PRODUCTIVITY OF TYPE IN THE DERIVATIONAL PARADIGM OF OLD ENGLISH STRONG VERBS[1]

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Abstract: *This article aims at assessing the productivity of type of the derivational paradigms of Old English strong verbs, with which it contributes to the field of study of Old English word-formation. As a general conclusion, this analysis supports Hinderling's (1967) and Seebold´s (1970) claim that the strong verb has to be the starting point of any description of word-formation in the Germanic languages. Other conclusions of the analysis include: (i) lexical productivity in Old English is due to affixation more often than compounding, the number of prefixal derivatives being slightly higher than the one of suffixal derivatives; (ii) the evolution from stem-formation to word-formation is in progress in Old English and, as a result, the derivation from variable bases plays an active role in the derivational morphology of the language, which displays around 900 derivatives that alternate with the inflectional forms of the corresponding strong verb.*

Key words: *Word-formation, morphological productivity, prefixation, suffixation, compounding, alternations, Old English.*

1. AIMS AND METHODOLOGY

The aim of this journal article is to contribute to the study of Old English word-formation by assessing the productivity of type of the derivational paradigms of Old English strong verbs. For instance, given a strong verb like bacan 'bake', this research aims at listing the units as well as explaining the relations that hold among the items of the following lexical inventory: *a:bacan* 'to bake', *ascbacen* 'baked on ashes', *bacan* 'to bake', *bæcere* 1 'baker', *bæcering* 'gridiron', *bæcern* 'bakery, bakehouse', *bæcestre* 'baker', *ealdbacen* 'stale', *elebacen* 'cooked in oil', *ge-bæc* 'bakemeats, baking', *heorðbacen* 'baked on the hearth', *ni:wbacen* 'newly baked', *ofenba-cen* 'baked in an oven'.

The review of the relevant literature yields several aspects that deserve some comment. To begin with, strong verbs constitute the starting point of Germanic, thus Old English, deriva-tion (Bammesberger, 1965; Hinderling, 1967; Seebold, 1970; Bammesberger, 1992; Kastovsky, 1992). Lexical derivation in Old English, which involves all major lexical categories, is partly productive and transparent (Kastovsky, 1992; Martín Arista, 2005; Martín Arista, 2010b) and partly non-productive and opaque (Kastovsky, 1968; Kastovsky, 1992; Lass, 1994; Martín Arista, 2008; Martín Arista, 2010a; Martín Arista, 2010b; Martín Arista, 2010c). As a consequence, the derivational paradigm will show productive and non-productive patterns, as well as transparent and opaque relationships.

In a structural-functional framework (Martín Arista, 2009), formal relations among bases and derivatives are motivated and restricted. On the phonological side, *i*-mutation is the phonologi-cal motivation of Kastovsky´s (1968) alternations. On the morphological side, umlaut represents the morphological basis of alternations and therefore graded forms constitute stems around which the derivational paradigm revolves. From the point of view of meaning, lexical relatedness

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requires not only formal resemblance but also that the two related lexemes share meaning components. Turning to purely morphological questions, Old English derivation is partly stem-based and partly word-based (Kastovsky, 1986; Kastovsky, 1989; Kastovsky, 1990; Kastovsky, 2005; Kastovsky, 2006) and therefore derivational paradigms show stem-derivatives along with word-derivatives.

Two terminological remarks are in order at this point. Firstly, I draw on Pounder (2000: 82) on the concept of derivational paradigm: *a set of paradigmatic relations between word-formations sharing a lexemic root.* Pounder distinguishes between the paradigm as a morphological structure, consisting of a set of paths between a base and the operations that produce the derivatives of a given base, and the lexical paradigm, which constitutes a structured pattern of instructions for operations on stems. The morphological paradigm is valid for a whole lexical class, such as nouns, or a subclass like deverbal adjectives. The lexical paradigm is the concrete realization of the abstract morphological paradigm, or the individual paradigm of a member of a lexical class, such as, for instance, the paradigm of the strong verb *gan* 'to go'. Given this distinciton between the morphological and the lexical paradigm, this research focuses on the former. On the application of the notion of derivational paradigm to Old English word-formation and lexical layers, I derive inspiration from Martín Arista (fc.-d).

Concerning the morphological processes that relate a basic form to all its derivatives, I adopt the view that the difference between affixation (including prefixation and suffixation) and compounding lies in the bound vs. free units that partake in the processes. On zero derivation, I follow Martín Arista (fc.-a, fc.-b, fc.-c) as regards the typology of zero derivation processes in the word-formation of Old English: (i) zero derivation with explicit inflectional morphemes and without explicit derivational morphemes, as in *ri:dan* 'to ride' > *ri:da* 'rider'; (ii) zero derivation without explicit or implicit morphemes, either inflectional or derivational, as in *bi:dan* 'to delay' > *bi:d* 'delay'; (iii) zero derivation without inflectional or derivational morphemes but displaying ablaut, as in *dri:fan* 'to drive' > *dra:f* 'action of driving'; and (iv) zero derivation with ablaut and formatives that can no longer be considered productive affixes, such as *-m* in *fle:on* 'to fly' > *fle:am* 'flight'.

The research data have been retrieved form the lexical database of Old English *Nerthus,* which is primarily based on Clark Hall´s *A Concise Anglo-Saxon Dictionary* (including Supplement) and, secondarily, on Bosworth and Toller´s *An Anglo-Saxon Dictionary* (and Supplement), Sweet´s *The Student´s Dictionary of Anglo-Saxon* and the letters A-F of *The Dictionary of Old English* (Healey, 2003).

Considering the theoretical and empirical aspects just reviewed, I have devised a methodology that consists of the following steps: (i) the retrieval of all records of strong verbs from *Nerthus;* (ii) the identification of all inflectional forms of strong verbs relevant for derivational morphology; (iii) the isolation of basic strong verbs; (iv) the codification of searches into the database so as to account for all stems with its possible variants; (v) the compilation of derivational paradigms; and (vi) the analysis of derivational processes taking place in each derivational paradigm. The most significant decision that underlies the methodological steps I have just described affects the role that strong verbs play in Old English lexical derivation. Strong verbs constitute the starting point (but not the only base) of Germanic derivation. Therefore I have opted for a compromise solution that consists of analysing the derivational paradigm of strong verbs, but consider all lexical categories in the recursive and non-recursive derivation and compounding that give rise to the derivational paradigm. That is, all the members of some derivational paradigms are the result of one derivational step in a gradual or stepwise process of derivation, as is the case with the following derivatives of the strong verb *be:atan* 'to 'beat': *gebe:at* 'scourge, beating', *be:atere* 'beater, boxer', *a:be:atan* 'to beat, strike, break to pieces, make to fall', *to:be:atan* 'to beat severely, des-

troy by beating', *ofbe:atan* 'to beat to death, kill', *ungebe:aten* 'unbeaten, unwrought'. However, in most paradigms it is necessary to admit two or more steps in some derivational processes, as in the derivational paradigm of the verb *beran (bær, bæ:ron, boren)* 'to bear', which, along with some non-recursive formations from the infinitive (such as *berian* 'to make clear', *a:beran* 'to bear carry', *forðberan* 'to bring forth' and *oðberan* 'to bear away'), displays other recursive formations, as can be seen in Figure 1. Notice that of the bases resulting from non-recursive derivation in Figure 1, that is, *bæ:re, boren, byrð, byrd, bearn, beorn, burð* and *berende,* the bases *byrð, byrd, bearn, beorn, burð* and *berende* cannot be directly related to the graded forms *bær, bæ:ron* and *boren.*
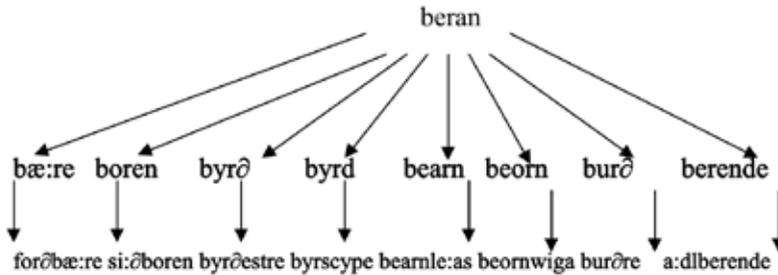

Figure 1. Recursive and non-recursive derivation in the paradigm of beran 'to bear'.

2. ANALYSIS

In this research, 29, 937 headwords beginning with the letters A-W have been analysed. 4,853 non-basic (morphologically derived) predicates (types) have been identified, which can be broken down by category as follows: 2,639 nouns, 793 adjectives, 329 weak verbs and 1,092 strong verbs. The total of strong verbs dealt with in this research is 1,499, out of which 407 correspond to basic (morphologically underived) strong verbs. The verbs at stake can be broken down by morphological class as follows in (1):

(1)
a. Class I: *bi:dan* 'to stay', *bi:tan* 'to bite', *ci:fan* 'to quarrel', *ci:nan* 'to gape', *cli:fan* 'to cleave', *cwi:nan* 'to waste', *dri:fan* 'to 'drive', *dri:tan* 'cacare', *dwi:nan* 'to waste away', *fi:gan* 'to be or become an enemy', *fli:tan* 'to strive', *gi:nan 1* 'to yawn', *glæ:dan* 'to cause to slip', *gli:dan* 'to 'glide', *gni:dan* 'to rub', *gri:pan* 'to seek', *gri:san* 'to shudder', *hli:dan* 'to come forth', *hli:fan*, *hli:gan* 'to attribute', *hni:gan* 'to bow', *hni:tan* 'to thrust', *hri:nan* 'to touch', *hwi:nan* 'to hiss', *le:on* 'to lend', *li:ðan 1* 'to go to', *li:ðan 2* 'to be bereft of', *li:ðan 4* 'to arrive', *li:fan 4* 'to remain', *mi:ðan* 'to hide', *mi:gan* 'to make water', *ni:pan* 'to grow dark', *ri:dan 1* 'to ride', *ri:dan 2* 'to seize', *ri:san 1* 'to 'rise', *ri:san 2* 'to seize', *sci:nan 1* 'to shine', *sci:nan 2* 'to shine upon', *sci:tan* 'to flourish', *scri:ðan* 'to go', *scri:ban* 'shrive', *se:on 2* 'to strain', *si:can 1* 'to sigh', *si:gan 1* 'to sink', *sli:ðan* 'to injure', *sli:dan* 'to slide', *sli:fan 1* 'to slive', *sli:pan* 'to slip', *sli:tan* 'to slit', *smi:tan* 'to smear', *sni:ðan* 'to cut', *sni:can* 'to sneak along', *spi:wan* 'to spit', *sti:gan* 'to move', *stri:can* 'to stroke', *stri:dan* 'to stride', *swi:can* 'to wander', *swi:fan* 'to revolve', *te:on 2* 'to accuse', *ði:nan* 'to grow moist', *ðwi:tan* 'to cut', *ðwi:nan* 'to decrease', *wi:can* 'to yield', *wi:gan* 'to make war', *wi:tan* 'to guard', *wli:tan* 'to gaze', *wre:on* 'to cover', *wri:tan* 'to write'.

b. Class II: *be:dan* 'to command', *be:odan* 'to command', *bre:oðan* 'to decay', *bre:otan* 'to break in pieces', *bre:owan* 'to brew', *bru:can* 'to 'brook', *ce:osan* 'to choose', *ce:owan* 'to chew', *cle:ofan* 'to cleave', *cre:opan* 'to creep', *cru:dan* 'to press', *dre:ogan* 'to do',

dre:opan 'to drop', *dre:osan* 'to fall', *du:fan 1* 'to dive', *du:fan 2* 'to sink', *fle:ogan* 'to fly', *fle:on* 'to flee', *fle:otan* 'to float', *fne:osan* 'to sneeze', *fre:osan* 'to freeze', *ge:atan* 'to say 'yea'', *ge:opan* 'to take in', *ge:otan 1* 'to pour', *gre:osan* 'to frighten', *gre:otan* 'to cry', *hle:otan* 'to cast lots', *hre:oðan* 'to adorn', *hre:odan* 'to adorn', *hre:osan* 'to fall', *hre:owan* 'to affect one with regret', *hru:tan* 'to make a noise', *le:odan* 'to spring up', *le:ogan* 'to lie', *lu:can 1* 'to lock', *lu:can 2* 'pluck out', *lu:tan 1* 'to bend', *lu:tan 2* 'to lay down', *ne:opan* 'to overwhelm', *ne:osan* 'to search out', *ne:otan* 'to use', *re:ocan 1* 'to emit vapour', *re:odan* 'to redden', *re:ofan* 'to break', *re:osan* 'to fall', *sce:otan* 'to shoot', *scu:dan* 'to run', *scu:fan* 'to shove', *se:can 1*, *se:ocan 1* 'to search for', *se:oðan* 'seethe', *sme:ocan* 'to smoke', *smu:gan* 'to creep', *sne:owan* 'to hasten', *spru:tan* 'to sprout', *stru:dan* 'to ravage', *su:can* 'to suck', *su:gan* 'to suck', *su:pan* 'to sip', *te:on 1* 'to pull', *∂re:otan* 'to vex'.

c. Class III: *belgan* 'to be or become angry', *beorcan* 'to bark', *beorgan 1* 'to save', *beorgan 2* 'to taste', *berstan* 'to break', *biernan* 'to burn', *bindan* 'to bind', *blinnan* 'to cease', *bre:dan 1* 'to produce', *bre:dan 2* 'to move quickly', *bregdan 1* 'to shake', *bregdan 2* 'to scheme', *bringan* 'to bring', *brinnan* 'to burn', *ceorfan* 'to cut', *ceorran1* 'to creak', *climban* 'to climb', *clingan* 'to stick together', *crimman* 'to cram', *crincan* 'to yield', *cringan* 'to die', *delfan* 'to delve', *deorfan* 'to labour', *fe:olan* 'to cleave', *feohtan 1* 'to fight', *feohtan 2* 'to gain by fighting', *findan* 'to find', *frignan* 'to inquire', *gieldan* 'to yield', *giellan* 'to yell', *gielpan* 'to boas', *ginnan* 'to begin', *grimman* 'to rage', *grindan* 'grind', *gringan* 'to sink down', *gyrran* 'to sound', *helpan* 'to help', *hlimman* 'to sound, resound, roar, rage', *hrimpan* 'to wrinkle', *hrindan* 'to thrust', *hweorfan* 'to turn', *iernan 1* 'to run', *iernan 2* 'to get to', *limpan* 'to happen', *linnan* 'to cease', *melcan* 'to milk', *meltan 1* 'to melt', *rinnan 1* 'to run', *rinnan 2* 'to blend', *scelfan* 'to shake', *sceorfan 1* 'to scarify', *sceorfan 2* 'to scrape', *sceorpan* 'to gnaw', *sciellan*, *scrimman* 'to shrink', *scrincan* 'to contract', *scringan* 'to shrivel up', *seorðan* 'to lie with', *sincan 1* 'to sink', *singan* 'to sing', *sinnan* 'to meditate upon', *slincan* 'to slink', *slingan* 'to worm', *smeortan* 'to smart', *sneorcan* 'to dry up', *spinnan* 'to spin', *springan* 'to jump', *sprintan* 'to emit', *spurnan* 'to skick', *steorfan* 'to die', *stincan 1* 'to stink', *stincan 2* 'to smell', *stingan 1* 'to sting', *swellan* 'to swell', *sweltan* 'to die', *sweorcan* 'to grow dark', *sweorfan* 'to file or grind away', *swimman* 'to swim', *swincan* 'to labour', *swindan* 'to vanish', *swingan 1* 'to beat', *teldan* 'to spread a covering', *tingan* 'to press against', *tringan* 'to press', *∂indan* 'to swell', *∂ringan* 'to crowd', *∂rintan* 'to swell', *weorðan* 'to become', *windan* 'to wind', *winnan 1* 'to labour', *winnan 2* 'to conquer', *wringan* 'to wring', *wurpan* 'to throw'.

d. Class IV: *beran* 'to bear', *brecan* 'to break, *cuman 1* 'to come', *cuman 2* 'to come together', *cwelan* 'to die', *dwelan* 'to be lead into error', *gelan* 'to pour', *helan* 'to conceal', *hlecan* 'to cohere', *hwelan* 'to roar', *neoman* 'to take', *niman 1* 'to take', *niman 2* 'grasp', *scieran* 'to cleave', *stelan* 'to steal', *stri:man* 'to resist', *striman*, *swelan* 'to burn', *teran* 'to tear', *∂weran* 'to stir', *∂werian* 'to soften'.

e. Class V: *biddan 1* 'to ask', *biddan 2* 'to beg', *cnedan* 'to knead', *cweðan* 'to say', *drepan* 'to strike', *etan 1* 'to eat', *etan 2* 'to eat together', *fe:on* 'to rejoice', *fne:san 1* 'to pant', *fretan* 'to devour', *giefan* 'to give', *gietan* 'to get', *lesan* 'to collect', *licgan* 'to lie', *metan* 'to measure', *nesan* 'to escape from', *ple:on* 'to expose to danger', *repan* 'to reap', *screpan* 'to scrape', *se:on 1* 'to see, *se:on 3* 'to provide', *sittan 1* 'to sit', *sittan 2* 'to finish', *sprecan 1* 'to speak', *sprecan 2* 'to agree', *stecan*, *swefan* 'to sleep', *tredan* 'to tread', *wefan* 'to weave', *wegan 1* 'to carry', *wegan 2* 'to fight', *wrecan* 'to drive'.

f. Class VI: *bacan* 'to bake', *calan* 'to grow cool', *dragan* 'to drag', *faran 1* 'to set forth', *faran 2* 'to die', *fle:an* 'to flay', *galan* 'to sing', *gnagan* 'to gnaw', *grafan* 'to dig', *hladan*

'to lade', *hliehhan* 'to laugh', *sacan* 'to struggle', *scacan* 'to shake off', *scafan* 'to shave', *sceacan* 'to shake', *scieppan* 'to create, *sle:an 1* 'to strike', *sle:an 2* 'to strike down', *spanan* 'to draw on', *stæppan* 'to step', *standan* 'to stand', *swerian* 'to swear', *∂we:an* 'to wash', *wacan* 'to awake', *wadan* 'to wade', *wascan* 'to wash'.

g. Class VII: *bannan* 'to summon', *be:atan* 'to beat', *bla:wan 1* 'to blow', *bla:wan 2* 'to kindle', *blandan* 'to blend', *blo:tan* 'to sacrifice', *blo:wan 1* 'to blow', *bu:an* 'to dwell', *bu:gan 1* 'to bow', *cla:wan* 'to claw', *cna:wan* 'to know', *cra:wan* 'to crow', *de:agan* 'to dye', *e:acan* 'to increase', *e:adan* 'to give', *fealdan* 'to fold', *feallan* 'to fall', *flo:wan 1* 'to flow', *flo:wan 2* 'to overflow', *fo:n* 'to take', *gangan 1* 'to go', *gangan 2* 'to observe', *glo:wan* 'to glow', *gro:wan* 'to grow', *ha:tan* 'to command', *he:awan* 'to hew', *he:ofan* 'to lament', *healdan* 'to hold', *hle:apan* 'to 'leap', *hlo:wan* 'to low', *ho:n 1* 'to suspend', *hro:pan* 'to shout', *hwa:tan*, *hwo:pan* 'to threaten', *hwo:san* 'to cough', *la:can* 'to move up and down', *lacan* 'to leap', *læ:tan* 'to allow', *ma:wan* 'to mow', *sæ:wan* 'to sow', *sce:adan* 'to divide', *sealtan* 'to salt', *sealtan 2* 'to salt', *spannan* 'to join', *spo:wan* 'to succeed', *stealdan* 'to possess', *swa:fan*, *swa:pan* 'to sweep', *swo:gan* 'to sound', *∂ra:wan* 'to turn', *wa:wan* 'to blow (of wind)', *wæ:pan* 'to weep', *we:pan* 'to weep', *we:alcan* 'to move round', *wealdan* 'to rule', *weallan* 'to be agitated', *wealtan*, *weaxan 1* 'to wax', *wro:tan* 'to root up'.

It must be borne in mind that I keep the numbered headwords filed by *Nerthus* to maximize morphologically relevant contrasts among predicates. As Martín Arista (2010c) puts it, different numbers following the same headword account for different category, morphological feature, morphological class or alternative spellings. For instance, *a:bu:tan 1* 'on, about, around, on the outside, round about' is an adposition and *a:bu:tan 2* 'about, nearly', an adverb. Similarly, *andfenge 1* 'acceptable, agreeable, approved, fit, suitable' belongs to the class of the adjective, whereas *andfenge 2* 'undertaker, helper, receptacle' belongs to the category noun. As for morphological class, *bese:on 1* 'to see, look, look round', for example, is a Class V strong verb, whereas *bese:on 2* 'to suffuse' qualifies as a Class I strong verb. In a similar vein, *byr∂re 1* 'bearer, supporter' is a masculine noun whereas *byr∂re 2* 'child-bearer, mother' is feminine. Regarding alternative spellings, two or more predicates are followed by a different number if they have different spelling variants, as is the case with *fo:dder 1* 'fodder, food; darnel, tares' with variants *fo:ddor 1*, *fo:ddur 1*, *fo:ter*, and *fo:dor;fo:dder 2* 'case, sheath' with variants *fo:ddor 2* and *fo:ddur 2*; and *fo:dder 3* 'hatchet', with variants *fo:ddor 3* and *fo:ddur 3*.

Out of the 407 basic strong verbs, 304 derivational paradigms have been grouped. The figure of paradigms is lower than the one of basic strong verbs (304 vs. 407) for two reasons. Firstly, some strong verbs do not provide any derivatives at all, as is the case with the ones given in (2).

(2)
bellan 'to bellow', *bre:atan*, *bregdan 2* 'to scheme', *briengan* 'to bring', *cimban*, *cinnan* 'to gape', *cna:wan 2* 'to ascertain', *cne:odan*, *cni:dan* 'to beat', *cre:odan*, *cru:dan* 'to press', *cwincan*, *cwolstan* 'to swallow', *delan*, *felan*, *fetan* 'to fall', *fleohtan*, *fne:san 2* 'to sneeze', *fnesan*, *fricgan 1* 'to inquire into,' *fricgan 2* 'to learn', *ge:atan* 'to say 'yea'', *ge:opan* 'to take in', *gelan* 'to pour', *gre:otan* 'to cry', *gringan*, *hlecan* 'to cohere', *hli:fan*, *hre:o∂an*, *hre:ran* 'to move', *hrindan* 'to thrust', *hru:tan* 'to make a noise', *hwa:tan*, *hwi:nan* 'to hiss', *hwo:pan*, *lacan* 'to move up and down', *li:∂an 4* 'to arrive', *ne:opan* 'to engulf', *nesan* 'to escape from', *re:ofan* 'to break', *recan* 'to bring', *repan* 'to reap', *scelfan* 'to totter', *sceorpan* 'to scrape', *sci:tan* 'to shoot (of a plant)', *sciellan*, *scri:ban* 'to shrive', *scrimman* 'to shrink', *scringan* 'to 'shrink', *scu:dan* 'to run', *sealtan 2*, *seor∂an* 'to lie with', *sinnan* 'to meditate upon', *sli:fan* 'to slive', *sli:pan*, *slingan* 'to worm', *sne:owan* 'to hasten', *sneorcan* 'to shrivel', *spa:tan*, *sprintan*

'to emit', *spru:tan*, *stecan*, *stenan* 'to roar', *striman*, *swa:fan*, *swi:ðan* 'to strengthen', *tingan* 'to press against', *tringan* 'to press', *ðwerian* 'to stir', *wealtan*, *wri:ðan 2* 'to grow'.

Secondly, the inventory of derivational paradigms is more restricted than that of strong verbs because the form and meaning of some pairs of strong verbs overlap to such an extent that a single derivational paradigm has been identified, given the impossibility of assigning a certain derivative to one of the derivational paradigms of the pair. This is the case with the pairs of verbs in (3):

(3)
a. *biddan 1* 'to ask, entreat, pray, beseech; order, command, require' and *(ge)biddan 2* 'to beg, ask, pray; worship';

b. *bla:wan 1* 'to 'blow', breathe; be blown, sound; inflate' and *bla:wan 2* 'to kindle, inflame; spit';

c. *cuman 1* 'to come, approach, get to, attain' and *cuman 2* 'to come together, arrive, assemble';

d. *du:fan 1* 'to duck, dive' and *(ge)du:fan 2* 'to sink, be drowned';

e. *etan 1* 'to eat; devour, consume; feed; provision oneself' and *(ge)etan 2* 'to eat together';

f. *feohtan 1* 'to fight, combat, strive' and *(ge)feohtan 2* 'to gain by fighting';

g. *flo:wan 1* 'to 'flow', stream, issue; become liquid, melt; abound' and *flo:wan 2* 'to overflow';

h. *iernan 1* 'to run, move rapidly, hasten, flow, spread; pursue; cause to move rapidly, turn, grind' and *iernan 2* 'to get to, attain, meet with; coagulate; grow up';

i. *lu:tan 1* 'to bend, stoop, decline; bow, make obeisance, fall down; entreat' and *lu:tan 2* 'to lay down';

j. *niman 1* 'to take, assume, undertake, accept, receive, get, obtain; hold, seize; adopt, appropiate; bear, carry, bring; betake oneself, go; contain; experience; suffer, tolerate; give' and *niman 2* 'grasp, comprehend; take to wife';

k. *ri:dan 1* 'to ride; move about, swing, rock, ride (at anchor); float, sail; chafe (of fetters)' and *ri:dan 2* 'to ride over, occupy (a country), seize; ride up to';

l. *sci:nan 1* 'to shine', flash; be resplendent' and *sci:nan 2* 'to shine upon, illuminate';

m. *sittan 1* 'to sit, sit down, recline, rest; remain, continue, be situated, settle, encamp, dwell, occupy, possess; abide, reside; lie in wait, besiege, invest; preside over; perch, roost' and *sittan 2* 'to sit out, finish, assail, attack; press on, weigh down';

n. *sle:an 1* 'to strike, beat, stamp, coin (money), forge (weapons); throw, cast; sting (snake); pitch (tent); strike across (country), dash, break, rush, come quickly; slay, kill' and *sle:an 2* 'to strike down; play (harp); gain by fighting, win, conquer';

o. *sprecan 1* 'to speak, say, utter, make a speech; converse, converse with; declare, tell of' and *sprecan 2* 'to agree, lay claim to';

p. *stincan 1* 'to emit a smell, 'stink', exhale; sniff; rise (of dust)' and *stincan 2* 'to smell; to have the sense of smell';

q. *wegan 1* 'to carry; support, sustain, bear, bring; move; wear; weigh, measure' and *wegan 2* 'to fight';

r. *winnan 1* 'to labour, toil, trouble oneself; resist, oppose, contradict; fight, strive, struggle, rage' and *winnan 2* 'conquer, gain; endure, bear, suffer; be ill'.

Not all the verbs that have two numbered headwords in *Nerthus*, i.e. predicates between which a morphological contrast of gender, inflection or class holds, overlap. This is the case with *faran 1* 'to set forth, go, travel, wander, proceed; be, happen, exist, act; fare, get on, undergo, suffer' and *faran 2* 'to die; attack, overcome, capture, obtain' which are completely different verbs with different meanings and consequently, give rise to two different derivational paradigms. Strong verbs inflected with weak forms, as is the case with *du:gan*, *hebban*, *ðicgan*, *le:an 2*, *murnan*, *ræ:dan*, *slæ:pan*, *slu:pan*, *stepan*, *stregdan*, *wri:ðan 1* and *wri:ðan 2* have been disregarded.

The 407 basic strong verbs have given rise to 304 derivational paradigms (34 for B, 23 for C, 15 for D, 3 for E, 21 for F, 24 for G, 27 for H, 1 for I, 15 for L, 6 for M, 5 for N, 1 for P, 9 for R, 78 for S, 5 for T, 13 for Ð and 23 for W), around which 4,853 non-basic predicates have been grouped. This makes an average of *ca*. 16 derivatives and compounds per paradigm. This distribution, as was predictable, is not uniform across paradigms. To give just two examples, the paradigm of *beran* consists of 160 non-basic predicates, whereas the one of *cnedan* displays 1 only. 1,092 non-basic strong verbs that been identified in the paradigms of other strong verbs, from which the former derive. The tendency has been observed throughout this analysis that strong verbs as derivatives from other strong verbs usually come directly from the infinitive form.

All in all, the four inflective forms of the verb (infinitive, preterite singular, preterite plural and past participle) constitute bases of derivation but the most productive forms are the infinitive and the past participle, the preterite singular being the least productive: there have appeared 2,786 derivatives from the infinitive, 710 from the past participle, 235 from the preterite plural and 213 from the preterite singular. Nevertheless, in some cases it is the preterite singular form of the verb that provides the great majority of derivatives, as is the case of the verb *bli:can* 'to shine'. These figures are consistent with the evolution from stem-formation to word-formation. Indeed, the infinitive has twice as many derivatives than the preterite singular, the preterite plural and the past participle together. On the other hand, the derivatives of the preterite together with those of the past participle outnumber the ones of the present, which suggests that, although the typological change from stem-formation to word-formation is well under way, it is still in progress. In this respect, I concur with González Torres (2009), who has approached this question from the perspective of the existence of multiple bases of derivation and has reached the conclusion that the evolution from stem-formation to word-formation is being completed by the end of the Old English period. As is generally accepted in the field of historical linguistics, variation in the synchrony represents change in the diachrony.

Considering the graded forms of the paradigms that are used as bases, there are 170 basic strong verbs with one stem used as base of derivation:

(4)
be:atan 'to beat', *berstan* 'to break', *bindan 'to bind'*, *bla:wan 1* 'to 'blow', breathe', *bla:wan 2* 'to kindle', *blinnan* 'to cease', *bre:atan* , *bre:oðan* 'to decay, waste away', *bre:otan* 'to break in pieces', *bre:owan* 'to brew', *bregdan 1* 'to shake', *bregdan 2* 'to scheme', *bringan* 'to bring', *brinnan* 'to burn', *cinnan* 'to gape', *climban 'to climb'*, *clingan* 'to stick together', *crimman* 'to cram', *crincan* 'to yield', *cringan* 'to die', *cwincan, de:agan 'to dye'*, *drincan* 'to drink', *e:acan* 'to increase', *e:adan* 'to give', *findan* 'to find', *frignan* 'to inquire', *galan* 'to sing', *gangan 2* 'to observe', *giefan giefan* 'to give', *giellan* 'to yell', *gielpan* 'to boas', *gietan 'to get'*, *ginnan* 'to begin', *glæ:dan* 'to cause to slip', *glo:wan* 'to glow', *gnagan 'to gnaw'*, *gni:dan* 'to rub', *grafan* 'to dig', *gre:osan* 'to frighten', *gri:san* 'to shudder', *grimman* 'to rage', *grindan* 'grind', *gro:wan* 'to grow', *gyrran* 'to sound', *ha:tan* 'to command', *he:awan* 'to hew', *he:ofan* 'to lament', *healdan* 'to hold', *hebban* 'to heave', *helan* 'to conceal', *helpan* 'to help', *hladan* 'to lade', *hle:apan* 'to leap', *hli:gan* 'to attribute', *hliehhan* 'to laugh', *hlimman* 'to sound, resound, roar, rage', *hlo:wan* 'to low', *hre:osan* 'to fall', *hre:owan* 'to affect one with regret*, *hrimpan* 'to wrinkle', *hro:pan* 'to shout', *hwelan* 'to roar', *hwo:san* 'to cough', *iernan 1/ 2* 'to run', 'to get to', *la:can* 'to move up and down', *læ:tan* 'to allow', *le:on* 'to lend', *lesan* 'to collect', *li:ðan 2* 'to be bereft of', *licgan* 'to lie', *limpan* 'to happen, occur, exist', *linnan* 'to cease', *lu:can 2* 'pluck out', *lu:tan 1* 'to bend', *lu:tan 2* 'to lay down', *ma:wan* 'to mow', *melcan* 'to milk', *meltan 1* 'to melt', *mi:gan* 'to make water', *ne:osan* 'to search out', *neoman* 'to take, assume, undertake', *ni:pan* 'to grow dark', *niman 1/ 2* 'to take, assume, undertake' 'grasp, comprehend', *ple:on* 'to expose to danger', *re:ocan 1* 'to emit vapour', *re:osan* 'to fall', *ri:san 2* 'to seize', *rinnan 1* 'to run', *rinnan 2* 'to blend', *ro:wan* 'to row', *sa:wan* 'to sow', *sacan* 'to struggle', *sæ:wan* 'to sow', *scacan* 'to escape', *scafan* 'to shave', *sce:adan* 'to divide', *sceacan* 'to shake', *sceorfan 1* 'to scarify', *sceorfan 2* 'to scrape', *sci:nan 1/ 2* 'to shine', *scieppan* 'to shape', *screpan* 'to scrape', *scrincan* 'to shrink', *se:can 1, se:ocan 1* 'to search for', *se:oðan* 'seethe', *se:on 2* 'to strain', *sealtan* 'to salt', *sincan 1* 'to sink', *singan* 'to sing', *slincan* 'to slink', *sme:ocan* 'to emit, smoke', *smeortan* 'to smart', *sni:ðan* 'to cut', *sni:can* 'to sneak along', *spanan* 'to draw on', *spannan* 'to join', *spinnan* 'to spin', *spo:wan* 'to succeed', *springan* 'to jump', *standan* 'to stand', *stealdan* 'to possess', *stelan* 'to steal', *stincan 1* 'to stink', *stincan 2* 'to smell', *stingan 1* 'to sting', *stri:can* 'to pass lightly over the surface, stroke', *stri:man* 'to resist, oppose', *swa:pan* 'to sweep', *swefan* 'to sleep', *swelgan* 'to swallow', *swellan* 'to swell', *sweltan* 'to die', *sweorfan* 'to file or grind away', *swerian* 'to swear', *swi:fan* 'to revolve', *swimman* 'to swim', *swincan* 'to labour', *swindan* 'to vanish', *swingan 1* 'to beat', *swo:gan* 'to sound', *te:on 1* 'to pull', *teldan* 'to spread a covering', *teran* 'to tear', *tredan* 'to tread', *ðe:on 1* 'to thrive', *ðerscan* 'to thresh', *ði:nan* 'to grow moist', *ðindan* 'to swell', *ðra:wan* 'to turn, twist, curl', *ðringan* 'to crowd', *ðrintan* 'to swell', *ðwe:an* 'to wash', *ðweran* 'to stir', *ðwi:nan* 'to decrease', *wa:wan* 'to blow (of wind)', *wacan* 'to awake', *wadan* 'to wade', *wæ:pan* 'to weep', *wascan* 'to wash', *wealcan* 'to move round', *wealdan* 'to rule', *weallan* 'to be agitated', *weaxan 1* 'to wax', *weorðan* 'to become', *wi:can* 'to yield', *windan* 'to wind', *winnan 1* 'to labour', *winnan 2* 'to conquer', *wli:tan* 'to gaze', *wringan* 'to wring', *wro:tan* 'to root up'

146 basic strong verbs with two stems used as derivative bases have shown up:

(5)
bacan 'to bake', *bannan* 'to summon', *be:odan* 'to command', *belgan 'to be or become angry'*, *bellan* 'to bellow', *beorcan* 'to bark', *beorgan 1* 'to save', *beorgan 2* 'to taste', *beran* 'to bear', *bi:dan* 'to stay', *bi:tan* 'to bite', *biddan 1* 'to ask', *biddan 2* 'to beg', *biernan* 'to burn', *blandan* 'to blend', *bli:can* 'to glitter, shine', *blo:tan* 'to sacrifice, kill for sacrifice', *blo:wan 1* 'to blow', *bre:dan 1* 'to produce', *bre:dan 2* 'to move quickly', *brecan* 'to break', *briengan 'to bring'*, *calan* 'to grow cool', *ce:owan* 'to chew', *ceorfan* 'to cut', *ceorran1* 'to creak', *ci:fan 'to quarrel'*, *ci:nan* 'to gape', *cla:wan* 'to claw', *cle:ofan* 'to cleave', *cli:fan 'to cleave'*, *cna:wan*

1/2 'to know', *cne:odan, cnedan* 'to knead', *cni:dan 'to beat'*, *cra:wan* 'to crow', *cre:odan, cre:opan* 'to creep', *cuman 1* 'to come', *cuman 2* 'to come together', *cweðan* 'to say', *cwelan 'to die'*, *cwi:nan* 'to waste', *dafan, delan, delfan 'to delve, dig'*, *deorfan* 'to exert oneself', *dragan* 'to drag', *dre:ogan* 'to do', *dre:opan* 'to drop', *dre:osan* 'to fall', *drepan* 'to strike, kill, overcome', *dri:fan* 'to 'drive', *dri:tan* 'cacare', *du:fan 1* 'to dive', *du:fan 2* 'to sink', *dwelan* 'to be lead into error', *dwi:nan* 'to waste away', *etan 1* 'to eat', *etan 2* 'to eat together', *faran 1* 'to set forth', *faran 2* 'to die', *fe:on 'to be glad'*, *fealdan* 'to fold', *feohtan 1* 'to fight', *feohtan 2* 'to gain by fighting', *fetan 'to fall'*, *fi:gan 'to be or become an enemy'*, *fle:ogan* 'to fly', *fle:on* 'to flee', *fle:otan* 'to float', *fleohtan, fli:tan* 'to strive', *fne:osan* 'to sneeze', *fne:san 1* 'to pant', *fne:san 2 'to sneeze'*, *fnesan, fo:n* 'to take, grasp, seize, catch', *fre:osan* 'to freeze', *fretan* 'to devour, eat, consume', *gangan 1* 'to go, walk, turn out', *ge:otan 'to pour'*, *gi:nan 1* 'to yawn', *gieldan 'to yield, pay for'*, *gli:dan* 'to glide', *gri:pan* 'to seek', *hle:otan* 'to cast lots', *hli:dan* 'to come forth', *hni:gan* 'to bow', *hni:tan* 'to thrust', *ho:n 1* 'to suspend', *hre:odan* 'to adorn', *hri:nan* 'to touch', *hweorfan* 'to turn', *le:odan* 'to spring up', *le:ogan* 'to lie', *li:ðan 1* 'to go to', *li:fan 4* 'to remain', *lu:can 1* 'to lock', *metan* 'to measure', *mi:ðan* 'to hide', *ne:otan* 'to use', *re:odan* 'to redden', *ri:dan 1/ 2* 'to ride', *ri:san 1* 'to 'rise', *sce:otan* 'to shoot', *scieran* 'to cleave', *scri:ðan* 'to go', *scri:fan* 'prescribe, ordain, allot, assign', *scu:fan* 'to shove', *se:on 1/ 3* 'to see, provide', *si:can 1* 'to sigh', *si:gan 1* 'to sink', *sittan 1/ 2* 'to sit', *sle:an 1/ 2* 'to strike', *sli:ðan* 'to injure', *sli:dan* 'to slide', *sli:tan* 'to slit', *smi:tan* 'to smear', *smu:gan* 'to creep', *spi:wan* 'to spit', *sprecan 1/ 2* 'to speak, agree', *spurnan* 'to skick', *stæppan* 'to step', *steorfan* 'to die', *sti:gan* 'to move', *stri:dan* 'to stride', *stru:dan* 'to ravage', *su:can* 'to suck', *su:pan* 'to sip', *swelan* 'to burn', *sweorcan* 'to grow dark', *swi:can* 'to wander', *te:on 2* 'to accuse', *ðe:otan* 'to roar, howl', *ðre:otan* 'to vex', *ðwi:tan* 'to cut', *wefan* 'to weave', *wegan 1/ 2* 'to carry; support, sustain,fight', *weorpan* 'to throw, cast down, cast away', *wi:gan* 'to make war', *wi:tan* 'to guard', *wre:on* 'to cover', *wrecan* 'to drive, impel, push', *wri:tan* 'to write'

Basic strong verbs with three stems used as derivative bases have appeared less often, making a total of 8:

(6) *bru:can* 'to brook, use, enjoy,spend', *bu:an* 'to stay, dwell, live; inhabit, occupy, cultivate', *ce:osan* 'to choose, seek out, select; decide, test; accept; approve', *cru:dan* 'to press, hasten, drive', *fe:olan* 'to cleave, be joined to, adhere; enter, penetrate, pass into, through or over', *fle:an* 'to flay', *flo:wan 1* 'to 'flow', stream, issue; become liquid, melt; abound', *flo:wan 2* 'to overflow'

There are no basic strong verbs with four stems used as derivative bases. All in all, the four inflective forms of the verb (infinitive, preterite singular, preterite plural and past participle) constitute bases of derivation but the most productive forms are the infinitive and the past participle, the preterite singular being the less productive: there have appeared 2,786 derivatives from the infinitive, 710 from the past participle, 235 from the preterite plural and 213 from the preterite singular. Nevertheless, in some cases it is the preterite singular form of the verb that provides the great majority of derivatives, as is the case of the verb *bli:can*. These figures are consistent with the evolution from variable base (stem) word-formation to invariable base (word) word-formation. Indeed, the infinitive has twice as much derivatives than the preterite singular, the preterite plural and the past participle together. On the other hand, the derivatives of the preterite together with those of the past participle outnumber the ones of the presesnt, which suggest that, although the typological change from stem-formation to word-formation is well under way, it is still in progress. In this respect, I concur with González Torres (2009), who has approached this question from the perspective of the existence of multiple bases of derivation and has also reached the conclusion that the evolution from stem-formation to word-formation has not been completed in Old English as it is reflected by the lexicographical tradition.

3. CONCLUDING REMARKS

In general, this analysis has supported Hinderling's (1967) and Seebold´s (1970) claim that a description of word-formation in the Germanic languages has to take the strong verbs as its starting point. Nominal bases of derivation have also turned up, usually throughout recursive processes. This is the case with *be:ag* 'ring' *be:agðegu* 'receiving of rings', which is not a derivative of *bu:gan 1*, but constitutes the nominal base for the derivatives *be:agian* 'to crown', *be:aggifa* 'ring-giver, lord, king, generous chief' *be:aggifu* 'ring-giving', *be:aghord* 'ring-hoard', *be:aghroden* 'diademed, adorned with rings or armlets', *be:agsel* 'hall in which rings are distributed', *be:agsele* 'hall in which rings are distributed', *be:agwi:se* 'round shape', *be:agwriða* 'armlet'. A similar situation holds for *be:an* 'bean, pea, legume' with its derivatives *be:anen* 'of beans' and *be:ancynn* 'a kind of bean'.

Considering the derivational production as a whole, it can be held that lexical productivity in Old English is due to derivation (prefixation and suffixation) more often than compounding. A total 3,079 affixal derivatives have been found in the derivational paradigms of strong verbs, as opposed to 1,774 compounds. The rest involves the predicates used as adjuncts in compounding. This is also consistent with the evolution from stem-formation to word-formation. Since compounding requires invariable free forms, it does not seem out of place to state that before compounding is fully operational, the stage of stem-formation must have finished. It must be borne in mind, however, that this research has focused on the derivational paradigms of strong verbs and compounding arises quite often in adjectival and, above all, nominal paradigms. This view is reinforced by the ratio of prefield affixal derivatives vs. posfield affixal derivatives, or prefixed and suffixed forms, respectively. There is consensus in the field of English historical linguistics that the loss of inflection goes hand in hand with the drift SOV-SVO. To the extent that stem-formation requires full inflection, its replacement with word-formation can be seen as another consequence of the drift SOV-SVO (Kastovsky, 2006). SVO syntax calls for suffixation, which suggests that the word-formation stage in Old English should coincide with derivation mainly, if not exclusively, suffixal. The evidence found in this research is rather the opposite: the number of prefixal derivatives is slightly higher than the one of suffixal derivatives (1,329 prefixed derivatives vs. 1,066 suffixed ones). There are also 684 derived words by both prefixation and suffixation. What these data are telling us is probably that the evolution from stem-formation to word-formation is still taking place and, consequently, derivation from variable bases is likely to play an active role in the derivational morphology of Old English. Indeed, 909 derivatives have been found that alternate with the inflectional forms of the strong verb.

A problem that has been found through this research has to be with the boundaries between paradigms. It is usually the case that paradigms overlap. To begin with, *Nerthus* stresses formal differences and morphological characteristics, thus distinguishing by means of numbers predicates with nearly identical meaning. This causes problems when identifying derivational paradigms because no semantic or derivational difference can be established between some pairs, which result from contrast of morphological (inflective) class. Apart from the formalisms of *Nerthus*, we can find examples of verbs with the same meaning, as *biernan* and *brinnan* 'to burn' and *bre:dan 2* and *bregdan 1* meaning 'to move quickly' which do not share stem nor inflectional forms, and, therefore, they provide two completely different derivational paradigms; but quite often we come across derivatives that could belong to more than one derivational paradigm, like *bod* 'command', *bodian* 'to proclaim', *a:be:odan* 'to order', *a:bodian* 'to announce', *æ:boda* 'messenger', *bodscipe* 'command', *boda* 'messenger', *bodere* 'teacher', *bodiend* 'preacher', *bodung* 'message', which could have been included as derivatives of *be:dan, be:odan and biddan 1/gebiddan 2*, but have only listed as derivatives of *be:odan*.

A final point has to do with meaning definitions. The analysis of derivational paradigms can contribute to the definition of some predicates by indirect means: the meaning of the basic predicate can be deduced from the meanings of the derived predicates. This is the case with *ci:fan* 'to be brave', *dafan* 'to fit', *de:agan* 'to dye', *e:adan* 'to grant' and *fi:gan* 'to paint, change colour'. In this respect, Old English lexicology is in much need of linguistically accurate definitions, since the main descriptive work in the field, *The Dictionary of Old English,* is still in progress, and explanatory works in the formalised definition of Old English meanings, such as Martín Arista and Martín de la Rosa (2006), are scarce.

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