CHRONOLOGICAL HOMOGENEITY IN MIDDLE ENGLISH DEVERBAL WORD-FORMATION:
THE EVIDENCE FROM THE *OXFORD ENGLISH DICTIONARY*

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ABSTRACT

Present-day epistemological possibilities of corpus methodology allow to introduce elements of experimentation into the study of the earliest attestations of word-forming families' members with regard to the scope of temporal homogeneity/heterogeneity of their constituents. Three manifestations of the diachronic homogeneity of the *OED* textual prototypes of verbs and deverbatives are considered: same year attestation and the scope of relative chronological homogeneity in the distribution of the age differential of pairs of textual prototypes; flexible chronological homogeneity in common-root paradigmatic prototypical and complementary expansion as well as the contribution of same year attestations to the problem of constituents' placement in the strings of diachronic common-category synonyms and their comparison. Most attention is paid to the heuristics of the queries to the self-compiled corpus and visualization of their outcomes.

1. Introduction

Deverbal word-formation consists in deriving nouns and adjectives from stems of verbs. These constitute two branches of deverbal word-forming families. They are substantivization and adjectivization. Adjectivization encompasses deverbal adjectives and modal passive adjectives. Historically, more precedent deverbal adjectival coinages were lexicalized present and past participles. Substantivization contains action, agent and patient nouns. A proportion of action nouns are lexicalized into one-word factitive and/or resultative (further on to be referred to as factitive) nouns.

As we focus on categorial types rather than suffixal models the date of the textual prototype entered into the respective categorial slot in the electronic framework was that of the older, or eventually oldest, of the variant suffixal coinages. The attested variant suffixes that produce common-root coinages were

imputed to the respective sub-slots that can be considered separately within each category giving way to multiple descriptions of cross-categorial relationships within deverbalization.

The analysis will be based on the running selection of textual prototypes (earliest citations) from the *Second edition of the Oxford English dictionary on CD-ROM, Version 3.0* (*OED*) covering 5,567 verbal stems and their common-root coinages attested from 1151 till 1500.

The indication of the date following the lexeme stands for a text sample in the language of the respective period affiliation. All the coinages taken into account in this study were checked for a positive relatedness to their verbal base.

The analysis focuses on the earliest *OED* citations of the relevant vocabulary falling on Middle English chronologically. Most of the dates in such a corpus are accepted as clearly given in the *OED*. The dating approximation marked by the *OED* compilers by *about* or *circa* is neglected. Century dating, e.g. *13..*, is extended to the next unequivocally dated *OED* attestation of the respective lexeme or, failing that, to the last year of the century, e.g. *13.., 1399*. In the rare cases of period dating, as in … *1103-23*, the earlier date is accepted.

It is hard to find formal arguments to resolve the dispute regarding whether the value of the historical time factor, by which it is common to understand the duration of the existence in the lexicon of an arbitrary item without its counterpart till the latter becomes attested in the textual sources as well, is a fact from the history of the language or a consequence of the incompleteness of the preserved historical sources as they are reflected in the lexicographic or corpus compilation practice. Still it seems logical to share the opinion that the morphemic markedness of coinages (be they derivatives proper or ready-made penetrations into the lexicon of Middle English as a recipient language) was conducive to their being conspicuous in the textual sources. In view of the known strategy of the *OED* compilers to look for unusual words appearing over time (Brewer 1993: 321) the reflection of deverbatives in this monumental dictionary is assumed to have been generally timely. The difference between genuine derivatives, ready-made borrowings related to their common-root verb and back-formations is perceived as irrelevant for the purpose of this study.

The values of the historical time factor in pairs of words with a word-forming relationship between them (including reconstructed motivation relationship arisen in language contact) as well as patterns of the recurrence of these values in different derivational categories related to one another by the commonness of the root testify to the rate of both structure- and content-oriented expansion of the lexicon in history. The discussed categories are mental constructs as they reflect basic onomasiological (*substantivity* vs. *property*) and propositional (*active diathesis* vs. *passive diathesis* in the finite verb paraphrase to a deverbal coinage) oppositions.

The length of the evolution of discrete entities over time is a traditional concern of a diachronic lexicological study. In this contribution, however, we try to focus on the opposite dimension of this process reflected in one-timeness or temporal homogeneity. Such diachronic evidence abides by the philosophical notion of **emergentism** *which is an intrinsic part of* **evolution**. In this case we can speak of momentary or almost momentary change where lexicon history seems *to be lacking* its crucial component – **time**.

2. Chronological homogeneity in the temporal differential between the *OED* textual prototypes

The developed software juxtaposes textual prototypes of pairs of constituents from deverbal families yielding a distribution of values of the difference in their age. We will call this difference a *temporal differential* (Δt) of the compared lexemes which form a respective cross-categorial domain. When we use the *OED* or a similar source, for instance the *MED*, the quantity is measurable and can be expressed in years.

The extreme values of the temporal differential show a pair of textual prototypes the difference between which is maximally positive or negative depending on the vector of comparison. The precise values of such differences in the cross-categorial domains vary (see the initial and concluding lines in the respective tables on Figure 2 below).

The nature of the chronological homogeneity, however, differs from that of heterogeneity in the sense that the former is a characteristic feature of diachronic facts with the accepted minimal age difference in the textual prototypes whereas the latter comes into light where there is a pre-set chronological dissimilarity.

The scattering of all the registered values between the extreme ones is naturally uneven. The absolute chronological sameness of the two lexical items in the *OED* textual prototypes gives the zero value of the temporal differential. The quota of such cases can vary severalfold for the cross-categorial domains of deverbalization (see Table 1).

Apart from cases of absolute chronological homogeneity a proportion of age comparisons in a cross-categorial domain reveals relative chronological homogeneity.

The latter falls on the scale stretch on either side of the point of absolute chronological homogeneity (zero age differential) on condition that the adopted discreteness of the scale of age differential sometimes motivated by breaches in the actual values (cf. the tables beside the diagrams on Figure 2) splits the whole selection into segments with obligatorily unequal although established arbitrarily numeric power (Figure 2).

Table 1. Quotas of absolute chronological homogeneity (upper triangle) in the age differential values (lower triangle) at deverbalization (the last row and column bring together the categories from those under 2, 3 and 10 on the principle of the inclusion of the earliest counterpart)

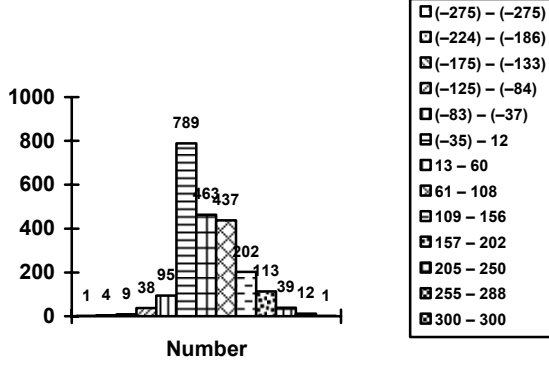|	Verb	N_{action}	$N_{action/...}$	N_{agent}	$N_{patient}$	Adj	$P_{present}$	A_{modal}	P_{past}	$N_{.../factitive}$	$N_{action/(factitive)}$
Verb	×	400	100	67	–	13	80	4	144	84	512
N_{action}	1506	×	12	73	–	4	61	2	32	12	–
$N_{action/...}$	713	139	×	32	1	8	17	9	23	456	–
N_{agent}	746	493	347	×	2	11	24	12	18	15	97
$N_{patient}$	–	–	1	2	×	–	–	–	–	–	–
Adj	144	63	97	73	–	×	6	6	1	10	13
$P_{present}$	392	272	167	224	1	43	×	6	11	14	75
A_{modal}	175	101	116	114	–	40	68	×		3	9
P_{past}	776	304	261	231	–	30	117	84	×	13	50
$N_{.../factitive}$	649	136	752	296	–	93	136	108	221	×	–
$N_{action/(factitive)}$	2203	–	–	797	1	143	421	196	544	–	×

It is typical for the area of relative chronological homogeneity to cover the number of cases exceeding that characterized by any of the varied extents of chronological heterogeneity. However, exceptions from this general tendency are possible. The productivity of the area of relative chronological homogeneity may be absolutely predominant in the cross-categorial domain (cf. the case of factitive nouns and their action nouns counterparts). Conversely, cases of relative chronological homogeneity may be numerically insignificant in the entire cross-categorial selection. This is already apparent in the comparison of verbs and agent nouns and even much more so in that of verbs and modal adjectives. The area of relative chronological homogeneity, similarly to the entire distribution of the temporal differential values, reveals (a)symmetry concerning the number of instances on either side of the point of zero temporal differential (cf. the respective peaks on the charts with the relevant lines in the tables on Figure 1).

3. Temporal homogeneity in paradigmatic prototypicality and complementation
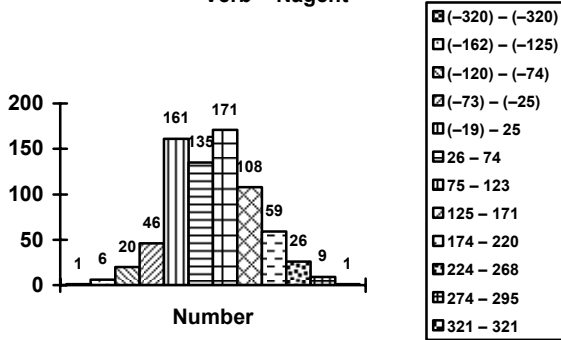
Single and multiple constituents' pre-emption and complementation are distinguished. A slot within the word-forming family can be followed/preceded by two (or more) chronologically homogeneous common-root lexemes. The homogeneity is set arbitrarily. It allows multiple factual verification in terms of decades, generations, centuries and, eventually, periods (cf. pairs of charts and respective curves characterizing a distribution of the temporal differential values on Figures 2 and 3).

Varied presentations of the same corpus of diachronic examples tagged chronologically based on the understanding of which of them are homogeneous and which should rather be taken as heterogeneous exceeds the heuristics of diagram manipulation. It can be viewed as an instrument of the optimization of the procedures of rediscovering common-root paradigms at different stages of the evolution of deverbal word-forming families as well as of the prospective/retrospective modelling of diachronic combinability of deverbatives.
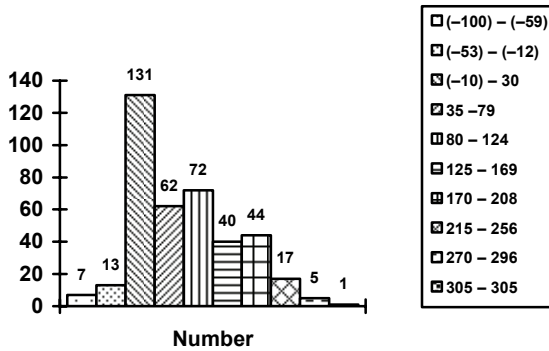
Verb – Naction/(factitive)

Legend:
- □ (–275) – (–275)
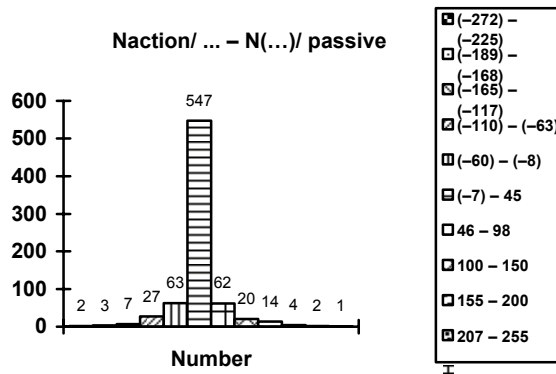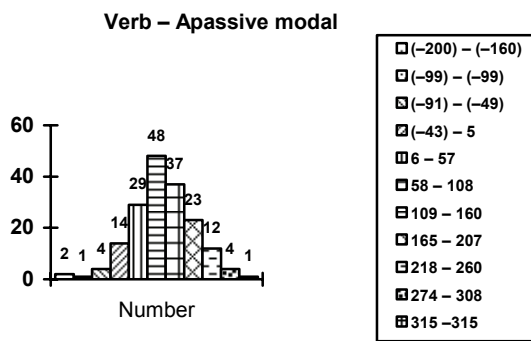- ▣ (–224) – (–186)
- ▨ (–175) – (–133)
- ▨ (–125) – (–84)
- ▥ (–83) – (–37)
- ▣ (–35) – 12
- ▣ 13 – 60
- ▨ 61 – 108
- ▤ 109 – 156
- ▨ 157 – 202
- ▣ 205 – 250
- ▨ 255 – 288
- ▨ 300 – 300

Values: 1, 4, 9, 38, 95, 789, 463, 437, 202, 113, 39, 12, 1

Verb – Nagent

Legend:
- ▨ (–320) – (–320)
- □ (–162) – (–125)
- ▨ (–120) – (–74)
- ▨ (–73) – (–25)
- ▥ (–19) – 25
- ▣ 26 – 74
- ▨ 75 – 123
- ▨ 125 – 171
- □ 174 – 220
- ▨ 224 – 268
- ⊞ 274 – 295
- ▨ 321 – 321

Values: 1, 6, 20, 46, 161, 135, 171, 108, 59, 26, 9, 1

Verb – Ppresent

Legend:
- □ (–100) – (–59)
- ▨ (–53) – (–12)
- ▨ (–10) – 30
- ▨ 35 –79
- ▥ 80 – 124
- ▣ 125 – 169
- ▣ 170 – 208
- ▨ 215 – 256
- □ 270 – 296
- ▨ 305 – 305

Values: 7, 13, 131, 62, 72, 40, 44, 17, 5, 1

Verb – Ppast

□ (–225) – (–195)
□ (–165) – (–133)
⊠ (–120) – (–73)
▨ (–72) – (–22)
⊞ (–20) – 28
□ 30 – 79
⊞ 80 – 130
⊠ 133 – 180
□ 182 – 231
⊠ 233 – 280
⊞ 283 – 283

Number

Verb – Apassive modal

□ (–200) – (–160)
□ (–99) – (–99)
⊠ (–91) – (–49)
▨ (–43) – 5
⊞ 6 – 57
□ 58 – 108
⊟ 109 – 160
□ 165 – 207
□ 218 – 260
⊠ 274 – 308
⊞ 315 – 315

Number

Naction/ ... – N(…)/ passive

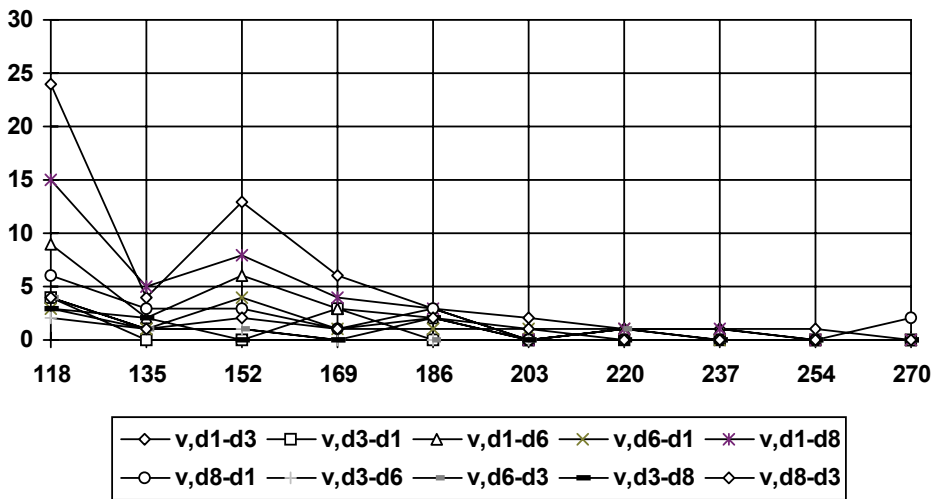|	
⊠ (–272) – (–225)
□ (–189) – (–168)
⊠ (–165) – (–117)
▨ (–110) – (–63)
⊞ (–60) – (–8)
⊟ (–7) – 45
□ 46 – 98
□ 100 – 150
□ 155 – 200
⊠ 207 – 255

Number

Figure 1. Exemplification of distribution patterns of age differential values in cross-categorial domains
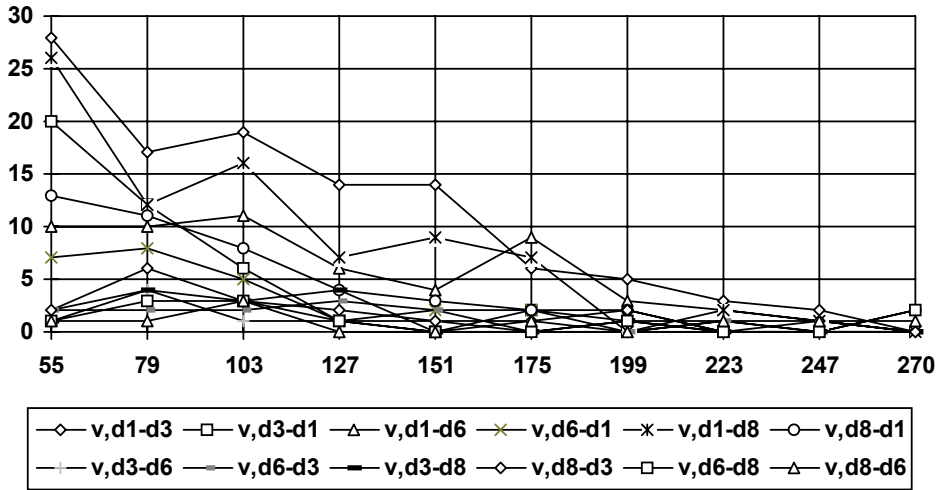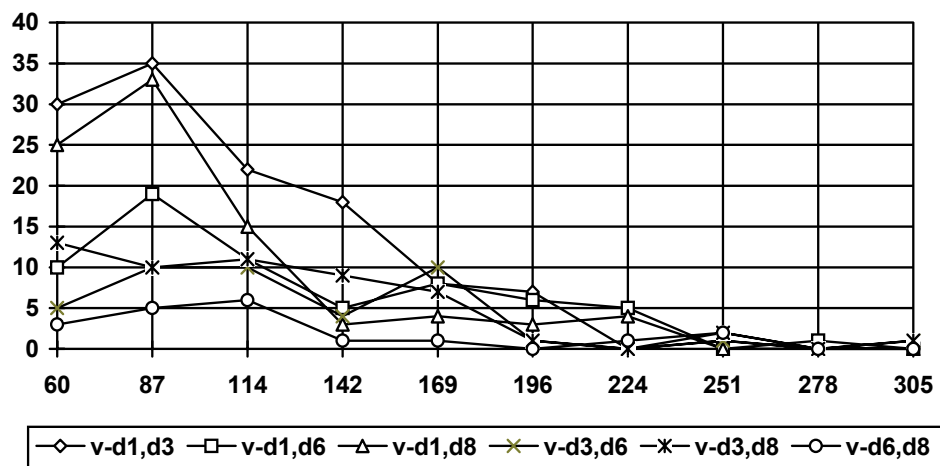
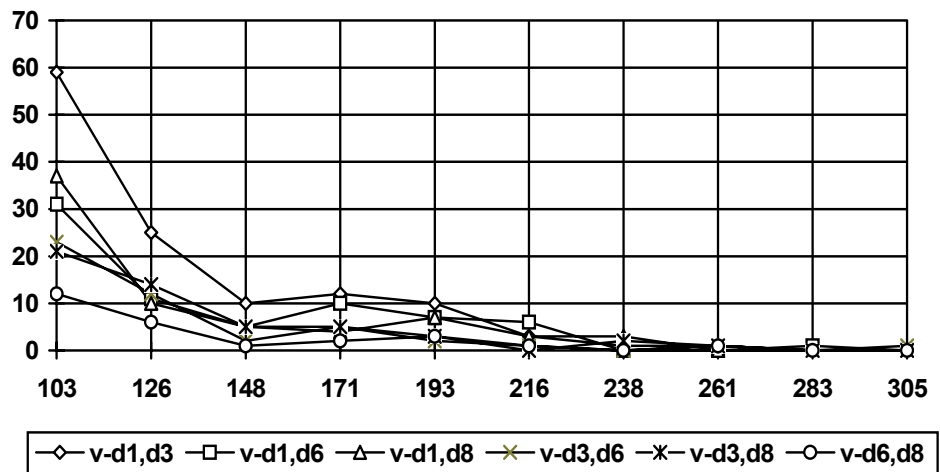a) temporal differential of homogeneity taken for thirty years

b) temporal differential of homogeneity taken for a hundred years

Figure 2. Complementation of chronologically homogeneous verb and deriva-
tive by a common-root coinage: table notations stand for the verb (v), aggregate
count of action nouns, action nouns lexicalized into factitive nouns or factitive

nouns alone as in the last line and column in table 1 (d_1), agent noun (d_3), present participle (d_6) and past participle (d_8), respectively (to be repeated in Figure 3). Axis y shows the number of cases found and axis x does the extent of chronological heterogeneity expressed in years (Δt) between the younger one of the two homogeneous facts and their paradigmatic complementizer.

a) temporal differential of homogeneity taken for thirty years

b) temporal differential of homogeneity taken for a hundred years

Figure 3. Prototypicality of the verb followed by a pair of chronologically ho-

mogeneous common-root deverbatives: notations and axis *y* same as in Figure 2. Axis *x* shows the extent of chronological heterogeneity expressed in years (Δt) between the verb and the older of a pair of its complementizers.

4. Temporal homogeneity in the historical thesaurus of verbs and deverbatives

At the compiling of diachronic thesaurus of English verbs and deverbatives the constituents within the present-day strings are rearranged historically according to the earliest *OED* attestations of their textual prototypes. A similar approach can be seen in the compiling of the *English historical thesaurus* (cf. Kay et al. 2001; Kay and Wotherspoon 2002; Hüllen 1996).

The contemporary verbal strings put to test in the present experiment were taken from *Webster's dictionary of synonyms* (Laird 1985) although this database can be exchanged for that from an arbitrary lexicographical source of the kind. The deverbal strings that served for the starting point of the constituents' chronological placement were construed within the current framework on the basis of the *OED* evidence. However, the clarity of this experiment is potentially marred by the fact that there are same year *OED* attestations of constituents within the strings (Figure 4).
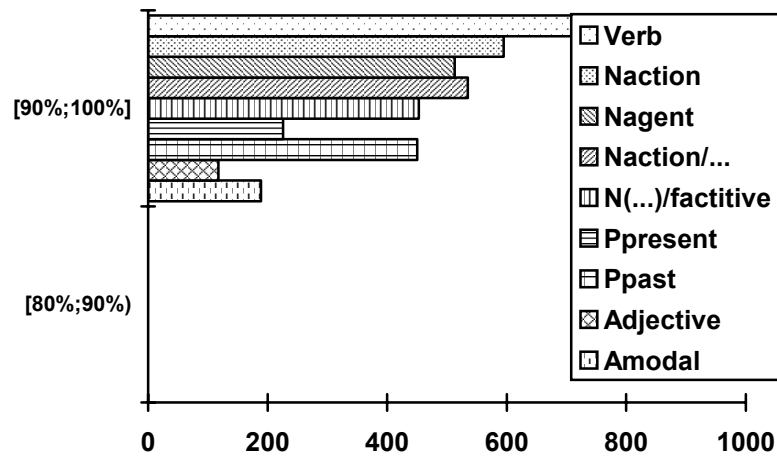

Figure 4. The quotas of synonymous strings of respective categorial affiliation (see the table) characterized by the same year attestations of at least two constituents

CREATOR	1290	CREATE	X-----	X	-1	-1	-1	-1	-1	1386
FOUNDER (build a firm ground)	1303	FOUND (build a firm ground)	-X-+-+	-1	X	-1	1	-1	1	1290
UNDERTAKER	1382	UNDERTAKE	--X+++	-1	-1	X	1	0	1	1200
CAUSER	1386	CAUSE	-++X-+	-1	1	1	X	-1	1	1340
RAISER (set upright, get up)	1388	RAISE(set upright, get up)	--+-X+	-1	-1	0	-1	X	1	
MOUNTANT*	1400	MOUNT	-++++X	-1	1	1	1	1	X	1362

Figure 5. Exemplification of the cross-categorial domain of strings forming a matrix of sequential similarity of the expansion of column string constituents (*here* verbs) and constituents of the row string (*here* agent nouns). The asterisk following the lexeme testifies to its being archaic by the *OED* estimates.

In order to determine the role of literal one-timeness in establishing the similarity of the sequential expansion of strings in the historical derivational thesaurus we ascribe the value of zero to the squares of chronotropism matrices in cases of same year datings of the constituents of the column string alongside of the values of plus one and minus one ascribed to the preservation and breach of sequential ordering in the compared strings, respectively (cf. the matrices on Figure 5). More on the application of this method in the diachronic thesaurus analysis is available in (Bilynsky 2006).

The comparisons of the sequential expansion of strings in the diachronic thesaurus of verbs and deverbatives raises at least two kinds of problems: explaining the diachronic logic of the constituents' sequence within the compared strings and revealing the extent of imitation that strings of varied categorial affiliation and length admit of one another. As the obtained mean values of sequential imitation take into account the length of the strings put in the matrices' rows we can expect higher values when we place the verbs' strings in the position of matrices' columns.

It appears that the obtained corrections of the curves shown on Figure 7 in comparison with those on Figure 6 are bound to both specific row string lengths and categorial domains of deverbalization. In substantivization more receptive categories to such a correction appear to be action and factitive nouns rather than agent nouns whereas in adjectivization strings of adjectives in comparison with strings of participles.

The curves of the mean values of sequential similarity for different lengths of the matrix row strings testify to the fact that same year attestations of lexemes over the Middle English period introduce generally negligible corrections into the Middle English historical thesaurus of verbs and deverbatives. Thus the temptation to undermine diachronic modelling by the challenge of the fact that

there are cases when textual prototypes of words are dated in the same year fails
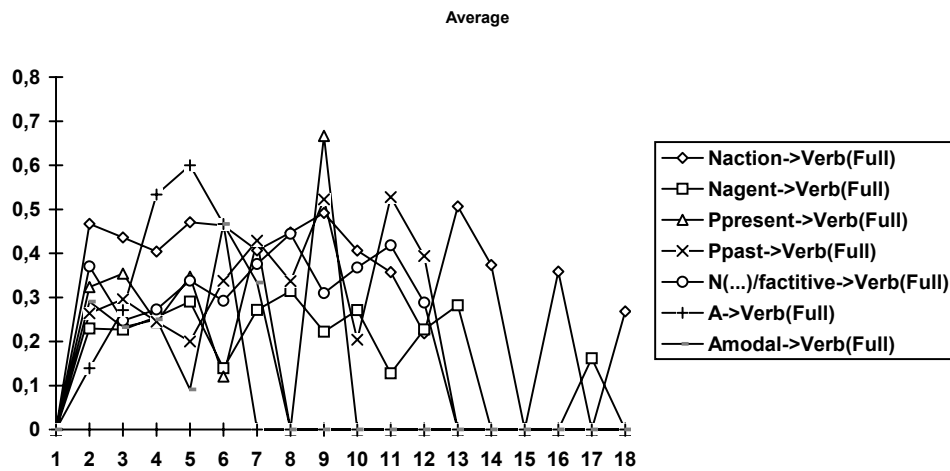to bear the fruit of sufficient heuristics.

Average

Figure 6. Mean values of similarity in the calculus where same year attestations are
included into the ordinal sequence of the column string's constituents assessment on
the strength of the placement of their counterparts in the row string: axis *y* – mean
values of similarity on the scale from +1 to –1; axis *x* – lengths of the row strings as
indicated in the left hand-side category in the table lines (to be repeated in Fig. 7)
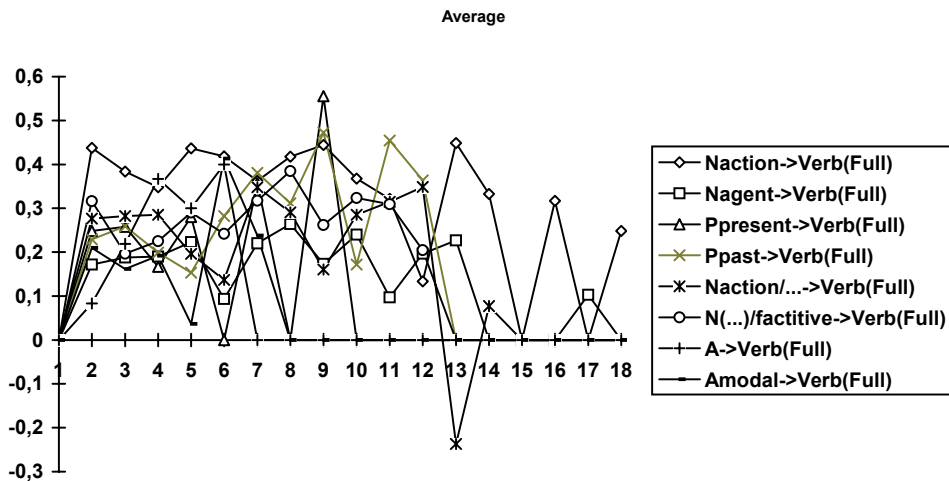
Average

Figure 7. Mean values of similarity in the calculus where same year attestations
are excluded from the ordinal sequence of the column string's constituents as-
sessment on the strength of the placement of their counterparts in the row string

4. Concluding remarks

The analysis was based on a complete selection of ME verbs and deverbal coinages drawn from the entire *OED* first quotations and their datings. The amplitude of the electronic queries to the framework requires a sifting of relevant and irrelevant outcomes. Basically, the changing patterns of temporal homogeneity/heterogeneity offer a better insight into the factors expanding the lexicon over time. Hopefully, this framework is heedful of a plea "for the flexible use of dictionaries, such as the *OED* or the *MED*, in addition to, and complementation of, special corpora, whether these are self-compiled or not" (Markus 2007: 2).

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