

# LEXICAL PRODUCTIVITY IN EARLY MODERN LATIN ACCORDING TO THE *NEULATEINSCH* *WORTLISTE*:



## A quantitative study

By Šime Demo

*In the present paper, the list of dictionary entries of the Neulateinische Wortliste is used as a corpus for an examination of early modern trends in Latin word formation. Only words first attested after the Middle Ages were included in the analysis. The frequency of various groups of lexemes (word classes, morphological types, noun genders) and morphemes (derivational suffixes, prefixes, compound components) is displayed and occasionally compared to the entries in the Lewis & Short dictionary of Ancient Latin. The analysis has revealed which elements were favoured by Renaissance authors and to what extent.*

Vocabulary is by a wide margin the most interesting, the most innovative, and the most researched aspect of Early Modern Latin (EML).<sup>1</sup> If an article, an introduction to an edition, or a commentary on an EML text discusses language in any way, it normally deals for the most – or significant – part with the lexicon. Vocabulary is also the only segment of EML that has been studied synthetically, systematically, and comparatively. While a grammar of EML has not been written, quite a few lexica are partly or completely dedicated to it.<sup>2</sup> Additionally, many editions of texts have glossaries attached

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<sup>1</sup> In the article, the following abbreviations are used: AL – Ancient Latin, *DMLBS* – Latham et al. eds. 1975–2013, *DMLCS* – Harvey ed. 1997–2019, EML – Early Modern Latin, *LS* – Lewis & Short 1879, ML – Medieval Latin, *NLW* – *Neulateinische Wortliste*, *TLL* – *Thesaurus Linguae Latinae*.

<sup>2</sup> See, e.g. Du Cange 1883–1887 (and other editions), Diefenbach 1857, Maigne d'Arnis 1858, and, especially, Ramming 2003–, Hoven & Grailet 2006, and Nikitinski 2015. Comprehensive listings of dictionaries that include EML are found in IJsewijn & Sacré 1998, 392–399.

to them. Finally, general introductions to linguistic properties of EML are predominantly dedicated to lexicon.<sup>3</sup>

Although researchers have already reached certain conclusions about the overall character of neology in EML, quantitative studies are rare and limited in scope.<sup>4</sup> However, the amount of the material collected and described up to date leads one to believe that preliminary explorations on a larger scale are now viable. While it is possible (and, in due course, desirable) to work directly on textual corpora, some tentative results can be obtained by observing the existing lexicographical work, taking advantage of the fact that the material contained therein has been curated by the experts.<sup>5</sup>

At this moment, the best tool for such undertaking is the *Neulateinische Wortliste* (NLW), which is – although modestly entitled – the most comprehensive dictionary of EML available.<sup>6</sup> The fact that it is entirely digital and freely available enables a convenient application of quantity-based methods in the investigation. In the present study, we attempt to use the NLW as a mine of data for outlining the trends of word formation in EML.

### Inspecting the NLW

The NLW contains Latin words in which something lexicographically interesting happened in the Early Modern Period. At the time of writing (late 2021), I was able to access **21139** lemmas.<sup>7</sup>

Of the total number of lemmas, **449** articles – mostly placed towards the end in the alphabetical order – lack the “Lexicographica” section, where the details of the pre-Renaissance attestations of the words are normally specified. This is probably related to the fact that *Thesaurus Linguae Latinae* (TLL) has not yet covered the final part of the alphabet. These articles either have not yet been checked by the author or contain only references to other articles. They were excluded from the present analysis.

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<sup>3</sup> See e.g., Sabbadini 1885, IJsewijn & Sacré 1998, 377–419, Helander et al. 2001, 27–39, Helander 2014, Ramminger 2014.

<sup>4</sup> Quantitative methods are not unfamiliar to the researchers of EML: e.g., Grailet 2010 analyses vocabulary of an author, while Luque Moreno 1983 and (in a more advanced, properly statistical manner) Tunberg 1992 use such methods in the investigation of metrical *clausulae*; however, they do not focus on neologisms. The same applies to stylometric studies such as Eder 2016, Deneire 2018, and Ramminger 2019. Marginally relevant is quantitative research of hybrid vocabulary in macaronic Latin, which is novel, but confined to a specific literary style (e.g., Demo & Tassotti 2019).

<sup>5</sup> A recent example of metalexicographical analysis of an early modern concept (ingenuity) is Marr et al. 2018.

<sup>6</sup> Ramminger 2003–.

<sup>7</sup> The detailed description of the criteria for word inclusion and related problems can be found in Ramminger 2003–> Grundlagen – Übersicht.

Among the **20690** lemmas that had been checked, **4685** words are found in one of the main dictionaries of Ancient Latin (AL) – Ramminger used in the first place *TLL*, *Forcellini*, *Georges*, *Oxford Latin Dictionary*, and *Lewis & Short (LS)*.<sup>8</sup> In early modern usage, these words obtained novel meanings, spellings or syntactic structures, or are interesting for any other reason (e.g. rarity, confinement to a genre, uneven distribution, being shunned by the Renaissance humanists, importance for the intellectual history or development of Romance languages, having morphological ties to the neologisms etc.). Words attested only in some marginal areas such as glossaries or inscriptions, those showing morphological peculiarities (active variants of originally deponent verbs, comparison of words not having it in AL), and common nouns appearing in the antiquity only as proper names, are found in this group. The words attested in AL are placed out of scope of the present study because they do not display derivational, but morphological, semantic, syntactical, and other types of innovation, which cannot be either qualified or quantified in the same manner as it was done here.

The remaining **16005** words are marked by Ramminger with “TLL 0” or “GEORGES 0” (for the parts not covered by the *TLL*) because they do not appear in those dictionaries. We do not know if they existed – and likely never will – but what we know is that the humanists could not have encountered them in AL.

Of these words, **2115** have been located by Ramminger in Medieval Latin (ML) dictionaries and texts.<sup>9</sup> Although some of these dictionaries (e.g., *DMLBS*, *DMLCS*, *Du Cange*) do not exclude the Early Modern Period, most of the material in them is medieval. As the topic of this paper is lexical productivity in EML, it focusses on words that the EML writers were more likely to create themselves than to encounter in ML texts. Therefore, the words listed in those dictionaries are excluded, except for the cases where Ramminger indicated the year after the beginning of the 15th century as the time of the earliest occurrence. Of course, in the future, many of the supposedly original EML words might be proven to have first appeared in ML.<sup>10</sup>

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<sup>8</sup> The full list is here: Ramminger 2003– [> any word] > Literaturverzeichnis.

<sup>9</sup> I performed some additional checks through ML and AL dictionaries. Seventy-three words – mostly those not yet covered by the *TLL* – have the label “GEORGES 0” without a further note, but are found in the *LS* or in the dictionaries of ML. They were excluded from the present analysis. Homonyms are checked manually and treated as separate entries; e.g. *inaccommodatus* ‘appropriate’ and *inaccommodatus* ‘inappropriate’, *inuitabilis* ‘attractive’ and *inuitabilis* ‘inevitable’, *mensatim* ‘by table’ and *mensatim* ‘by month’).

<sup>10</sup> To which extent the distinction between ML and EML is uncharted, is implied by the decision of Helander 2014, 38 to regard as neologisms in EML all non-ancient words, “regardless of origin, whether they were coined during the Renaissance or after, or whether they had already been introduced in the Middle Ages”. There is an obvious problem with

Of the **13890** lemmas not found in AL and ML dictionaries or texts, **47** words are in some way problematic: they were thought or suspected to having been attested due to some textual problem or peculiarity (e.g., appearing only as a *varia lectio*, being a conjecture, or shown to be erroneous).

This leaves us with **13843** lemmas not found by the authors of the dictionaries in the texts written before the Early Modern Period. For pre-existing cognate words, the new words are considered neologisms if their generation involves a derivational suffix (e.g., including common nouns derived from names), change of word class (e.g., substantivation of adjectives, adjectives derived from nouns, adverbs derived from adjectives), back-formation (e.g., verbs whose participles were attested earlier, such as *intarsio* vs. *intarsiatus*), stronger spelling and morphological variants (*pac(c)amentum* vs. *pagamentum*, *pastoricius* vs. *pastoriceus*, *inolio* vs. *inoleo*, *prophetisso* vs. *prophetizo*, *retrogardia* vs. *retroguardia*, *metaplasemicos* vs. *metaplasemicus*, *cussimus* vs. *coxinus*).<sup>11</sup> Ramminger includes non-derived proper nouns only exceptionally (e.g., *Osmannus*). Of course, had he done it systematically, they would have outnumbered the rest of the dictionary and complicated quantitative research. Nevertheless, we include them here among the EML words because they are few and display typical endings in a specific group of lexemes.

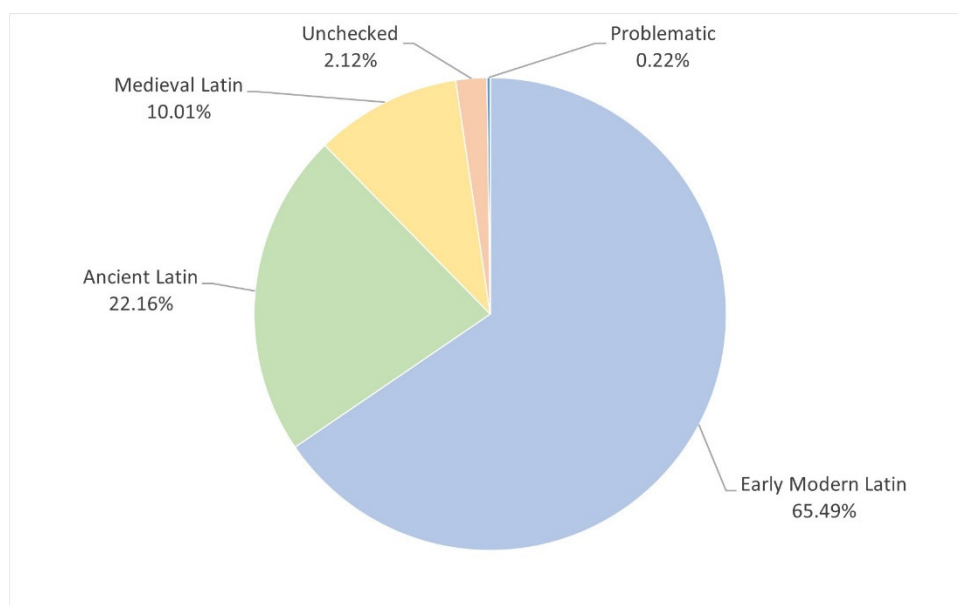
In the *NLW*, morphological variants, as well as heteroclita, heterogenea, and words belonging to various classes, are frequently put under the same lemma (e.g., *tulipan*, *-an(t)is*, *m.*; *tulipanus*, *-i*, *m.*; *tulipantum*, *-i*, *n.*). When we separate them and apply some additional adjustments, we get **14013** items selected for the analysis.

It shows up that about two-thirds of the lemmas contained in the *NLW* have not been attested in either AL or ML (Figure 1). These are analysed in the following sections.

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treating as “Neo-Latin neologisms” words first attested in the, for example, ninth century, but, at the present state of research, it perhaps makes less damage than trying to distinguish the two periods, like the author of the present paper does. The sixth book of Stotz’s *Handbuch* (2000, 231–482) deals with Latin neologisms in medieval texts: it covers suffixation (2000, 270–396), prefixation (2000, 400–431), and compounding (2000, 396–400, 431–458, 462–464).

<sup>11</sup> As Latin examples are mainly illustrative, in this paper their meanings are, as a rule, not provided in longer lists, especially when the focus is on their form, not meaning. The meanings and the examples can be found in the *NLW* under the respective headings.



**Figure 1. Main groups of entries in the NLW**

### Object of the study and methodology

In this study, we observe the overall trends in the morphology of Early Modern Latin neologisms. First, the distribution of neologisms among and within the parts of speech are examined. We explore how many of them belong to each word class. Then we check how the words are allotted individual morphological types (e.g., declension and verb class). Furthermore, preferences in derivational suffixes and prefixes are studied. Also, elements readily entering compounds are looked at. Apart from that, we pay a special attention to proper names with their derivatives. On the other hand, orthography-related phenomena – such as words written (entirely or partly) in Greek alphabet or with alternative spellings – are not discussed here.<sup>12</sup>

Some of these analyses are accompanied, when convenient, by comparisons with the words comprised in the *LS*. I used its XML-annotated version, created within the Tufts University's Perseus Project and available online. The dictionary, albeit somewhat outdated, still contains most of representative AL – and even later – words. Thus, it serves as a reference

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<sup>12</sup> Where there are spelling variants – some words have many, e.g., Muhammad's name – I selected only one (usually the longest one, or the one consistent with other similar words) to avoid distortion of the number of lexemes. Their inclusion might have slightly altered the results. Although I did quite a detailed check, occasional slips in coding of the underlying sources have certainly caused some inaccuracies.

corpus here. In the Perseus version, word classes are marked, as well as some additional morphological information.<sup>13</sup>

The *LS* contains **51641** entries. Excluding references, notes about errors, and the like, but separating sublemmas from lemmas, and after a lot of extra clean-up and corrections, we reach the number of **52249** items containing the XML element for word class (in the case of nouns, the element defines gender), which is around 3.73 times larger than lemmas we analyse from the *NLW*.<sup>14</sup>

### Provisos

Three main problems for anyone approaching the *NLW* as a corpus for a quantitative study have been described by Ramminger himself in his *Grundlagen*.<sup>15</sup>

Firstly, the notion of EML itself is hard to pin down. It is impossible to say when EML starts and ends, or what texts it comprises. It is a fluid and fuzzy concept, emerging gradually and in an uneven, complex manner from ML. As a result, sometimes it is not clear whether a word should be classified as belonging to EML or ML. However, dictionary check-ups bring us at least a little closer to an accurate picture.

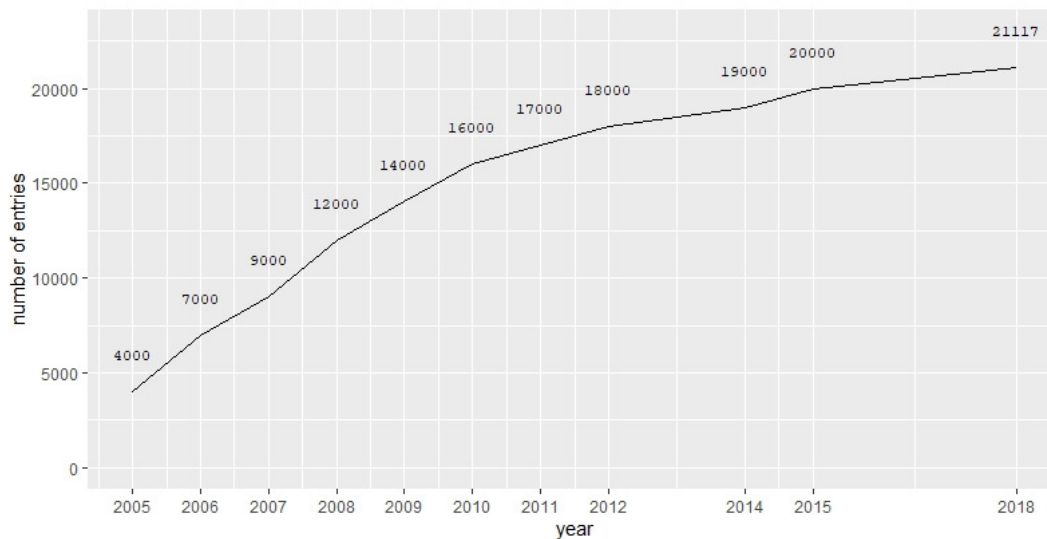
Secondly, the *NLW* is incomplete. Since its inception, it has been continuously growing at a remarkable pace. Naturally, the growth was steadier during the first years, but never stopped (Figure 2), and might even accelerate now that the creator is retired from his main job.

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<sup>13</sup> Crane ed. 1995– > Open Source > Download.

<sup>14</sup> This number contains proper names and their derivatives, which can hardly be separated from each other automatically, especially since many derivatives are sublemmas. Although most of such words in the *NLW* are derivatives (see above), it was not practical to exclude names here. Therefore, I include proper names and their derivatives, although keeping information about them belonging to the group. In both sets, *nomina communia* are counted as both masculine and feminine, and adjectives used in a specific gender as both adjectives and nouns. The version of the *LS* used is very inconsistently tagged; I did my best to correct as much as possible, but many of the faults have remained.

<sup>15</sup> Ramminger 2003– > Grundlagen – Übersicht.



**Figure 2. The growth of the NLW<sup>16</sup>**

The colossal quantity of EML texts and the still comparatively modest level of their exploration makes it certain that putting together a complete dictionary will not be possible for a long time to come. Among the unprocessed (e.g., still unpublished) texts there are many that potentially contain plenty of neologisms not included in the *NLW* (e.g. bureaucratic and macaronic Latinity). It should be repeated that one of the control dictionaries, the *TLL*, is also unfinished.

Finally, the *NLW* is openly subjective:

Die *NLW* (...) reflektiert nicht nur die hier entwickelten methodischen Leitlinien, sondern auch (und vor allem) meine persönlichen Vorlieben (und Wissenslücken).<sup>17</sup>

The *NLW* (...) does not only reflect methodical guidelines developed here, but also (and in the first place) my personal preferences (and knowledge gaps).

One could be tempted to make a joke that it is not completely out of place in a *Festschrift* to peek into the honoree's inner man. On the other hand, no lexicographical work can avoid a certain degree of subjectivity. Again, this is alleviated by the author's applying consistent criteria in verifying the origin of the words.

<sup>16</sup> Source: Ramminger 2003– [Homepage].

<sup>17</sup> Ramminger 2003– > Grundlagen – Übersicht.

All these circumstances preclude the possibility of far-reaching frequency-based conclusions about EML vocabulary. But, the outline of some trends can hopefully emerge, no matter how cautiously they are to be expressed.

### Distribution among the word classes

Novel words from the *NLW* are distributed among the word classes in a manner consistent with what we would expect from neologisms: substantives (7059) form by far the most numerous group, followed by adjectives (4496); verbs (1428) and adverbs (1017) are fewer, but not negligible; finally, new EML numerals (9),<sup>18</sup> pronouns (2),<sup>19</sup> and interjections (2)<sup>20</sup> are exceptional. As AL is always the standard against which all later Latin is measured, it seems sound to check how our corpus relates to it. How are the word classes and their subtypes distributed in AL and how do they compare with the words in the *NLW*? Is EML a balanced extension of AL, or did it take idiosyncratic paths? If the latter, was the change moderate or radical? In either case, is there a plausible explanation?

As minor word types (numerals, interjections, and prepositions) are extremely rare in the observed part of the *NLW* and morphologically less productive, we include only four major word classes. We use percentages to normalise the frequencies between the two corpora. Here is first a tabular view (Table 1):

word class	<i>LS</i>			<i>NLW</i>		
	common	proper	total	common	proper	total
<i>sub</i>	20429	8450	<b>28879</b>	6555	504	<b>7059</b>
	(39.50%)	(16.34%)	<b>(55.84%)</b>	(46.82%)	(3.60%)	<b>(50.42%)</b>
<i>adi</i>	10288	2597	<b>12885</b>	4211	285	<b>4496</b>
	(19.89%)	(5.02%)	<b>(24.91%)</b>	(30.08%)	(2.04%)	<b>(32.11%)</b>
<i>ver</i>	7083	3	<b>7086</b>	1382	46	<b>1428</b>
	(13.70%)	(0.01%)	<b>(13.70%)</b>	(9.68%)	(0.32%)	<b>(10.17%)</b>
<i>adv</i>	2826	40	<b>2866</b>	979	37	<b>1016</b>
	(5.46%)	(0.08%)	<b>(5.54%)</b>	(6.99%)	(0.26%)	<b>(7.26%)</b>

**Table 1. Distribution of the four major word classes in the *LS* and the *NLW***

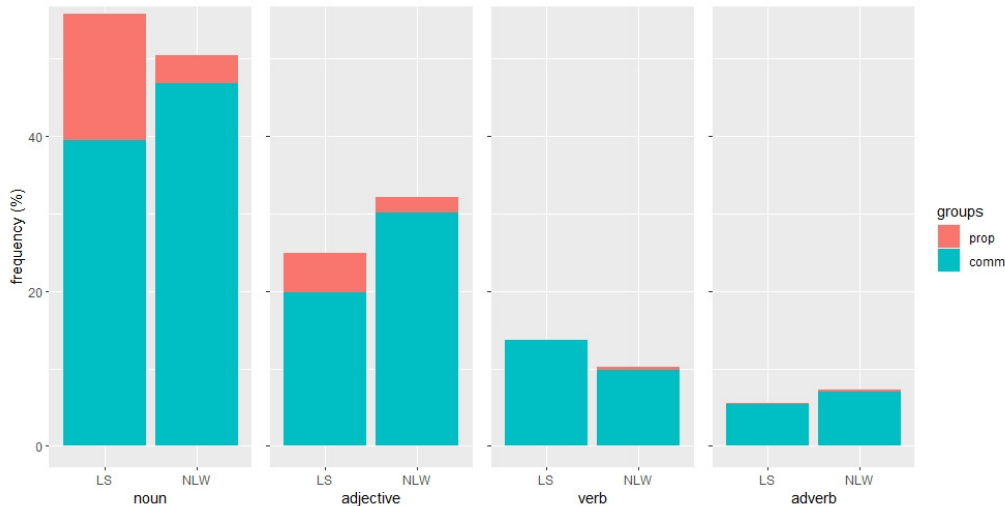
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<sup>18</sup> Playful (*h*)*arenaginta* ‘as many as sand’, probably only orthographic *otto* ‘eight’, variant *undeuigesies* ‘nineteen’, extensions of *sesqui-*: *sesquiquattuor* ‘three (!) and a half’ and *sesquimille* ‘one thousand and five hundred’, and *semi-*: *semiduo* ‘one and a half’, *semitres* ‘two and a half’, *semicentum* ‘fifty’.

<sup>19</sup> *Aliquidam* ‘some’ and *aliquisdam* ‘someone’ (reducible to the same root).

<sup>20</sup> *Haha* (a variation of an AL interjection) and *uhe*.

A visualisation enables a more intuitive comparison (Figure 3):



**Figure 3. Distribution of the four major word classes in the LS and the NLW**

A significant increase in the number of common nouns and adjectives is unsurprising. It is balanced by a smaller number of proper nouns, resulting from the *NLW*'s restricted approach to their inclusion. These EML proper nouns are mostly derivatives. Verbs and adverbs overall are less readily added to the vocabulary, but humanists extensively used the possibilities to make them out of proper names, a strategy sparingly used in AL: while *LS* has only *Christianizo* 'to profess Christianity', *Galaticor* 'to act (religiously) as Galatians', and *Iudaizo* 'to live in a Jewish manner', in the *NLW* there are 43 such verbs, using the mere two endings offered by AL: *-is(s)ol/-iz(z)o* and – in one case – *-or*).

The chart shows that the mutual proportions of word classes preserve the ancient distribution. This means that the linguistic development continued at an even pace across the word classes. An invisible hand of linguistic development did not let any group notably stick out, so that the early modern writers expanded the vocabulary to the extent that was defined by the ratios of ancient vocabulary.

The increase in the number of items in each individual word class is remarkable. EML nouns, adjectives, verbs, and adverbs listed in the *NLW* increased vocabulary inherited from AL by 24.44%, 34.89%, 20.15%, and 35.45%, respectively. This is another indication of the vitality of humanist Latin and an argument against the claims about it being sterile and petrified.<sup>21</sup>

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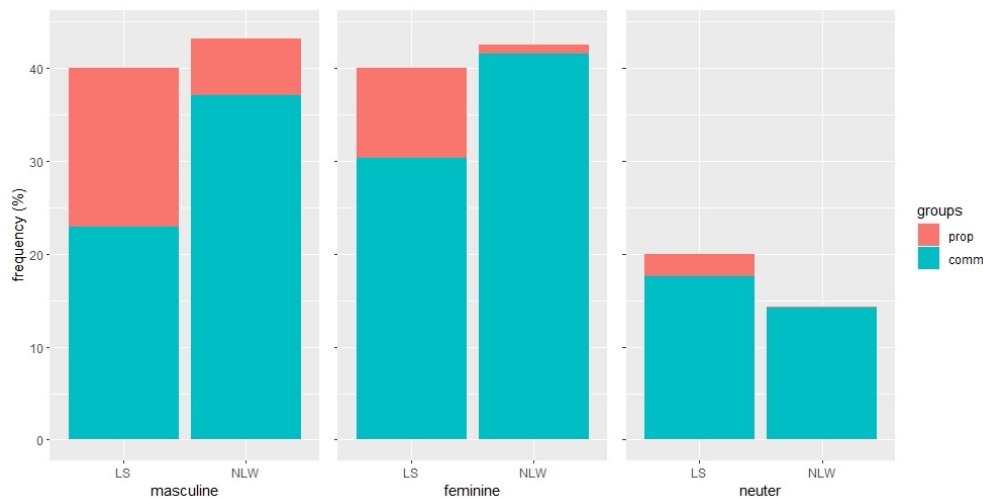
<sup>21</sup> On the birth of EML as marking the death of Latin see, e.g., Norden 1898, 767, Febvre & Martin 1976, 320, Blumenthal & Kahane 1979, and Burke 2004, 58. One of the many rebuffs: Briesemeister 1996, 118.

And these are only data from a single (incomplete) dictionary, concerning only morphology, without considering semantics, stylistics, phraseology, pragmatics, or the influence of medieval Latin.

Now let us zoom in to individual word classes.

### Noun gender

Noun gender distribution can be seen in Figure 4.<sup>22</sup>



**Figure 4. Distribution of noun genders in the LS and the NLW**

The overall proportions of nouns have remained almost the same across genders. In both corpora, feminine and masculine nouns are in a perfect mutual balance. However, the increase is not that smooth if common and proper nouns are viewed separately. Among proper nouns, early modern writers needed masculine neologisms more than feminine or neuter. This tendency is also noticed in the ancient corpus but is much more pronounced in the Early Modern Period – while masculine proper nouns make 58.31% of proper nouns in the LS, they cover no less than 85.91% of the NLW's proper nouns. On the other hand, the proportion of female proper nouns drops from 33.21% to mere 12.50%. Proper neuter nouns are so scarce that they can all be listed here: *Asclepianum* 'shrine of Asclepius', *Buccentaurilia* (a Venetian festivity), *Christicidium* 'killing of Christ', *Europalia* 'festivity dedicated to Europe', *Lipsiomnema* 'memory of Lipsius', *Vitaulium* (name of an estate), *Vrbanalìa* 'feast of St Urban'.<sup>23</sup>

<sup>22</sup> The sum of the individual groups does not correspond to the total because of some *nomina communia* and *incerti generis*.

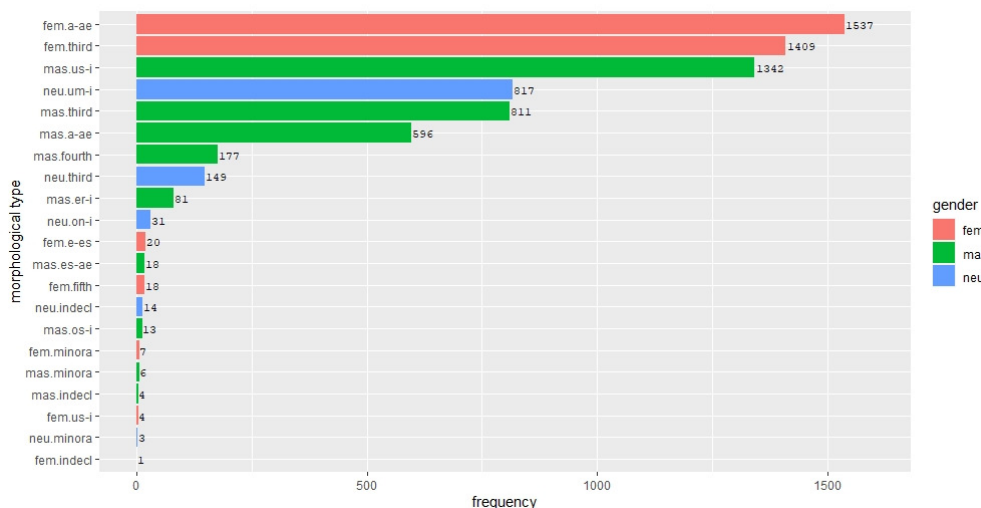
<sup>23</sup> A large percentage of such words, four out of seven, are *pluralia tantum*. In AL, where these are mainly geographical names, *pluralia tantum* make only 19.66% (81 out of 412).

The share of the most represented gender among common nouns, female, increased from 42.76% to 44.77%, while masculine common nouns grew from 32.49% to 39.89%. This happened at the cost of neuter gender nouns, which went from 24.84% down to 15.34%. As the criteria of the inclusion of proper names differ greatly between the two dictionaries, the increase in the number of common nouns represents a more reliable ground for any conclusions. The bottom line is that EML writers needed a larger number of new masculine and feminine nouns, while neuter nouns – which occupied almost one-fourth of the common noun vocabulary in AL – were much less frequently created.

### Morphological types

Within each word class, words are distributed among several morphological types. We observe this distribution in our *NLW* corpus. Due to the frequently unclear border between nouns and adjectives, the fact that dictionary compilers have various approaches to interpreting and representing their mutual relations, as well as the version of the *LS* employed here being inconsistently annotated in this respect, the quantitative comparisons with the *LS* were conducted only on subsets of data which could be checked manually. One such group are verbs, because there were no difficulties in weighing the two dictionaries against each other in the analysis of conjugation types.

Figure 5 displays various morphological groups of new nouns in the *NLW*.



**Figure 5. Morphological types of novel nouns in the *NLW***

Predictably, new nouns of the first and second declensions dominate in each of the genders. However, some results stick out as somewhat curious. First, feminine third declension nouns substantially outnumber their masculine counterparts. It turns out that more than half of this number (706) are *nomina*

*actionis* in *-io*, *-ionis*. Summed up together with derivations in *-tas* (453) and *-trix* (117), they make up for 90.56% of nouns in this group.<sup>24</sup> The comparison with the *LS*, where their combined percentage is 69.23%, points to the increased morphological uniformity as a result of a preference for a narrowed range of suffixes.

Another suspiciously numerous group consists of masculine nouns of the first declension. While the *LS* has 431 of them, in the *NLW* there are 596. Proportionally to the total number of nouns, that is more than a 5x increase. A closer look reveals that almost half of these nouns (267) are derivatives in *-ista*. *LS* has no more than 32 such nouns. Moreover, 81 in the *NLW* and mere 4 in *LS* (*Cybelista*, *Ennianista*, *Homerista*, *Papinianista*) are derived from proper names. This is an indication of humanist fondness for polemical labelling, especially ideological and often playful (for example, here is the list of derivatives with the element *-papista*: *Anglopapista*, *antipapista*, *archipapista*, *Caluinopapista*, *secundopapista*, *semipapista*). Further 90 nouns are compounds with *-cola* or *-gena*, against only 68 in the *LS*.<sup>25</sup>

On the low-frequency end of the list, we can see that the early modern writers occasionally created novel words in more exotic categories: 20 feminine nouns in *-e*, *-es* are of Greek origin (most notably names of professions and disciplines: *botanice* ‘botany’, *collybistice* ‘banking’, *semiotice* ‘symptomatology’, *sycophantice* ‘art of flattering’, *typographice* ‘printing art’), as are 18 masculine nouns in *-es*, *-ae*. *Indeclinabilia* are mostly neologisms of non-European origin such as *cacao* ‘cocoa’, *eslam* ‘Islam’, *ramadan* ‘Ramadan’, *rob* ‘concentrated juice’, and *zibit* ‘coin’, but there are also a few extensions of ancient words (*antigamma* ‘non-gamma’, *archinequam* ‘arch-rascal’, *seruisolis* ‘servant of sun’). The *minora* group consists for the largest part of various combinations of Greek endings (e.g., *Christotis*, *-tetos*, *f.* ‘Christhood’, *archihaeresis*, *-eos*, *f.* ‘arch-heresy’, *canonomastix*, *-igae*, *m.* ‘enemy of canons’), *pereclixion*, *-i*, *f.* (a kind of tree), *tetractys*, *-yos*, *f.* ‘fourness’).

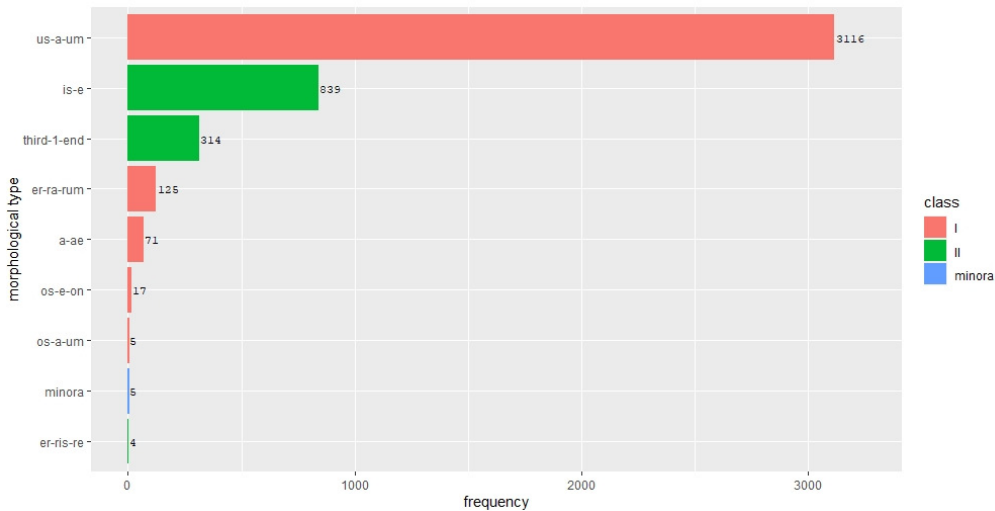
Among the adjectives (Figure 6), the top of the list (*us-a-um*, *is-e*) is unremarkable. The *er-ra-rum* group shows clear signs of uniformisation: 90.40% are compounds with *-fer* or *-ger*, which are, like nouns with *-cola* and *-gena*, capable to couple with all kinds of culturally charged lexemes. Less represented groups are either adjectives with Greek endings, or derivations from ancient words (*ferriuent* ‘iron-stomached’, *subcampester* ‘placed

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<sup>24</sup> See Helander 2014, 43–45 for the importance of nouns in *-io* and *-tas* for expressing qualities and processes in scientific prose.

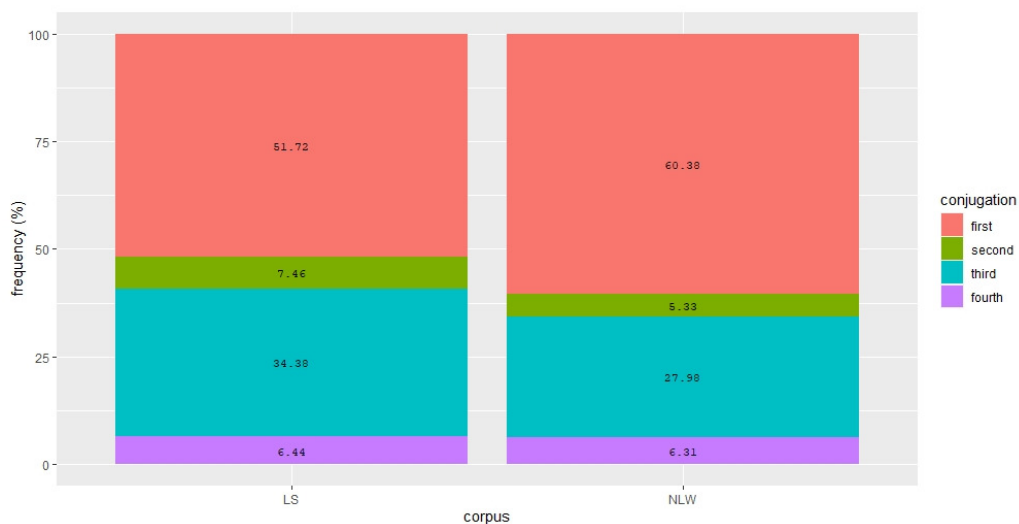
<sup>25</sup> A detailed analysis of the use of *-ista* in Renaissance literature (with focus on *humanista*) is Ramminger 2007. I thank one of the anonymous reviewers for this reference.

under a plane’), or humorous designs (*pedesterrimus* ‘the most pedestrian’, as if coming from *pedester* ‘pedestrian’).



**Figure 6. Morphological types of novel adjectives in the NLW**

We divide the verbs (Figure 7) in four basic classes and compare them to the verbs in the *LS*:<sup>26</sup>



**Figure 7. Morphological types of novel verbs in the NLW compared to those in the *LS***

A considerable increase in the proportion of the first conjugation verbs is not surprising. It is evident from the graph that it mostly happens at the cost of the third conjugation, and somewhat less, second. The share of the fourth

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<sup>26</sup> We discard the irregular verb *circumadsum* ‘to be around’.

conjugation remained the least affected one. Looking inside each of the groups, we discover that, naturally, most verbs are only extensions of AL verbs by means of innovative prefixing or suffixing.

The second and fourth conjugation EML verbs are exclusively extensions of ancient verbs: most of them are formed by means of prepositional prefixes or compounding. But, while all second conjugation verbs are such, a non-negligible number of the fourth conjugation verbs (17) is produced with the suffix *-urio*. This suffix accounts for the relative consistency of the fourth conjugation percentage: without these verbs, the fourth conjugation fraction would drop to 5.18%, which would make it the least numerous of the conjugations.

In the third conjugation, the extraordinarily productive suffix *-sco* is responsible for about 1/3 of the items (in the *LS*, it takes up less than 1/4 of the third conjugation verbs). The rest – except for *lap(e)o* ‘to lap up’ (which may be second or third conjugation), *mucuo* ‘to be mucuous’, *stampo* ‘print’, and *traulizo* ‘to lisp’ – are compounds and prefixed verbs. Note that not all prefixed verbs are derived from ancient roots (e.g., *desbatto* ‘to beat (oneself mourning at a funeral)’, *interklaffo* ‘to butt in’).

It is in the first conjugation that a vast bulk of the novel verbal roots and non-prefixed verbs are found. The most frequent suffixes – making 1/4 of the entire group – are *-is(s)o/-iz(z)o* (162 – for derivations from proper names this is almost the exclusive way; in *LS* there are only 40 such verbs) and *-ito* (77). In contrast to all other conjugations, there are dozens of verbs formed from non-ancient roots here; they are derived from both proper names (e.g., *Alueldisso* ‘to argument like Alveld’, *Zwinglianizo* ‘to follow Zwingli’s teachings’) and common nouns (e.g., *archibugio* ‘to shoot’, *badalucco* ‘to gaze(?)’, *dagesso* ‘to ramp up’, *galopo* ‘to canter’, *hemmo* ‘to say *hem*’, *lastrico* ‘to pave’, *musulmanisso* ‘to become a Muslim’, *poloniso* ‘to favour Polish things’, *trufo* ‘to make fun of’).

Preference for the first conjugation is also obvious from the comparison of the individual conjugations with their ancient precedents. The increase in the number of verbs from the *LS* to the *NLW* is 23.88% in the first conjugation, 14.20% in the second, 16.65% in the third, and 20.04% in the fourth.

### Derivational suffixes

The *NLW* offers the *Index inversus*, a very handy tool for spotting popular word endings. As it only mechanically lists items, without distinguishing between words of various types and origins, a more fine-grained analysis is needed. The *Index*, as well as the alphabetical list of lemmas, can help us identify popular suffixes, prefixes, and compound elements in the corpus. Examination of selected elements shows how and to what extent the early

modern authors build upon ancient precedents. This in turn indicates the directions in which Latin vocabulary was expanded in the Early Modern Period.

We count some of the recurring EML derivative suffixes and compare their frequencies in the *NLW* and the *LS*. The result is shown in Figure 8.<sup>27</sup>

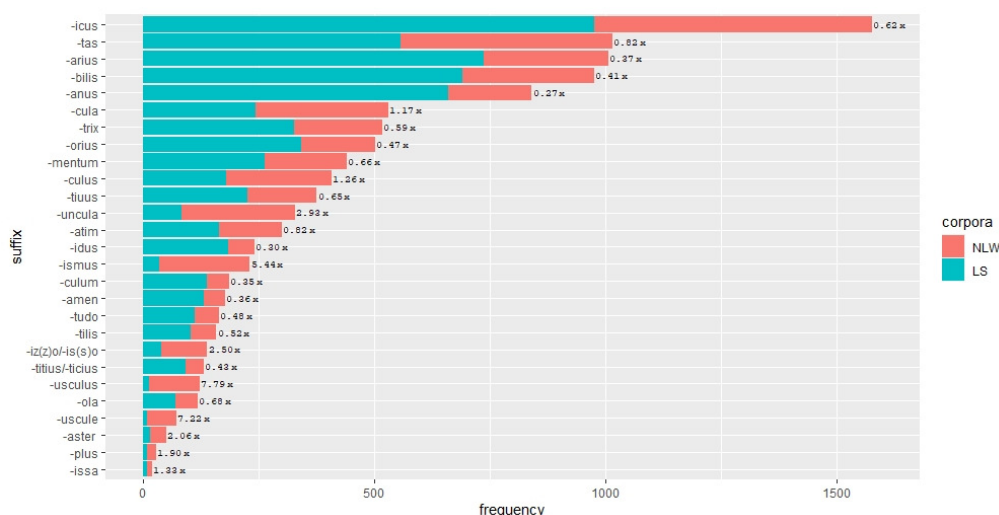


Figure 8. Some recurring derivative suffixes in the *LS* and the *NLW*

The numbers in the figure represent the factors of increase, corresponding to the ratio between the *NLW* and the *LS* words carrying individual suffixes. Factor “1” would mean that the quantities are equal, i.e., that the number of new EML words is the same as the number of the words confirmed in AL (e.g., to 200 AL words 200 EML words are added) – in such case, the total count of words would double from AL to EML (i.e., in this case it would be 400). The non-negligible general contribution of the early modern writers to Latin vocabulary is obvious at first glance. However, some prefixes proved to be especially productive. For example, it is a known fact that ML and EML readily produced new diminutives. Our data confirm this: words with suffixes such as *-cula* (287 new items against 245 ancient ones) or *-culus* (228/181), and especially their subsets in *-uncula* (246/84) or *-usculus* (109/14, with adverbial extension *-uscule*, 65/9), were produced in much larger number than they were inherited from the classical antiquity. Another group prominent in this respect are words with Greek suffixes, e.g., *-ismus* (196/36), *-iz(z)o/-is(s)o* (100/40), *-aster* (35/17), and *-issa* (12/9). It is not difficult to imagine why Renaissance writers needed a lot of new words such as *Benedictiniaster*, *Erasmiso*, *Franciscanismus*, *grammatheologaster*,

<sup>27</sup> Nominal and adjectival suffixes are viewed together because they frequently overlap, and words can easily switch between the two categories in real-life usage.

*haereticismus, hebraicaster, Hussitismus, Iesuitissa, islamismus, Lipsianizo, Machiavellaster, Mahometizo, marggrauissa, palatinissa, pseudo-politicismus, rabbinizo, repapizo, or saecularizo.*

### Prefixes

Another method of creating new lexemes is prefixing. In Figure 9, the words with several prepositional prefixes in the *LS* and the *NLW* are compared with each other by appearance.

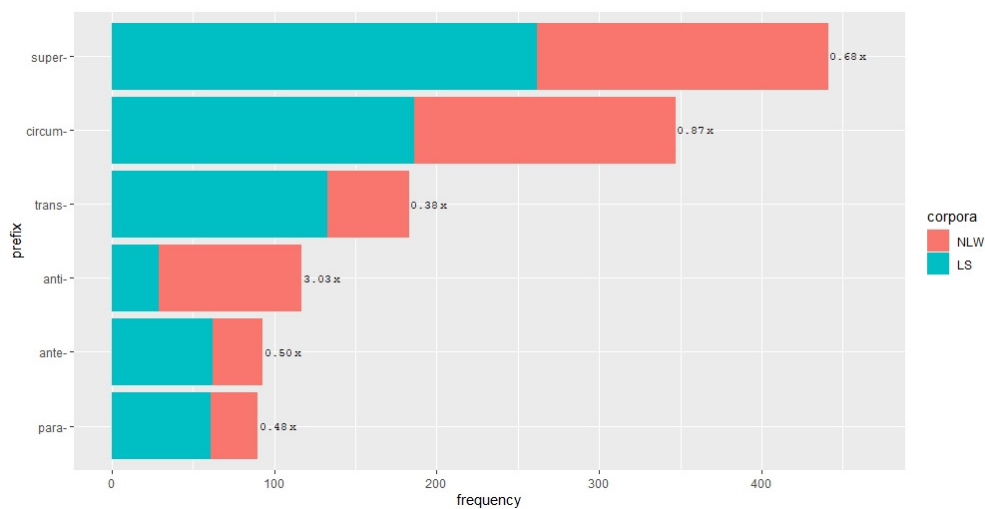


Figure 9. Some recurring prefixes in the *LS* and the *NLW*

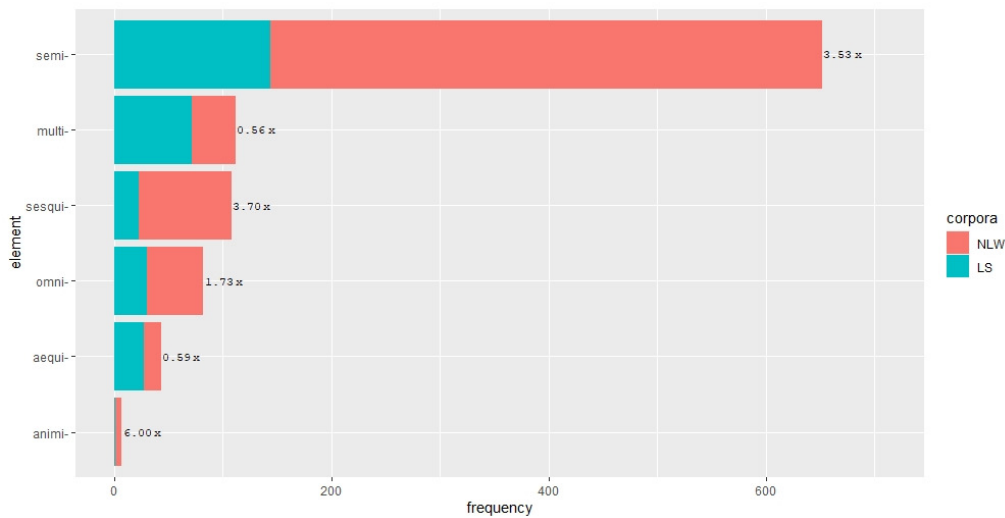
Both Latin and Greek prefixes proved to be very useful to early modern writers, as they account for an increase on the scale from one-third (*trans-*) to three (Greek *anti-*, which helped generate 88 new words against 29 found in *AL*). In an environment saturated with talk about anticardinals, antidogmaticists, antilutherans, antipopes, and antiturkish sentiments, this is not surprising. Words with more frequent prefixes (*a(b)-*, *ad-*, *con-*, *de-*, *e(x)-*, *in-*, *inter-*, *ob-*, *per-*, *prae-*, *pro-*, *sub-*) or their combinations are extremely numerous and found in an enormous number of neologisms, but as their presence is also extremely strong in *AL*, they can constitute a whole large separate topic of research (and one not apt for a quantitative investigation at this level of our knowledge).

### Compounds

Compounding is an additional rich strategy of neology, enabling users to combine meanings from two semantic fields within one word. The prominent ancient Roman theory of the *patrii sermonis egestas* in compounding (as

opposed to more abundant Greek) had long been contradicted.<sup>28</sup> However, although early modern writers were very versatile in upgrading Latin by compounding, the early modern stage of the language has not yet been investigated in this respect.<sup>29</sup>

For the sake of convenience, we divide the compound elements into four groups: Latin front element, Greek front element, Latin back element, and Greek back element.<sup>30</sup>



**Figure 10. Some recurring front compound elements of Latin origin in the LS and the NLW**

Among the very productive Latin elements as front parts (Figure 10), *semi-* ‘half’ is especially salient (508 new words against 144 ancient), but a considerable expansion is observable also in the case of *sesqui-* ‘one-and-a-half’ (85/23), *omni-* ‘all’ (52/30), and *animi-* ‘soul’ (in the LS only *animicida* ‘soul-killer’, in the NLW 6 additional words: *animicidium* ‘soul-killing’, *animiclepa* ‘soul-stealer’, *animimistio* ‘soul-linkage’, *animipendo* ‘to reflect’, *animirapa* ‘mind-grabber’, *animitraha* ‘mind-drawer’). The element *perquam-* ‘very’ has an infinite growth because it is found in 43 new words, while none such is attested in the antiquity. The reason is that after the

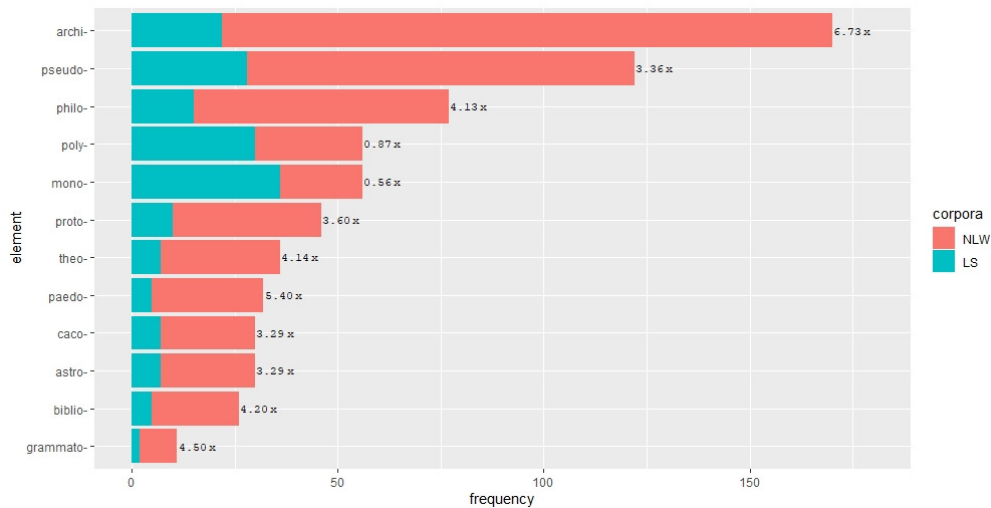
<sup>28</sup> One of the anonymous reviewers drew my attention to the humanist discussions about the richness of Latin and Greek languages. The likes of Petrarch, Bruni, and Valla lost no opportunity to stress the equality (and ever superiority) of Latin in comparison to Greek.

<sup>29</sup> See, e.g., Lindner’s thorough study, where a (brief) section about the history of post-ancient *Komposita* mainly discusses transition from Latin to Romance (Lindner 2002, 312–321) and conflates the Middle Ages with the Early Modern Period.

<sup>30</sup> Although compounds can consist of more than two lexical elements, we make distinction only between front and back ones. Proper names as front parts are observed separately below.

Antiquity it started to be attached to the word it refers to; thus, new lexemes were formed.<sup>31</sup>

The colours in Figure 11 make it obvious that, when it comes to Greek elements on the left-hand side of compounds, early modern creativity explodes.

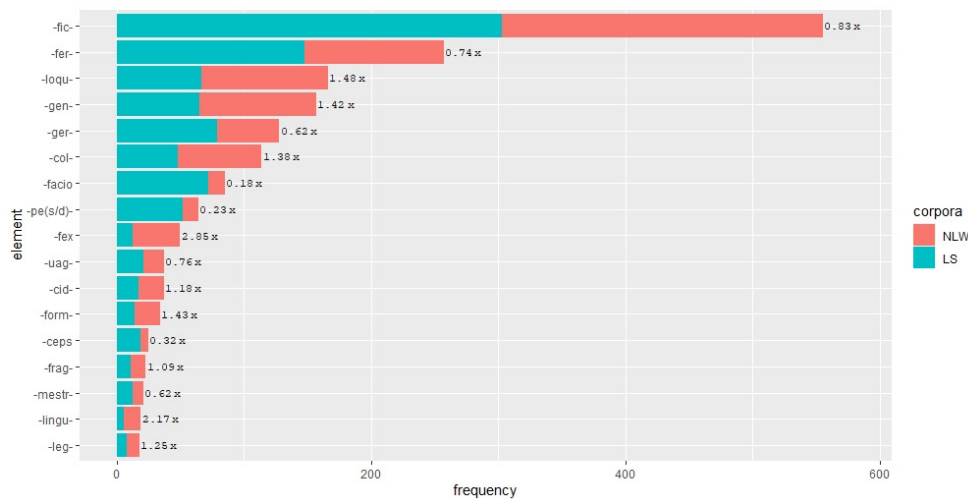


**Figure 11.** Some recurring front compound elements of Greek origin in the *LS* and the *NLW*

The words with which these elements combine multiplied in almost every case. Thus *archi-* ‘arch’ grew from 22 to 148, *pseudo-* ‘false’ from 28 to 64, *philo-* ‘love’ from 6 to 62, and *astro-* ‘star’ from 7 to 23. The change is also significant within individual roots: for example, in AL *paed-* ‘child’ appeared exclusively in the word family *paedagogus*, while in EML we find words and families *paedobaptismus*, *paedodidascalus*, *paedogonia*, *paedologia*, *paedomachia*, *paedomantia*, *paedomastix*, *paedonomarcha*, *paedonomia*, *paedonothia*, *paedopater*, *paedophagus*, *paedophlebotomia*, *paedophonascus*, *paedotribia*, as well as extensions like *paedagogiarcha* and *paedogerontagogus*.

Components of Latin origin were also used as a strategy for vocabulary enlargement as back elements (Figure 12).

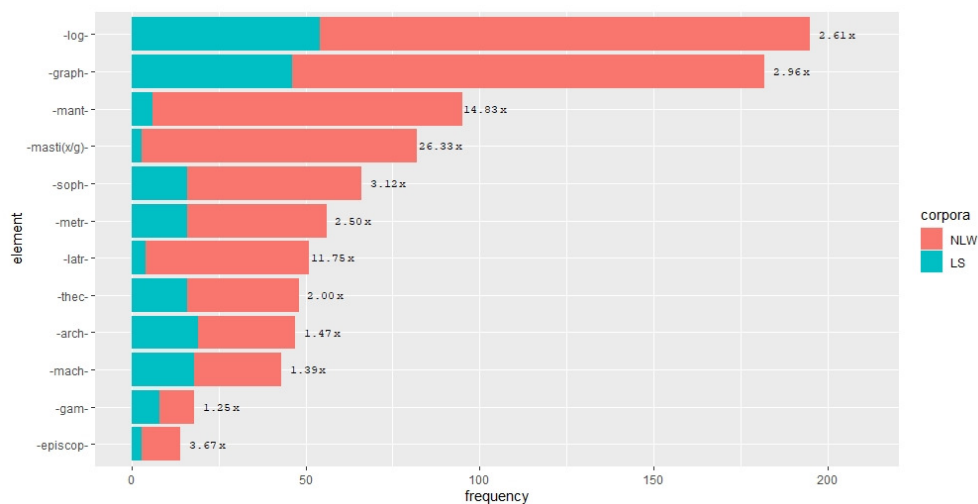
<sup>31</sup> It is excluded from the graph, as well as the Greek *botano-* ‘plant’ below, which had not existed as a compound element in AL, and therefore grew from 0 to 13.



**Figure 12.** Some recurring back compound elements of Latin origin in the *LS* and the *NLW*

Those standing out by absolute growth are *-fic-* ‘make’ (303 new items), *-fer-* ‘bring’ (109), and *-loqu-* ‘talk’ (99), while relative increase is the highest in the case of *-fex* ‘maker’ (37 versus 13) and *-lingu-* ‘tongue’ (13/6).

Greek front compound elements preannounced that on the right-hand side we could also expect high numbers of new words.



**Figure 13.** Some recurring back compound elements of Greek origin in the *LS* and the *NLW*

The data confirm the prediction (Figure 13), but we could have hardly been prepared for increases by two-digit ratios such as those found in the case of *-mastix-/mastig-* ‘scourge’ (79 NL versus 3 AL), *-mant-* ‘prophecy’ (89/6), and *-latr-* ‘worship’ (47/4). This is, of course, not to say that the scope of

innovations in other cases – e.g., *-log-* ‘word’ (141/54), *-graph-* ‘write’ (136/46), *-soph-* ‘wisdom’ (50/16), *-metr-* ‘measure’ (40/16) – is unimpressive, though being less extreme.

Departing from a modest ancient set, which comprises three words – *Ciceromastix*, *grammaticomastix*, and *Homeromastix* – the early modern world created the environment where everybody and everything of any pertinence could deserve to have its own scourge (to name only a few: *antilutheromastix*, *(a)theomastix*, *Capniomastix* (but also *Reuchlinomastix*), *exorcismomastix*, *gamomastix*, *Mariaemastix*, *mystomastix*, *Picinomastix*).<sup>32</sup> Similarly, *-latr-* is found only in late ancient Christian texts, in *anthropolatra* and three words related to *idololatria*, while in the Renaissance the lexical field swelled up by addition of words such as *angelolatra*, *artolatra*, *Calvinolatra*, *daemonilatra*, *gastrolatra*, *lipsanolatra*, *Mariolatra*, *moscholatra*, *necrolatra*, *ossilatra*, *papolatra*, *parthenolatra*, *phthartolatra*, *pornolatra*, *prosopolatra*, *sceletolatra*, *vitulolatra*, *xylolatra*, and their derivatives.

### Proper names and their derivatives

Proper names are the lexemes most exposed to biases in corpus design. Their appearance and frequency heavily depend on the topic of the writing; thus, the selection of the texts on which a dictionary is based defines the outcome of their analysis. Here, rather than going into a deep analysis of names, we are concerned with general trends of their inclusion into novel words.

About two-thirds of derivatives from proper names in the NLW (561 out of 873) have one of the following endings: *-icus* (111x), *-ismus* (84x), *-ista* (84x), *-anus* (75x), *-gena* (49x), *iz(z)o/-is(s)o* (43x), *-mastix* (43x), *-itas* (28x), *-cola* (22x), and *-ita* (22x). Of the remaining 300+ words, perhaps the most interesting are examples of superlatives and adverbs derived from proper names. In the former group, we encounter *Mauortissimus*, *Sorbonnissimus*, *Thomisticissimus*; in the latter, *Aegyptie*, *Aristarchice*, *Bressanice*, *Christianice*, *France*, *Ismaelitice*, *Lombardice*, *Lucianice*, *Lutherane*, *Lutheristice*, *Machiauellistice*, *Plotinice*, *Reginice*, *Xenophilice*. Many such creations are superlative adverbs: *Bariesuitissime*, *Henricissime*, *Lipsissime*, *Thomacissime*, *Thomisticissime*, *Wittenbergissime*.

The early modern writers were especially fond of creating new words from familiar names. Here are some of the most popular ones, with the number of derivatives and compounds in which they are found: *Lut(h)er-* (28), *Caluin-*

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<sup>32</sup> See Helander, 2014, 49.

(22), *Mahomet*-<sup>33</sup> (26), *Christ*-<sup>34</sup> (20), *Mac(c)hiauell*- (16), *Gall*- (11), *Iesuit*- (11), *Cicero*- (9), *Erasm*- (9), *Zwingli*- (9), *Capnio*- (7), *Gonzag*- (7), *Melanc(h)t(h)on*- (7). Three names – Luther, Calvin, and Muhammad – top the list, occupying positions above Jesus Christ. It is, therefore, obvious who were the Beatles of the 1520s.

## Conclusions

A majority of the early modern Latin authors were not ready to give up a fitting coinage because it had not been attested in AL. As long as the formation rules were respected, the word was perfectly acceptable. This does not only apply to the technical writers, but also (though to a lesser extent) to belletrists.<sup>35</sup> The present study does not try to prove this familiar point. Instead, it outlines the preferred directions of the development based on the most comprehensive dictionary of EML. The data indicate which morphological patterns the authors felt most comfortable with and what strategies they accepted as the most natural ones.

A wider-reaching empirical investigation, with precise counts, is needed to verify H. Helander's suggestion that words formed with Latin elements that just did not happen to be combined in that way in extant AL texts form the most numerous group of neologisms.<sup>36</sup> However, some tentative conclusions emerge from our analysis. Firstly, all major word classes were significantly expanded from AL to EML; in addition to that, some of them are exceptionally productive in the latter (e.g., verbs created from proper names). Furthermore, among nouns, derivatives from masculine proper nouns stand out as unexpectedly numerous, while all kinds of new neuter nouns appear less readily. The study of suffixes suggests an increased uniformity in derivational models, since several morphological types cover a disproportionately large number of words in every word class. Many of the affixes gained special popularity in the Early Modern Period (e.g., diminutive suffixes, *anti*-, *-ismus*, and *-iz(z)o/-is(s)o*). Finally, the most remarkable quantitative change from AL to EML is observed in compounding: both Greek and Latin elements – especially the former ones – were used to build compounds much more readily than earlier.

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<sup>33</sup> Variations are: *Mahumed*-, *Mahumet*-, *Maomet*-, *Maumett*-.

<sup>34</sup> Excluding words with *Christian*-. There are also three compounds with *Iesu*- referring directly to Jesus (not to Jesuits).

<sup>35</sup> IJsewijn & Sacré 1998, 382–390.

<sup>36</sup> Helander 2014, 41. Compare IJsewijn & Sacré 1998, 389, who put them on the last place in their survey, probably because they are the least remarkable formations: “Purely Latin neologisms are not lacking either.”

Further work on Early Modern Latin vocabulary can proceed in at least two general directions. The first one is quantitative. Naturally, the presence of a word in a dictionary tells nothing about its real popularity: it only shows that in a certain moment it was acceptable to a person as an extension of the language they knew. It is corpus explorations of the original texts that can give a more complete sociolinguistic picture. The second course comprises all kinds of qualitative research. Distinguishing usage among authors, periods, regions, genres, and topics (e.g., building upon analyses like Helander 2014, 47–54), as well as integration of quantitative and qualitative data, certainly has a fruit-bearing potential.<sup>37</sup> The *NLW* offers an excellent starting point for such inquiry.

What we know about the development of Latin vocabulary makes one fact certain: without neologisms, Early Modern Latin would not only be deficient – it would also be deeply flawed and untenable.

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<sup>37</sup> For example, one could wish to scrutinise the relationship between the value-neutral *scholaster* ‘headmaster’ (or *sororaster* ‘stepsister’ (?), like the ancient *filiaster* ‘stepson’) against the pejorative *chymiaster* ‘quack’ (like the ancient *philosophaster* ‘bad philosopher’). Quantitative research of AL is abundant (e.g., Kircher-Durand ed. 2002).

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