward the acquisition of a prefixal status, but it did reach a stage where type frequency and semantic change act as factors that activate a transition from compounding to prefixation. Transition from a less prefixal toward a more prefixal status can be determined on the basis of the two criteria (type frequency and semantic change) (cf. (10)). In accordance with the degree of transition, the OE morphemes can be placed midway between the two poles of prototypical free words and prefixes.

In conclusion, this study has shown that type frequency and semantic change are valid criteria for the determination of the OE morphemes' morphological status. It has also provided a clear picture of the extent to which the OE borderline morphemes have been developed into prefixes from free words, and where they are positioned on the morphological cline. I argued that a morphological cline is a more adequate and useful tool than an intermediate category for the characterization and classification of OE borderline morphemes, which vary depending on the degree of transition.

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Appendix

Type frequency, token frequency and semantic groups of the eleven OE morphemes
(*Hapax Legomena are marked in bold.)

Form (Type Frequency/ Token Frequency)	Sematic Type A (Token Frequency)	Sematic Type B (Token Frequency)	Sematic Type C (Token Frequency)	Sematic Type D (Token Frequency)
æfter (21/270)	**æfter-boren (1), æfter-eala (1), æfter-singend (1), æfter-spræc (1),** æfter-gild (2), æfter-yldo (2), æfter-cweðan (2), æfter-gengnys (3), æfter-gan (3), æfter-spyrian (10), æfter-sang (15)	**æfter-wearnes (1)** æfter-weard (4)	**æfter-ryne (1), æfter-sprecan (1)**	**æfter-fylging (1) æfter-lean (1)** æfter-hyrigean (3) æfter-folgere (5) æfter-fylligend (36) æfter-fylian (176)
æt (37/1379)	**æt-græpe (1), æt-feohtan (1), æt-gebrengan (1), æt-geniman (1), æt-gongan (1),** æt-arn (2), æt-flowan (3) æt-clifian (4), æt-ferian (6), æt-feallan (11), æt-beon (13), æt-fleon (18), æt-beran (26), æt-foran (457)	**æt-eglan (1)** æt-fele (2) æt-habban (3) æt-fæstan (15)	**æt-bredendlic (1), æt-eom (1), æt-gebicgan (1),** æt-don (2), æt-feng (3), æt-fon (3), æt-gar (5), æt-berstan (33), æt-bredan (75)	**æt-eowigendlice (1), æt-eowedniss (1), æt-ewung (1),** æt-teorian (2), æt-felgan (2), æt-fyligan (3), æt-ecan (5), æt-feolan (13), æt-gædere (184),

				æt-eowian (477)
fram (12/29)	**fram-aweorpan (1)**, **fram-bugan (1),** **fram-siÞ (1)**, **fram-standan (1)** **fram-swengan (1)**, fram-ahyldan (2) fram-weard (2), fram-acyrran (3) fram-adon (3), fram-a-teon (3) fram-gewitan (3), fram-awendan (8)			
in (111/1333)	**in-bend (1)**, **in-flæscness (1)**, **in-gefeoht (1), in-gefolc (1), in-geoting (1), in-geswell (1), in-gewinn (1), in-Þinen (1), in-wæte (1), in-asendan (1)** **in-drifan (1), in-sittende (1),** in-lad (2) in-wund (2), in-beran (2), in-dælan (2) in-geotan (2), in-adl (3), in-coðu (3) in-weard (4), in-stæpes (5), in-blawan (5), in-brengan (5), in-drencan (5), in-gelaðian (5), in-stepe (6), in-cuman (6) in-sendan (7), in-cofa (9), in-færeld (10), in-faran (10), in-here (11), in-ælan (11), in-stæppan (14), in-lædan (17), in-cleofa (22), in-stæpe (22), in-gelædan (24), in-faru (38), in-gangan (53), in-cund (55), in-fær (58), in-gang (104), in-gan (438)	**in-hold (1)** **in-gebed (1)** **in-awritting (1)** in-frod (2) in-ræsan (2)	**in-lende (1), in-cuðlice (1)** **in-bærniss (1), in-cempa (1), in-genga (1), in-gestealdd (1), in-gewitness (1), in-heald** **(1), in-heord (1), in-sæte (1),** **in-swan (1), in-wuneness (1), in-wunung (1), in-bindan (1)** in-cuð (2), in-flede (2), in-hoh (2), in-borh (2), in-lendiscness (2), in-ylfe (2) in-lagian (2), in-settan (2) in-birigan (3), in-orf (5) in-lenda (6), in-byrdling (9) in-cniht (9), in-lendisc (11) in-tinga (82)	**in-foster (1), in-gemynde (1), in-bryrdniss (1), in-buend (1), in-dryhto (1), in-geÞeode (1), in-hiwan (1), in-recels (1), in-spinn (1), in-swogenness (1), in-belgan (1), in-beodan (1), in-hebban (1), in-stihtian (1),** in-gemynd (2), in-sceawere

				(2), in-sigle (2), in-lixan (2), in-byrde (3), in-burh (3), in-lihtend (3), in-setness (3) in-laðian (3), in-dryhten (5), in-segel (5), in-timbrian (7), in-hired (8), in-hirness (8), in-bryrdan (9), infindan (10), in-gehygd (22), in-geÞanc (44), in-lihtan (44)
of (82/2016)	**of-hende (1), of-habban (1), of-sacan (1),** of-healdan (2), of-lecgan (2), of-lician (10), of-sittan (26), of-teon (35)	**of-sceacan (1)** of-swingan (2) of-calen (4) of-Þryscan (4) of-steppan (7) of-lysted (12) of-settan (69)	**of-cumende (1), of-gerad (1), of-langod (1), of-Þinen (1), of-gestignes (1), of-setennes (1), of-talu (1), of-hagian (1), of-neadian (1), of-spyrian (1), of-Þænnan (1), of-tyrfan (1),** of-gangendlic (2), of-gangan (2), of-licgan (2), of-niman (2), of-Þyrsted (3), of-dæle (3),	**of-slegennes (1) of-Þrycednes (1) of-hearmian (1) of-myrðrian (1) of-scotian (1) of-Þecgan (1)** of-earmung

			of-Þencan (3), of-Þyncan (3), of-beatan (4), of-hreosan (4), of-irnan (4), of-unnan (4), of-worpian (4), of-sendan (5), of-standan (5), of-weorpan (5), of-sniðan (6), of-clipian (7), of-feran (7), of-feallan (8), of-gangende (9), of-ridan (10), of-sceamian (10), of-geotan (11), of-gifan (11), of-stician (16), of-sceotan (20), of-stingan (20), of-wundrian (23), of-lætan (25), of-axian (32), of-torfian (44), of-gan (55) of-spring (94), of-slean (1132)	(2) of-blindian (2) of-geslean (2) of-smorian (2) of-Þringan (2) of-cyrf (3) of-linnan (3) of-swelgan (3) of-munan (4) of-earmian (11) of-hreowan (16) of-dræd (23) of-Þryccan (31) of-dune (116)
ofer (211/2630)	**ofer-cæfed (1), ofer-grædig (1), ofer-hyrned (1), ofer-geong (1), ofer-hacele (1), ofer-hleapend (1), ofer-non (1), ofer-slype (1), ofer-stigenness (1), ofer-climban (1), ofer-fleon (1), ofer-ridan (1), ofer-seolfrian (1), ofer-swimman (1),** ofer-eald (2), ofer-flede (2), ofer-froren (2), ofer-brycgian (2), ofer-fæðman (2), ofer-fledan (2), ofer-gægan (2), ofer-gangan (2), ofer-healdan (2), ofer-seglian (2), ofer-sprædan (2), ofer-cyme (3), ofer-genga (3), ofer-feran (3), ofer-gægedness (3), ofer-hlæstan (3), ofer-hleapan (3), ofer-hrefan (3), ofer-rowan (3), ofer-steppan (3), ofer-bliðe (4), ofer-full (4),	**ofer-fætt (1) ofer-heah (1) ofer-hlyde (1) ofer-leof (1) ofer-firr (1) ofer-heortness (1) ofer-hlifung (1) ofer-maðum (1) ofer-mice**	**ofer-ranc (1) ofer-dyre (1) ofer-ferness (1) ofer-gitan (1), ofer-gitness (1), ofer-heafod (1), ofer-holt (1), ofer-hrops (1), ofer-mæcga (1), ofer-mætu (1), ofer-rencu (1), ofer-seam (1), ofer-weorc (1), ofer-wlencu (1), ofer-wundenness (1), ofer-bugan (1), ofer-cyÞan (1), ofer-gapian (1),**	**ofer-wealend (1) ofer-wrigels (1) ofer-writ (1) ofer-ricsian (1) ofer-teldan (1) ofer-trahtnian (1) ofer-wintran (1)** ofer-brecan (4) ofer-scead

	ofer-gyrd (4), ofer-slop (4), ofer-scinan (4), ofer-flowendlice (5), ofer-becumen (5), ofer-flowan (7), ofer-liðan (7), ofer-teon (7), ofer-etol (9), ofer-færeld (9), ofer-flowend (9), ofer-flowness (9), ofer-sawan (9), ofer-brædan (11), ofer-gesett (12), ofer-eaca (12), ofer-æte (18), ofer-hlifan (21), ofer-higian (24), ofer-faran (36), ofer-gan (78), ofer-fyll (86), ofer-fyllan (100)	**lness (1)** **ofer-sceat t (1)** **ofer-scea wigend (1)** **ofer-slæp (1)** **ofer-sme aung (1)** **ofer-spre colness (1)** **ofer-Þry mm (1)** **ofer-yð (1)** **ofer-helm ian (1)** **ofer-libba n (1)** **ofer-seca n (1)** **ofer-waci an (1)** ofer-hlud (2) ofer-sælig (2) ofer-sprec ol (2) ofer-truwa (2) ofer-lihtan (2) ofer-gifre (3) ofer-wist (3) ofer-lufu (4) ofer-seocn	**ofer-gumian (1), ofer-hlyttrian (1), ofer-hygdigian (1), ofer-sendan (1), ofer-slean (1), ofer-stellan (1), ofer-swiðrian (1), ofer-swogan (1), ofer-weaxan (1), ofer-wenian (1), ofer-wigan (1), ofer-wrecan (1), ofer-wyrcan (1),** ofer-wlenced (2), ofer-gemet (2), ofer-geotan (2), ofer-leorness (2), ofer-mete (2), ofer-stealla (2), ofer-tæl (2), ofer-togenness (2), ofer-weder (2), ofer-flitan (2), ofer-giman (2), ofer-gitolian (2), ofer-hire (2), ofer-lædan (2), ofer-stigendlic (3), ofer-hoga (3), ofer-bregdan (3), ofer-feallan (3), ofer-gyldan (3), ofer-seon (3), ofer-sittan (3), ofer-hleoðor (4), ofer-mede (4), ofer-geweorc (4), ofer-hogiend (4), ofer-bidan (4), ofer-don (4), ofer-fylgan (4), ofer-niman (4), ofer-reccan (4), ofer-gitolness (5), ofer-medla (5), ofer-hragan (5), ofer-habban (6), ofer-hiran (6), ofer-hygdig (7),	wian (4) ofer-tredan (4) ofer-cidan (6) ofer-gewrit (8) ofer-leoran (8) ofer-Þeccan (9) ofer-helian (15) ofer-brædel s (16) ofer-stælan (23) ofer-fon (27) ofer-hergia n (44) ofer-wreon (179)

		ess (4) ofer-drync (5) ofer-ild (6) ofer-willan (6) ofer-drunc enness (7) ofer-sceawian (7) ofer-Þearfa (8) ofer-drencan (15) ofer-spræc (18) ofer-sprecan (18) ofer-swiðe (25) ofer-drincan (45)	ofer-hycgan (7), ofer-mæte (8), ofer-drifan (8), ofer-hebban (8), ofer-weorpan (8), ofer-Þeon (9), ofer-gitol (11), ofer-rædan (11), ofer-slege (12), ofer-hirness (16), ofer-feohtan (17), ofer-feng (18), ofer-stige (20), ofer-modness (29), ofer-mettu (31), ofer-geatu (39), ofer-stigan (46), ofer-modig (50), ofer-winnan (62), ofer-hogian (63), ofer-modigness (77), ofer-hygd (82), ofer-cuman (154), ofer-mod (233), ofer-swiðan (346)	
Þurh (59/899)	**Þurh-fere (1), Þurh-ut (1), Þurh-locung (1), Þurh-borian (1), Þurh-brecan (1), Þurh-clænsian (1), Þurh-dufan (1), Þurh-fleon (1), Þurh-fon (1), Þurh-gangan (1), Þurh-hælan (1), Þurh-ræsan (1), Þurh-secan (1), Þurh-stician (1), Þurh-Þrawan (1), Þurh-Þyddan (1),** Þurh-delfan (2), Þurh-irnan (2), Þurh-scriÞan (2), Þurh-seon (2), Þurh-wlitan (2), Þurh-Þyrelian (3), Þurh-wrecan (3), Þurh-etan (5), Þurh-smeagan (5), Þurh-wadan (6), Þurh-sceotan (8), Þurh-stingan (8), Þurh-gan (9), Þurh-geotan (9), Þurh-drifan (10), Þurh-slean (11), Þurh-smugan (11), Þurh-leoran (12), Þurh-feran (17), Þurh-faran (52), Þurh-teon (125)	**Þurh-bitter (1)** **Þurh-hefig (1)** **Þurh-hwit (1)** **Þurh-læred (1)** **Þurh-lað (1)** **Þurh-scyldig (1)** **Þurh-spedig (1)** **Þurh-scine (1)** **Þurh-wund (1)** Þurh-beorht (7)	**Þurh-gleded (1)** **Þurh-wunigendlice (1)** **Þurh-fær (1)** **Þurh-farenness (1)** **Þurh-swiðan (1)** Þurh-wunung (11) Þurh-wunian (526)	**Þurh-blawen (1)** **Þurh-scinendlic (1)** Þurh-dreogan (2) Þurh-læran (2)

		Þurh-wacol (15)		
under (55/2583)	**under-hwitel (1), under-tunge (1), under-don (1), under-flowan (1), under-irnan (1), under-stregdan (1),** under-neoÞan (2), under-holung (2), under-brædan (2), under-etan (2), under-gerefa (3), under-diacon (4), under-lutan (5), under-smugan (8)	under-secan (2)	**under-geoc (1), under-drifenness (1), under-standing (1), under-todal (1), unfer-delfan (1), under-drencan (1), under-gangan (1), under-sceotan (1), under-sittan (1), under-stingan (1), under-weaxan (1),** under-fangenness (2), under-beginnan (2), under-singan (2), under-scyte (4), under-gan (5), under-delf (6), under-hebban (6), under-hlystan (6), under-Þeow (7), under-lecgan (10), under-cyning (11), under-Þeodness (11), under-licgan (13), under-hnigan (30), under-gitan (67), under-Þeodan (312), under-standan (357), under-feng (506), under-fang (576)	**under-wreðung (1) under-beran (1) under-bugan (1) under-ginnan (1) under-Þencan (1)** under-bæcling (9) under-wed (9) under-wreðian (28) under-bæc (60) under-fon (492)
up (40/394)	**up-eard (1), up-færeld (1), up-feax (1), up-godu (1), up-hebbing (1), up-hus (1), up-wæstm (1),** up-flering (3), up-lang (4), up-ende (4), up-riht (5), up-weardes (5), up-rihte (6), up-stigend (7), up-gang (9), up-astigenness (10), up-flor (20), up-weard (36)	**up-ahefedness (1),** up-engel (2), up-hefness (2), up-weg (4), up-cund (8), up-cyme (8),	**up-asprungenness (1) up-gemynd (1)** up-lyft (2) up-lendisc (8) up-gange (29) **up-asprungenness (1) up-gemynd (1)** up-lyft (2) up-lendisc (8) up-gange (29)	**up-aspringness (1) up-heald (1)** up-heafod (2) up-heah (3) up-heofon (7) up-rodor (9) up-hebbe

		up-ahafenness (10), up-ryne (14), up-spring (20), up-stige (112)		(33)
ut (34/315)	**ut-weardes (1), ut-faru (1), ut-garsecg (1), ut-geng (1), ut-healf (1), ut-læs (1),** ut, ut-ryne (6), ut-for (7), ut-scyte (9), ut-fær (12), ut-gang (112)	**ut-gefeoht (1) ut-wæpnedmann (1),** ut-lende (2), ut-gemære (2), ut-land (4), ut-lenda (4), ut-lagian (7), ut-lendisc (8), ut-here (8), ut-lah (18), ut-laga (31)	**ut-fus (1), ut-lad (1), ut-scytling (1),** ut-waru (2), ut-acumen (4), ut-wærc (11), ut-siht (40)	**ut-dræf (1), ut-dræfere (1)**
wiþ (43/710)	**wiþ-flitan (1), wiþ-gan (1), wiþ-gripan (1), wiþ-rædan (1), wiþ-reotan (1),** wiþ-gangan (2), wiþ-lædan (6), wiþ-settan (6), wiþ-habban (7), wiþ-scufan (7), wiþ-sprecan (12), wiþ-fon (27), wiþ-innan (105)	**wiþ-hycgan (1)** wiþ-slean (2) wiþ-hogian (3) wiþ-drifan (4) wiþ-cwedenness (14) wiþ-bregdan (15) wiþ-cweþ	**wiþ-ræde (1),** wiþ-metedness (2), wiþ-blawan (2), wiþ-metenness (9), wiþ-metenlic (11), wiþ-ceosan (11), wiþ-metan (58), wiþ-sacan (309)	**wiþ-æftan (1), wiþ-hindan (1), wiþ-geondan (1), wiþ-scorian (1),** wiþ-neoþan (3), wiþ-heardian (4)

		an (25) wiÞ-secgan (43)		wiÞ-foran (12), **wiÞ-æftan (1),** **wiÞ-hindan (1),** **wiÞ-geondan (1),** **wiÞ-scorian (1),** wiÞ-neoÞan (3), wiÞ-heardian (4), wiÞ-foran (12)

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Received: 2015. 05. 06.
Revised: 2015. 08. 20.
Accepted: 2015. 08. 20.