

*WHERE COULDST THOU WORDS OF
SUCH A COMPASS FIND?:*
AN INVESTIGATION INTO MILTON'S
NEOLOGISMS IN THE OED IN RELATION TO HIS
CONTEMPORARIES

by

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Abstract

'It is magnificent; but is it English?' Middleton Murry (1922: 118) asks of John Milton's poetic language in Paradise Lost. The question surrounding Milton's 'unenglish' neologisms or 'ghost Latinisms' has been long debated amongst literary scholars such as Leavis and Fowler (1968: 432); with the Anti-Miltonists supporting T.S. Eliot's (1936) argument that Milton has 'done damage to the English language from which it has not wholly recovered'. This project seeks to advance understanding about Milton's coining of neologisms by placing such studies on an empirical footing. Through my empirical study of the neologisms attributed to Milton and his literary contemporaries in the Oxford English Dictionary, this study will use quantitative data to test existing literary claims about the linguistic properties of these neologisms.

This dissertation presents a comprehensive study of the neologisms attributed to John Milton and his literary contemporaries in the Oxford English Dictionary. The Oxford English Dictionary provides a productive way of assessing the linguistic nature of the neologisms, given the detailed etymological and lexicographical information the editors have compiled for each word. The new Oxford English Dictionary Application Programming Interface, enables this data to be

extracted easily and in its entirety, compared to previous access to the dictionary.

This project aims to contribute to the understanding of the linguistic types of neologism associated with Milton. The neologisms attributed to Milton are compared with both his literary contemporaries, and the literary criticism surrounding his use of language. How are the contrasting literary perceptions relating to Milton's use of Latinate lexis or morphemes, reflected in the Oxford English Dictionary data? This thesis argues that by contextualising Milton with his early modern contemporaries, the true novelty of his neologisms can be assessed.

The results from this thesis find that Milton's neologisms do differ from those of his contemporaries, across their word formation, word class, rate of coining, and etymon sources. In particular, Milton is found to use a higher proportion of 'borrowing hybrids' in his Latin borrowing, which forms English-Latin hybrids, rather than direct borrowings from Latin. Methodologically, this thesis also demonstrates the potential of the Oxford English Dictionary Application Programming Interface in linguistic research.

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List of Abbreviations

API	Application Programming Interface.
EEBO	Early English Books Online.
EMMA	Early Modern Multiloquent Authors.
HTML	HyperText Markup Language.
JSON	JavaScript Object Notation.
OED	<i>Oxford English Dictionary</i> .
OED API	<i>Oxford English Dictionary</i> Application Programming Interface.
OUP	Oxford University Press.
SOED	Shorter Oxford English Dictionary.

VARIENG Research Unit for the Study of Variation, Contacts and Change in English.

XML Extensible Markup Language.

CHAPTER 1

INTRODUCTION

What do ‘exhilarating’, ‘fragrance’, ‘damp’, ‘irresponsible’, ‘outer space’, and ‘obstructs’ have in common? All of these words are examples of literary neologisms produced by John Milton. A literary neologism is a word created by or changed semantically by an author or journalist (Dickson 2014: 1). The number of literary neologisms for an author tend to be based on evidence in the *Oxford English Dictionary* (OED), which credits the likes of William Shakespeare, Walter Scott, and Geoffrey Chaucer as the leading word creators in English (OED ‘sources’: 2019). For Cambridge scholar Gavin Alexander, the words listed above are examples of literary neologisms that John Milton is responsible for introducing into the English language (Alexander in Crace (2008) and Dell (2008)). All the words above are taken from a public-facing document at Milton’s Cottage in Chalfont St Giles in Buckinghamshire. The photograph of the document entitled ‘Milton’s Neology’, in figure 1.1, shows the words compiled by Alexander as part of the 400-year celebrations of Milton’s birth. As is typical of counting

the number of neologisms for an author (Brewer 2012; Hope 2016; Culpeper 2018), Alexander turned to the ‘definitive record of the English language’: the OED to conduct his search (OED 2019). Using the first quotations listed in the dictionary, Alexander was able to attribute around 630 neologisms to Milton. As this is the most of any other writer, Alexander consequently heralds John Milton as the ‘country’s greatest neologist’, ahead of the likes of William Shakespeare and Ben Jonson (Alexander in Crace (2008)).

Yet, upon my visit to Milton’s Cottage in 2017 I found myself asking how could Milton be the ‘country’s greatest neologist’? Milton has become recognised as one of the great English poets, based on the Tonsons’ influence on the early English literary canon (Bernard 2015: 10-11); however, Milton’s road to literary canonicity was not a straight-forward one.

John Milton was a seventeenth-century poet and polemicist (Campbell 2009). Today he is well-known for his epic biblical poem *Paradise Lost*, and he was celebrated by the lexicographer Samuel Johnson (2010: 203) as ‘a master of his language in its full extent... that from his book alone the Art of English Poetry might be learned’. However, to his early modern contemporaries Milton was not the celebrated poet we regard him to be today. Instead, Milton was known for his heterodox views on religion and politics, including his controversial support for divorce (Berg and Howard 2010). Milton openly supported Oliver Cromwell and worked for the English Commonwealth, which included writing about and defending these political views in both English and Latin. His most well-known work during his lifetime was *Defensio pro Populo Anglicano*, a political Latin

tract defending the Cromwellian government (Worden 2010: 5). Following the restoration of the monarchy in 1660, Milton was arrested and spent a brief spell in the Tower of London, before Andrew Marvell aided his release. Also, at this time, an order was also issued for the destruction of some of Milton's prose tracts and many copies were burnt (Campbell 2009). After his release, Milton moved to Chalfont St Giles with his wife and daughters to the very cottage where I stood observing this list of his neology (Campbell 2009). As shown, Milton has a varied legacy, with his own personal ideologies impacting his literary status at the time. This legacy, and the literary reception of Milton's works, has continued to shift over the centuries after Milton's death in 1674. In the eighteenth century, Milton's works were celebrated by the Romantic poets given its resonance with the French Revolution and the ongoing political turmoil in Europe (Fairer 2010: 147). In contrast, the 'anti-Miltonists' of the twentieth century took issue with Milton's work based on his use of 'Latinisms' or Latinate-style lexis (Ricks 1978: 63). T.S. Eliot (1936) is famously quoted as an anti-Miltonist stating that Milton's work did 'damage to the English language from which it has not wholly recovered'. For his early modern contemporaries Milton had controversial ideologies, and his later readers questioned or praised the perceived Englishness of his writing. Although these standpoints greatly simplify centuries of Milton scholarship, they represent some of the contrasting Miltonic criticism. As a result, Milton's canonical legacy and credited number of neologisms in the OED is perhaps surprising. As I stood in Milton's cottage, I found it surprising that someone who is associated with 'foreign words' or 'Latinisms' has become

the eighth most quoted in the *Oxford English Dictionary*, and according to Alexander is English's 'greatest neologist'.

Following this, I looked back at Alexander's list as replicated by the Milton's Cottage Trust to assess the types of words Milton has been credited with coining. The examples, as shown by figure 1.1 are varied from a linguistic perspective: 21 adjectives, 12 nouns, three verbs, and one adverb. Arguably, most of these words are in the standard English lexicon and have found their way into everyday use - such as 'rumoured', 'terrific', 'fragrance', 'incidental', and 'damp'. Again, this surprised me as Milton states that he was writing for a 'fit audience... though few' (Milton 2003: 151). Although the list of Milton's neology is impressive, and drawn from the OED, I found myself questioning the reliability of this list for a number of reasons.

Firstly, I questioned the likelihood that Milton was the first to coin some of these words. A potent example of this is the word 'Satan'; 'Satan' is a noun that is associated with Christian culture and features within the Bible. Although Satan is a leading character within Milton's epic *Paradise Lost*, I struggled to believe that Milton was first to coin the word Satan in English given the religious and cultural associations it has. Upon checking the OED, I found that Satan was not a Milton neologism, but dates back from the Old English period as I expected ('Satan', OED 2019). Secondly, the morphology of some of words featured, for example the word 'obstructs'. This is because most dictionary headwords take what Kipfer (2013: 392) terms the 'canonical form' which do not carry inflectional endings, such as the 's' featured in 'obstructs'. Similarly,

the treatment of compounded words such as ‘vacant possession’ also seemed strange. This adjectival-noun compounded form, and an unhyphenated one at that, struck me as odd because lemmas are included in dictionary entries rather than compounded forms. The final issue I noticed, was the word ‘opiniasthous’ in figure 1.1. ‘Opiniasthous’ is not actually a word, but rather an error for the word ‘opiniastrous’. Therefore, the accuracy of the list was questionable immediately; although this may be the result of human error, it seemed to me there were too many unusual inclusions to accept the list at face value. Given these immediate and observable inaccuracies, I turned to the OED to cross-check the list. In my own searches, I found that five of the words listed had no mention of Milton in their entries, either as a first coinage or as an example quotation.¹

Although Alexander’s work may not be the most reliable count or presentation of Milton’s neologisms, what we can infer is the cultural weight of Milton’s neology through this document.² The work done by Alexander using the OED has become the foundations of the public-facing document in Milton’s Cottage and part of their public fundraising campaign video (Milton’s Cottage 2019). Both of these outlets for this research demonstrate the extent of Milton’s cultural esteem and represent the value that Milton is perceived to have added to the English Language through his neology. From this, we can infer that Milton’s linguistic legacy matters to public and academic communities alike; it appears

¹Given Alexander’s trawl of the OED 10 years prior to my own, I checked both the OED3 entries and the OED2 entries. Neither returned a mention of Milton.

²It is worth noting that this research conducted by Alexander was completed for the Christ’s College Cambridge celebrations of the 400 year anniversary of Milton’s birth (Dell 2008). The claims have not been published in any peer-reviewed outlet. Alexander presents this research in the form of a radio interview (Dell 2008) and a newspaper interview (Crace 2008).

that we seem to seek to establish a link between an author's linguistic creativity and their literary greatness. By raising Milton to the status of 'the country's greatest neologist', Alexander places Milton firmly at the centre of this perception.

However, how much can we say that we actually know **about** Milton's neologisms? From Alexander's research we have an idea of the number of neologisms that may be associated with Milton in the OED. We can infer from the document pictured in figure 1.1 that Milton may be associated with coining adjectives or does not appear to favour creating verbs and adverbs. We could also suggest that Milton's neologisms in the OED have become successfully accepted into the English lexicon, given that we both recognise and may use the words listed on a regular basis. However, beyond these basic observations, we cannot claim to know **about** Milton's neologisms. Firstly, we do not have a complete list of Milton's neologisms from the OED provided by Alexander. Secondly, we have frequency counts from Milton's literary contemporaries, such as Donne, Shakespeare, and Jonson; but beyond this, we cannot compare the different types of neologisms or word formations favoured by these different authors. For example, how do we know whether a neologism is truly Miltonic, or rather a word created using the typical word formation processes of the early modern period? Instead, we can only begin to guess based on our own knowledge of primary Milton texts or the vast secondary criticism surrounding Milton's use of language. However, these predictions informed by the literature may prove to be incorrect. In order to truly explore Milton's neologisms, and observe the

Miltonic features of them, a comprehensive study of both Milton's neologisms and his literary contemporaries needs to be conducted. Through this comparison, the difference between typical early modern word formation and Milton's own can be disambiguated.

The following thesis presents an answer to some of the questions above by assessing Milton's neologisms through an empirical approach. Using a new way to access the OED, neologisms can be compared for both Milton and his contemporaries. The fine grain lexicographic data within the OED enables new insights into Milton's contribution to the English Language to be discovered. We can begin to consider questions such as: How do the neologisms associated with John Milton in the OED vary over his writing career? Which languages does Milton typically borrow or compound words from? How does this compare to his contemporaries? Detailed research questions are presented in section 2.4.

This project aims to contribute to the understanding of the linguistic types of neologism associated with Milton, through comparing those attributed to him with both his literary contemporaries, and the literary criticism surrounding his use of language. The first section of this thesis addresses some of the literary criticism surrounding both Milton's language and his neologisms specifically. It also introduces some of the main concepts relating to both word formation and neologisms. A discussion of the history of the OED, and the possible working considerations are presented in this section too. In the second part of this thesis, the data collection and working definitions are outlined. A detailed description of the *Oxford English Dictionary* Application Programming Interface (OED API)

is presented with examples. This section also features a description of the final compiled datasets for both Milton and his contemporaries. The largest section of this thesis is the discussion of the results which draws on both the results found in this thesis and existing literary criticism. The final section of this work discusses future concerns of the project and suggests future avenues of research regarding the neology of literary figures like Milton.

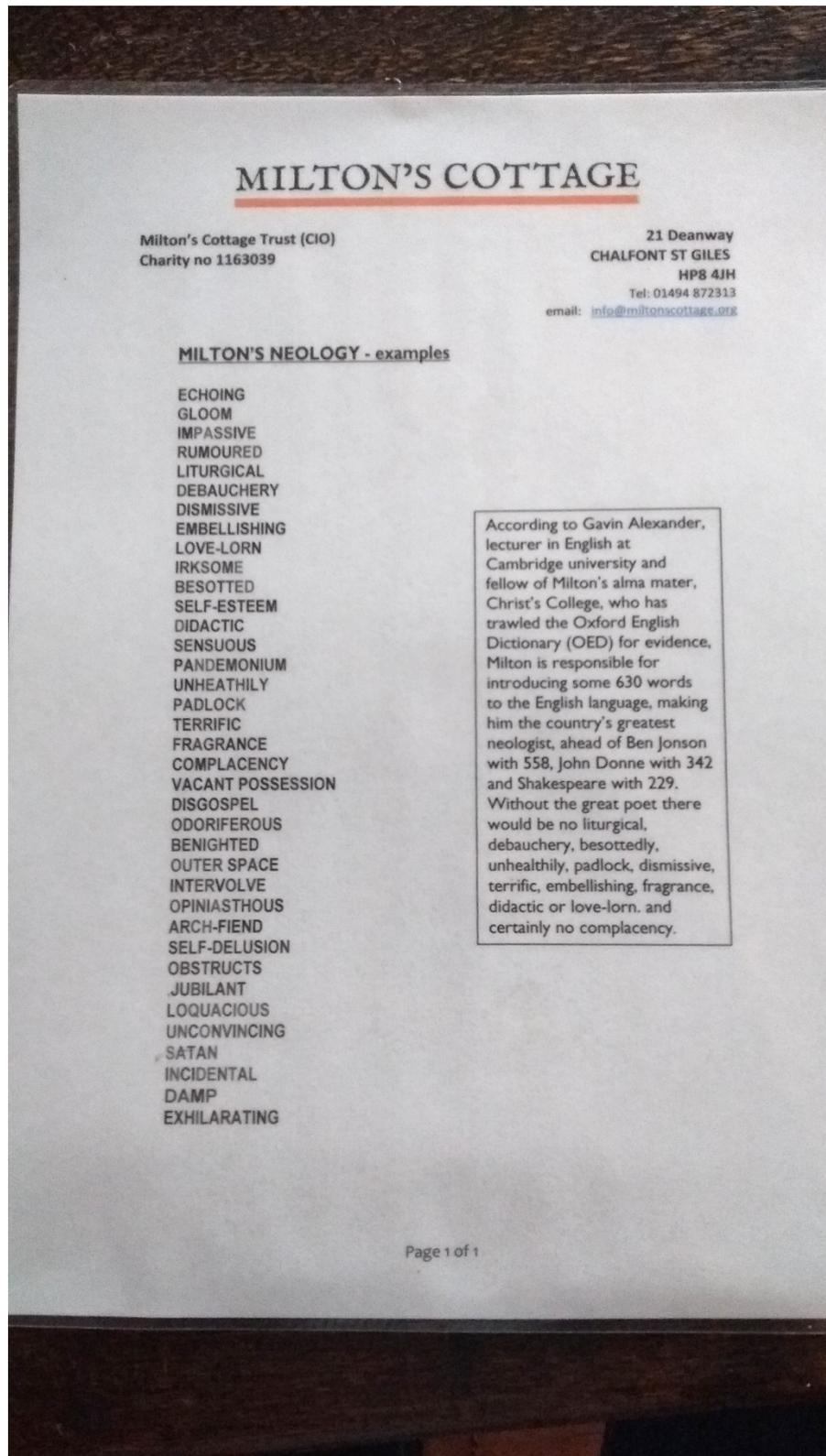


Figure 1.1: Photograph of the public-facing document at Milton's Cottage displaying a list of neologisms attributed to Milton by Gavin Alexander. Photo taken in 2017.

CHAPTER 2

LITERATURE REVIEW

This chapter presents relevant theories and commentary from literary and linguistic fields related to neologisms and John Milton. The chapter is focused on: the lexicology principles surrounding neologisms, the OED as a tool for neologism-based research, and the life and critical comments surrounding John Milton.

2.1 Lexicology Principles and Background

2.1.1 Neologisms

Literally meaning ‘new’ (‘neo-’) ‘word/speech’ (‘logism’), how neologisms have entered a language has been the object of many studies across literary studies and linguistics, including lexicology (Lalić-Krstin and Silaški 2018), sociolinguistics (Kerremans 2016; Grieve et al. 2017), and literary criticism (Jackson 2014; Hope 2016). To outline the principles from lexicology related to neologisms, the defin-

ition from Fischer (1998: 3) is given below:

A neologism is a word which has lost its status of a nonce-formation but is still one considered new by the majority of the members of a speech community.

The definition from Fischer (1998) sets out some of the properties of neologisms. Firstly, the word has to progress from a nonce-formation (a one-off utterance) to one established and accepted within the language (Crystal 2008: 329). Secondly, the word must be considered new or novel to members of the speech community - it is yet to be institutionalised. Institutionalization occurs when a neologism is adopted by the language speakers and enters the accepted vocabulary (Bauer 1983: 48; Bauer et al. 2013: 31).

However, the identification of neologisms is not straight-forward; there is no universally accepted threshold that a word must pass in order to progress from nonce-formation to neologism, or from neologism to an institutionalized form. As Bauer (1983: 45) highlights, at any given time, words can exist in any of the stages discussed above. Alongside the issue of identifying which stage of adoption a neologism may be at, there are also further working considerations surrounding the study of neologisms, such as:

1. the dependence of the survival of the text containing the first written example of the neologism in question
2. the assumption that the written example found is a neologism and not the first written record of a lexical item established in the spoken register

3. the availability of electronic, search-able texts, such as Early English Books Online (EEBO), are not exhaustive and do not contain all written texts

Given the issues above when conducting investigations into neologisms generally, scholars have accepted that ‘true neologisms’ are unlikely to be found. Instead, it is accepted that what may be found is **an** early example of the word, not **the** earliest example (Schäfer 1980: 4; Allan 2012: 24; Nevalainen 2018: 10). Consequently, researchers present their own criteria for the identification of neologisms, which results in some refining their definitions to reflect concerns and methodological considerations within their specialism. For example, a lexicographic definition considers a word to be a neologism if it has not been previously recorded in ‘general dictionaries’ and occurs with a ‘certain frequency’ (Fischer 1998: 3). In contrast, a sociolinguistic approach would be one like the Nevalainen (2018) study of early modern English and early modern Finnish. In this study, Nevalainen (2018: 10) considers Milroy’s model (1992) which distinguishes between three stages of language-innovation introduction: actuation, transition, and embedding. Briefly, actuation is concerned with the speaker innovation, transition considers how a word may be diffused within a speech community, and embedding focuses on the acceptance of the word into the language (Nevalainen 2018: 11). A sociolinguistic definition may consider all these stages, whereas the lexicographic definition is more focused on the embedded stage (i.e. words recorded in dictionaries and therefore established in the language).

Neologisms have also been considered within literary criticism. Broadly

speaking, literary scholars define neologisms more loosely than linguists, and consider a neologism to be ‘a word or phrase newly invented or introduced into a language’ (Baldick 2015: 280). However, in practice, literary scholars also seek to further specify the qualities of neologisms. In his commentary on Milton’s literary reception, Leonard (2013: 8) regards neologisms as the ‘words’ Milton ‘found’ by coining them from other languages’. Here, Leonard implies that neologisms are dependent on other languages, suggesting that only borrowing produces neologisms. Although this implication addresses the influence of other languages on Milton’s word coinings; Leonard (directly or indirectly) appears to exclude new words that may have been formed through other word formation processes like derivation or compounding.

Consequently, a definition for a neologism needs to acknowledge accepted linguistic principles of neologisms, overcome identification issues by stating clear criteria, and acknowledge the operational issues of neologism-based research. To illustrate how this has been achieved previously, two different computational approaches to neologisms are discussed; the first being the VARIENG project, and the second being the Encyclopedia of Shakespeare’s Language. These projects have been selected for discussion due to their focus on early modern language use.

To begin with the VARIENG project: the work at Helsinki involves both antedating and neologism identification. The project uses data from the Corpora of Early English Correspondence Corpus (CEEC), EEBO and the OED to identify and antedate neologisms. Due to the computational nature of this

project, and its sophisticated (FiCa) tool, they propose a definition reflective of their sociolinguistic focus. For the Helsinki team, a word was considered a neologism when ‘the corpus attestation [is] no more than 100 years after the first attestation in the OED’ (Säily et al. 2018: 5). This working definition is reflective of the project constraints and the possibilities of their tool: the 100-year period was a window that they could accurately work within. In contrast to this, the Encyclopedia of Shakespeare’s Language project at Lancaster University uses a different definition in their computational approach to neologisms. For their project, they focus on neologisms in the lexicographic sense; that is, those that have become accepted and accepted by a speech community (Culpeper 2018). To do this, they use the neologisms labelled in the OED as a starting point and search EEBO for earlier instances. However, the researchers are careful to acknowledge the distinction between ‘nonce words’ and those that become neologisms, and try to exclude the purely ‘nonce’ usages from their lexicographic efforts (Culpeper 2018). In contrast to Helsinki, they do not consider setting a diachronic window of acceptance, but rather adopt a usage-based definition. If a word is used enough to become accepted into the lexicographic record (i.e. EEBO or the OED), it passes this usage-based criterion and is labelled as a neologism. These two examples, although both computational in approach, have two contrasting definitions of neologisms. In both cases, these definitions reflect the wider research concerns (i.e. sociolinguistics vs. lexicography) and methodological constraints of each project.

2.1.2 Word formation

There are many word formation processes in English, including derivation, compounding, and conversion (zero-derivation). All these processes result in the production of new word forms, which can then be institutionalized and added to the lexicon (Bauer 1983: 48).

When studying word formation, words are discussed as their smaller morphological linguistic parts, so a brief explanation of these terms is needed. Therefore, before proceeding to outline each of the word formation processes mentioned above, the terms ‘morpheme’, ‘stem’, ‘root’, and ‘base’ will be presented briefly. To illustrate the differences between these terms, the noun ‘enlargements’ is discussed and analysed (see figure 2.1).

Beginning with ‘morpheme’, a morpheme is the smallest meaningful unit of a word, that can be ‘free’ or ‘bound’ (Plag 2003: 10). Free morphemes are able to exist in isolation, such as ‘large’ in the example (Bauer 1983: 17); whereas, bound morphemes have to be combined with other morphemes, such as ‘-ment’ or ‘en-’ (Plag 2003: 10). When bound morphemes, also called affixes, are removed from a lexeme what remains is a root, stem, or base. A base is the part that an affix is attached to (Plag 2003: 11), such as ‘enlarge’ in ‘enlargement’ when the ‘-ment’ affix is removed. If all the affixes, both the inflectional (marking grammatical case) and derivational (bound morphemes) are removed, and the word cannot be analysed any further, the base is a root (Bauer 1983: 20). For example, if the derivational affix ‘en-’ is removed from the lexeme ‘enlarge’, all that remains

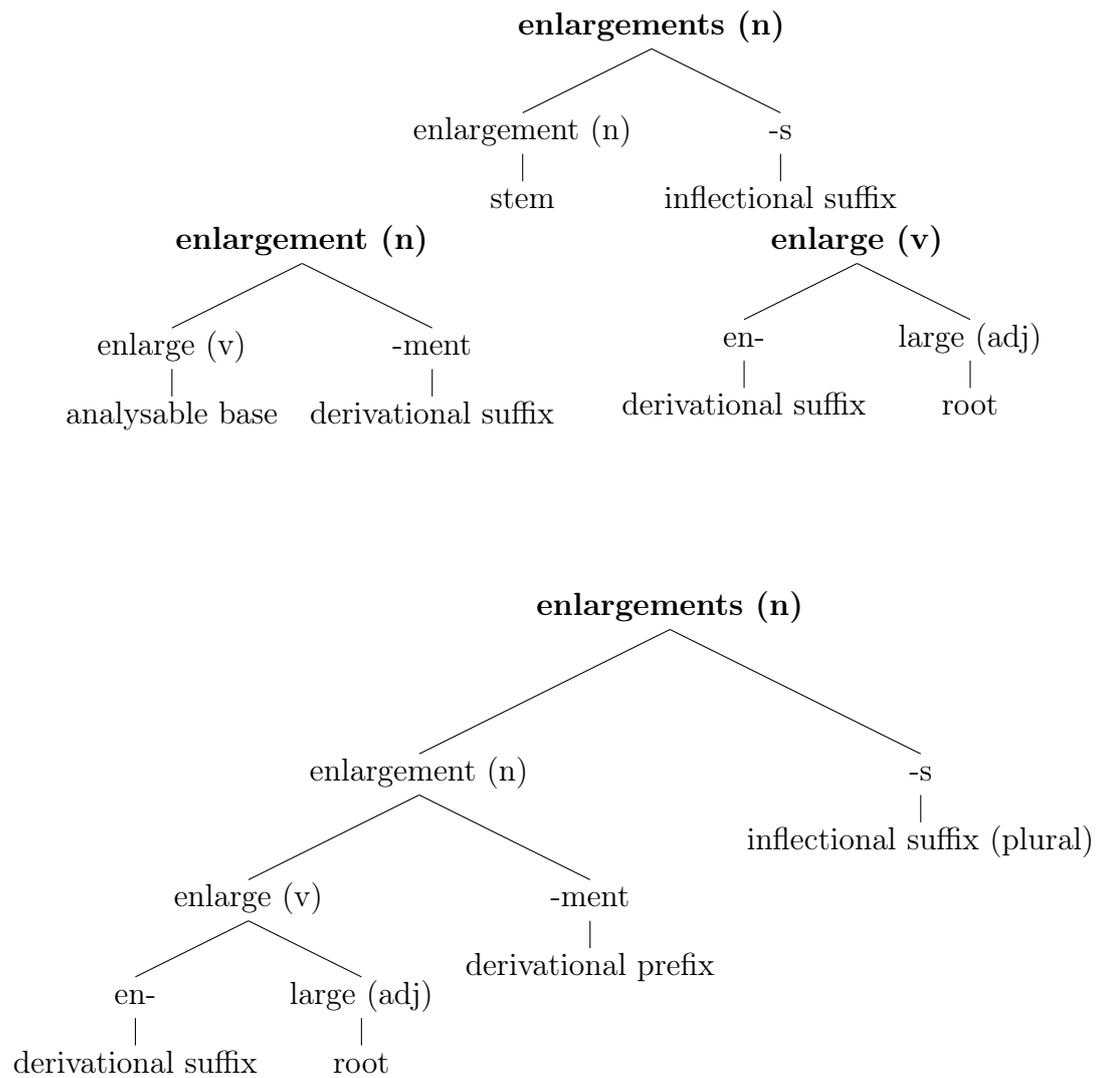


Figure 2.1: Analysis of ‘enlargements’, in terms of bases, stems, and roots. Quirk et al. (1985: 1546) discusses ‘en-’ as a conversion prefix, which converts nouns into verbs. ‘-ment’ is an affix productive in producing action nouns from verbs (Plag 2003: 92). For a further example, see Bauer (1983: 20).

is the root 'large' - it cannot be analysed further. When inflectional affixes are removed from a lexeme, the resulting form is called a stem (Bauer 1983: 20). For example, 'enlargement' is the stem of the lexeme 'enlargements' when the inflectional, plural '-s' affix is removed. However, the term stem is typically reserved for inflectional morphology, rather than derivational inflections (Plag 2003: 11). All of this is summarised in figure 2.1.

Returning to formation processes, there are three basic types of word formation in early modern and present-day English (Nevalainen 2006: 59). The first of these is derivation. Derivation is defined as the addition of an affix to a base, typically via adding a suffix (suffixation) or prefix (prefixation) to existing native words (Trask 2015: 28). Examples include the addition of 'un-' to 'civil' to form 'uncivil', and the addition of '-ity' to 'civil' to make 'civility'. Infixation, or the addition of affixes into the middle of a lexeme, also exists but is quite rare in English. In fact, the status of infixes in English, including expletives, is debated amongst linguists and is often rejected as a productive derivative process (see Plag (2003: 101-104) for a summary of debates surrounding infixes in English). Therefore, only instances of prefixation and suffixation will be considered under derivation in this thesis.

Within derivation, there are two types: class-maintaining and class-changing. Class-maintaining derivation includes cases where the word class of the base does not change with the additional affix; so, the new lexeme belongs to the same part of speech as the original base. For example, the base 'swine' (noun) combines with the suffix '-hood' to form 'swinehood' (noun). In contrast, when

an affix is added and the new word form changes word-class from the base, this is class-changing derivation. One of the most common examples of this is in the production of adverbs from adjectives with the addition of the suffix ‘-ly’. For example, the adverb ‘slyly’ is formed from the adjective ‘sly’ with the adverb-forming suffix ‘-ly’; by adding this derivational suffix, the case is changed.¹ As Bauer (1983: 31) highlights, prefixation is more likely to produce class-maintaining forms, and suffixation to produce class-changing.

Related to derivation is conversion (Bauer 1983; Quirk et al. 1985; Plag 2003; Trask 2015) or zero-derivation (Lipka 1990: 85). Conversion is the formation process where a word-form is converted to a new word class (part of speech) without the addition of an affix (Quirk et al. 1985: 1558). The absence of a derivational affix in this type of formation is why some linguists prefer the term zero-derivation. An example of this formation process is the conversion of the noun ‘bottle’ to the verb ‘bottle’, meaning to put something in a bottle. The original word form remains unchanged in the formation of the new word. Further examples include the verb ‘clean’ from the adjective ‘clean’, and the noun ‘cook’ from the verb ‘cook’ (Lipka 1990: 85).

Another word formation process is compounding. In compounding, two bases combine to create a new lexeme (Nevalainen 2006: 59). For example, the noun ‘birdhouse’ is formed from the bases ‘bird’ and ‘house’. Compounds can be formed from many combinations of word groups, with the combination of two

¹Note: ‘-ly’ can also be used to form adjectives from nouns and adjectives. See OED ‘-ly’ suffix ‘1’ and ‘2’ for distinction. Quirk et al. (1985: 1553, 1556) also discuss both types of words formed with the ‘-ly’ suffix.

Type of compound	Description	Example
Endocentric compounds	Compound is a type of the semantic head	'armchair' (a type of 'chair')
Exocentric compounds	Compound relates to an unexpressed semantic head	'highbrow' (a type of person)
Appositional compounds	Compound is a type of both parts of the compound	'maidservant' (a type of 'maid' and a type of 'servant')
Copulative compounds	Compounds where neither part is semantically dominant	'singer-songwriter'

Figure 2.2: Summaries of the main semantic types of compounds. Examples and descriptions based on Bauer (1983: 30-31) and Plag (2003: 144-146).

nouns being the most commonly occurring in both early modern English and present-day English (Nevalainen 1999: 355). One early modern example of this is the noun 'broomstaff' which is formed by compounding the noun 'broom' with the noun 'staff'. Compound adjectives formed from a noun and an adjective are also common (Nevalainen 2006: 61). 'Bloodstained' is a Shakespearean compound adjective, according to the OED, which combines the adjective 'stained' with the noun 'blood'. Words formed by compounding can differ semantically and have been grouped into the following: endocentric compounds, exocentric compounds, appositional compounds, or copulative compounds (Bauer 1983: 30-31). Table 2.2 summarises each of these with an example.

Sometimes, the properties of morphemes are unclear and whether they should be classified as a bound root or an affix is disputed. Plag (2003: 74) and Bauer (1983: 175) discuss these 'neoclassical elements', and the issues of classifying them morphologically. For example, the element 'bio-' is borrowed from Greek and contains the explicit semantic meaning 'life', like a native root. Yet, 'bio-'

is unable to exist on its own and is bound so acts like an affix. The same is true for ‘-logy’ meaning ‘the study of’. Therefore, when ‘bio-’ and ‘-logy’ combine to form ‘biology’, are we witnessing compounding of two non-native roots, or the combination of two bound affixes without a root? Given the ambiguity of these elements with their bound root properties, these elements are called ‘combining forms’ and are typically considered to be a specialist form of compounding, rather than derivation.

Alongside the English word formation processes outlined above, words can also enter the English lexicon through borrowing. Borrowing involves incorporating features from non-native languages into a native language (Thomason and Kaufman 1991: 37). The extent to which these features change the native language depends on the level of language contact and subsequent borrowing; the more intense the borrowing, the more likely that structural features like grammar could be adopted by the native language (Thomason and Kaufman 1991: 67). However, in most casual language contact, borrowing tends to consist of lexical items called ‘loan words’ (Crystal 2008: 58). Typically, these lexical forms are open-class items such as nouns, adjectives, or verbs, but they can also be affixes. Borrowings were one of the main ways that the lexicon expanded during the early modern period, with Latin being the greatest source for foreign borrowings (Nevalainen 2006: 51-52). Culpeper and Clapham (1996: 211) explore the extent that Latin loanwords entered the language via OED and found that borrowing peaked between 1580-1660. These empirical results reflect the earlier observations of Barber (2000: 177), who notes that the increase in translations from

Latin to English may have caused this peak. Examples of early modern borrowing include: ‘addiction’ from Latin, ‘chocolate’ from French, and ‘idiosyncrasy’ from Greek (Nevalainen 2006: 51).

Although Latin borrowings were common during the early modern period, they were not always welcomed by native speakers. Instead, some Latin borrowings became branded ‘inkhorn terms’ during a public outcry for the reduction of classical borrowings into English (Barber 2000: 179-180, Nevalainen 2006: 39). In fact, some argued that these ‘inkhorn terms’ were not warranted but a show of ‘mere brauerie’ (ostentation) (Richard Mulcaster in Barber (2000: 179)). Early modern lexicographers aimed to explain (and in some cases, criticise) these classical borrowings in their ‘hardword dictionaries’. For example, Henry Cockeram (1930: xv-xvi) in *The English Dictionarie Of 1623* took great issue with these ‘vulgar words’ which could be expressed by another ‘exact and ample’ word. Similarly, Milton’s nephew, Edward Philips (1678: 210) in his fourth edition of *The New World of Words*, presented ‘a Collection of such affected words from the Latin or Greek, as are either to be used warily, and upon occasion only, or totally to be rejected as Barbarous, and illegally compounded and derived’. Examples of inkhorn terms include ‘latrate’ for ‘to bark’, ‘epilogize’ for ‘to conclude’, and ‘cytrine’ for ‘yellow’ (Cockeram 1637: 92, 98, 141).

The ‘inkhorn controversy’ and the possibility that English words could be replaced with classical borrowings, leads onto the final concept of this section: productivity. Productivity is the extent to which word formation processes or even affixes can be used as a resource by a speech community to create new

words (Bauer et al. 2013: 33). For example, the suffix ‘-ness’ is said to be more productive, or able to produce more new words, than the suffixes ‘-ish’ or ‘-th’ which can only combine with certain word forms (Plag 2003: 44-45). Productivity is not binary but presented as a cline. Bauer (1983: 82) discusses the affixes ‘-ity’ and ‘-ness’ and their ‘semi-productivity’ in combining with bases ending in ‘-able’. By this, they are alluding to the fact that speakers will not use ‘-ity’ or ‘-ness’ with all bases, but rather only with certain types. Säily and Suomela (2009) explore these affixes further, using corpus linguistics and principles from sociolinguistics, to suggest that the gender of the speaker may also influence the productivity of ‘-ity’ and ‘-ness’. Examples of semi-productivity are below, based on Marchand (1960: 251-252) (unacceptable formations marked with an asterisk):

- (1) **comfortableness** / *comfortability

- (2) *sovereignness / **sovereignty**

- (3) **amicableness** / **amicability**

In these examples, Marchand demonstrates that bases with the same ending (‘-able’) can take different suffixes, meaning that these respective suffixes are not fully productive but are restricted (examples 1 and 2). In example 3, two acceptable terms are produced. When there are two acceptable terms for a concept, these terms can compete and one may begin to fall out of use due to a speech community’s preference to the other (J. Smith 2005: 150). In some cases,

when an existing term already exists, such as ‘yellow’ above, this will prevent the need for a new word to describe the same concept. ‘Productivity’ is related to the rate of neologism coining and whether words are created out of necessity or creativity. Throughout this thesis, the terms presented in this section will be used. For further discussion of any of the terms and concepts mentioned in this section, see Bauer et al. (2013).

2.2 The *Oxford English Dictionary*

The *Oxford English Dictionary* (OED) is a ‘monumental, and humbling piece of Victorian scholarship’, which has become the first port of call for research concerned with the history of the English language (Hope 2016: 23). The dictionary itself has a well-documented history with many volumes dedicated to revealing the principles and processes behind its centuries of lexicographic scholarship (for example, Mugglestone (2000a) and Brewer (2007)). The history of the dictionary is an interesting one, but a detailed account would go beyond the scope of this thesis.² Instead, this section presents the main editorial principles, dictionary editions, and lexicographical issues of the OED which are of importance to the neologism-based research in this project.

²For comprehensive accounts of the history of the OED and its practices, see Mugglestone (2000b), Mugglestone (2005), and Brewer (2007). Charlotte Brewer’s (2019) website ‘Examining the OED’ is a useful resource for studies into the OED, including recent explorations across the different editions and other resources from the dictionary archives. I would like to thank Professor Brewer for sharing her valuable website and advice with me before it was publicly re-released in November 2019.

2.2.1 A Historical Dictionary

The OED has become recognised as the ‘greatest dictionary of English ever published’ and is used by scholars and members of the public across the world (Brewer 2013b: 342). Originally proposed by the Philological Society as *A New Dictionary on Historical Principles*, the dictionary project was acquired by Oxford University Press (OUP) in 1879 and became the *Oxford English Dictionary* (Brewer 2007: 9). The OED distinguishes itself from others based on historical principles at its core and inception; this in contrast to dictionaries such as COBUILD, which rely on large textual corpora to provide evidence of ‘actual language use’ (Moon 2007: 162, 165). Instead, the OED is a historical dictionary which documents the development of words and senses over time (Mugglestone 2000a: 2). Alongside this, the OED also records the development of society, culture, and lexicographic methods in the periods it was compiled (Brewer 2013b: 341). In the case of the OED, the dictionary has become a historical document, reflecting the decades of research required to construct it (Brewer 2013b: 341).

At the heart of this lexicographical resource is its use of quotations to present examples of language in use (Brewer 2009: 93). In the 1859 proposal, the editors accept ‘as authorities any English books’ to illustrate the historical development of the language (Philological Society 1859: 3). The use of literary quotations in the OED reflects earlier dictionaries in English, such as its predecessor Samuel Johnson’s ‘A Dictionary of the English Language’; but in contrast to Johnson, the OED embraced an early crowd-sourcing type campaign to aid with the quo-

Period	Dates	No. of works
First period	1250-1526 (First Printed English New Testament)	143 Works & Authors
Second period	1526-1674 (year of Milton's death)	486 Works & Authors
Third period	1674-Present day (1858)	81 Works & Authors

Table 2.1: Periods of the OED quotations, as recorded in the OED Reading List (Philological Society 1858).

tation gathering. In order to compile all the quotations, the editors required the help from the general public to read books and send in quotations (Philological Society 1859: 8-9). These books were divided across three main periods with the editors selecting key texts to be read in each. As stated in the *Reading List* (table 2.1), the periods spanned from 1250 to 1858, with Milton's death providing the dividing line between the second and third periods (Philological Society 1858). The extent of the Reading Programme was impressive, with 754 readers, 924 books completed, and 361,670 quotes sent to the editors by 1880 (Mugglestone 2000a: 7).

The OED has been produced and distributed in several iterations. To date, there have been three main versions of the dictionary, with a current complete revision (OED3) underway (Durkin 2014: 23). In 1888, the first part of OED1 was published; but it was not until 1928 that the entirety of OED1 was available to the public in printed volumes (Lynch 2009: 159-160). Following the release of OED1, the editors were aware that the language had moved on, and more words had been added to the lexicon since the original compilation of OED1 began in 1859 (Brewer 2007: 2-3). As a result, the press decided to produce a supplement to go alongside the existing dictionary in 1933, which was then

complemented with four further volumes between 1972-1986 (Mugglestone 2005: xxi). The combination of OED1 and the supplements constituted OED2 and was available in 1989 (Mugglestone 2005: xxi). Confusingly, little had been revised in the production of OED2; instead, the editors added 50,000 words and standardised the IPA notation when OED1 and the supplements were combined to produce OED2 (Brewer 1993: 313). OED2 was not only released in print like its predecessor OED1, but was also released in digital form: firstly as a CD-ROM and then online (Brewer 2007: 11). In 1993 and 1997, a further series of Additions were added to OED2, both in print and as part of the Online edition (Mugglestone 2005: xxi). In 1993, the OUP announced that it would begin a full revision of the entirety of the OED, which would include rewriting or amending all the previous entries for the first time in its history (Brewer 2013b: 346). This process has been ongoing since the 1990s and is still underway. The current revisions are made in real-time and uploaded onto OED Online every quarter, with the OED online becoming the sole form of publication for the dictionary (Brewer 2013b: 343). (See table 2.2 for a summary of these dates, editions, and formats).

2.2.2 Issues with the OED

The OED is an impressive feat of scholarship but is not without its problems. As Brewer (2009: 107) states, the OED ‘is the single lexical authority... yet it is this authority whose assumptions and practice we need to assess in its turn’. The complexity of the dictionary’s compilation with the number of editors over

Edition	Published	Parts	Format
OED 1	1888-1928		Print
Supplement 1	1933		Print
Supplement 2	1972-1986	Four parts	Print
OED 2	1989	OED1, supplements and 50,000 words	Print, CD-ROM, Online
Additions	1993-1997		Print, Online
OED 3	1993 -	OED 1 and OED 2 and additions	Online

Table 2.2: OED editions in chronological order, based on information in Mugglestone (2005: xxi). For a more detailed breakdown of the OED editions, see Oxford English Dictionary (2020).

the centuries has led to the amalgamation of different lexicographical priorities presented in one resource. Although this could be used to track lexicographic practice, it could cause issues for those working with the dictionary, especially if they are unaware of its editorial history and the age of the scholarship consulted. There are two main issues discussed in this section: firstly, the issue of editorial and chronological consistency, and secondly the OED's dependence on canonical authors.

As discussed above, the OED has had a long history, and iterated through several editions and supplements. Each iteration brought with it new editorial policy, reading lists, and cultural changes. For example, Murray brought Victorian ideals and perceptions to the dictionary, excluding words such as 'condom' and instilling class biases within definitions such as the association of the expletive 'bloody' with the lower classes (Mugglestone 2005: 87). By combining OED1 and OED2, and using this as the basis for OED3, users are presented with what Brewer (2013b: 345) terms a 'sort of mongrel edition'. What can be

particularly deceiving is the online format of the dictionary - the lexicographical scholarship behind the website is still this mix of old and new scholarship as the revision takes place. Brewer (2013b: 348-349) is particularly critical of this unstable version of the dictionary and argues that the website in its partially revised state 'obscures or at worse misrepresents'. By no means does the OED hide the version data in the online entries – this information is present in the top right of every entry. However this information can be overlooked and many users are unaware of the varying age of the scholarship within the dictionary.

Scholars who are aware of the differing ages of scholarship within the OED have sought to overcome the problem by sampling from specific versions of the OED. Durkin (2014: 23) does this by working solely with data from OED3. Given that OED3 has been underway since 2000, these updates have taken place in a comparatively small timeframe within the history of the OED. Unfortunately, it also means that only sections A-ALZ and M-R had been revised at the time of Durkin's (2014: 23) study. Yet, all the scholarship that Durkin (2014: 23) draws on for his statistical tests on language borrowing are in the same editorial style, both in terms of practices and formatting. Consistent formatting aids an easy extraction of data. Through being aware of the history of the OED, Durkin (2014) can adjust his methodology to improve his accuracy and ease of computation, an important factor in for any computer-assisted empirical approach dependent on computation.

The second issue within the OED is its dependence on key literary figures for quotation examples. As stated on the first page of the 1888 edition, the

dictionary extracted ‘typical quotations for the use of words, from all the great English writers of all ages’ (Murray 1888: v). The Reading Programme was a core principal in the construction of the dictionary and the words of these writers are at its core. However, this has not gone unnoticed by some. For example, Brewer (2007: 125) observes the dominance of the language of canonical writers such as Shakespeare, Walter Scott, Milton, Chaucer, and Dryden in the top quotation sources for OED2. In comparison, female authors and writers not well regarded in the Victorian literary taste (such as William Blake) were not used as often for quotation sources (Brewer 2007: 125). Similarly, preference towards certain writers over their contemporaries can be seen in the OED’s treatment of Thomas Nashe and Shakespeare. Schäfer (1980: 39, 41), one of the first to quantify the distribution of quotations in the OED, observed that Shakespeare is over-represented in the OED. As such, Schäfer (1989a, 1989b) dedicates two volumes to antedating words within the OED using hardword dictionaries from the early modern period. The antedating of words introduced by canonical authors has continued since Schäfer (1980). For example, both Hope (2016) and Culpeper (2018) have also observed several misattributed neologisms to Shakespeare which have been predated with the use of online databases such as EEBO. Work has also been done on the quotations and neologisms of other authors within the OED. For example, Brewer (2009) tracked the progress of Virginia Woolf’s works across the OED; these quotations were found to increase with the most recent update (by approximately 300) (Brewer 2009: 440). This is because the current dictionary revision has endeavoured to include quotations

from a wider range of sources than the Victorian canon of its first edition, such as novels, textbooks, newspapers, magazines, and film scripts (Simpson 2000).

Alongside the observed bias towards the male-dominated Victorian canon that still exists within the OED, the use of literary quotations could be problematic to those seeking to use the OED as a means of tracing historical language change in English. An awareness of the OED sampling biases towards literary sources is needed, as Schäfer (1980: 13) explains: ‘for the linguist ... this policy [using canonical authors as quotation sources] leads to distortion and makes it necessary ... to approach the OED with caution’. Some of the OED’s critics have criticised the dictionary’s dependence on literary figures for its quotations. As Taylor (1993: 6) states ‘the OED’s reliance on literary quotations is problematic because it skews the representative character of the sampling’. However, Taylor (1993: 6) does explain that the OED offers an insight into how the texts of these authors have been read, interpreted, and ‘echoed’ by the OED editors and their readers. From this reader-reception standpoint we can use the OED in a different manner. The dictionary can become a middle step between readers and authors: which words and quotations made an impression on those compiling the OED and were recorded in this historical and cultural landmark. Although this may be an abstract way of viewing the issues relating to literary bias discussed above, it does suggest that the OED could provide a way of observing perceptions relating to an author’s impact on the language.

The OED is a huge lexicographic resource and contains a wealth of information on the English language. It has become a well-known and respected part of

call for those exploring English. Consequently, it has become developed in recent years, and not only by the OUP. Williams (2017a) and Williams (2017b) is working on adding extra information to the 2.436 million quotations within OED2 data, including author gender and publication type. This work aims to encourage researchers to explore the dictionary further. The OUP has also increased ease of access to the OED data for researchers through their new Application Programming Interface (API) which this project is one of the first to use (see chapter 3).

Having presented the use of the OED and its typical use and possible issues for neologism-based research, attention can now turn to the life and criticism of the author at the centre of this thesis: John Milton. In particular, the next section presents the tensions that pervade his linguistic and literary reception, and discusses contrasting perceptions of his neologisms.

2.3 John Milton

John Milton is a recognised figure in the English literary canon: he is the eighth most quoted in the OED and has been praised by Philip Pullman (2005: 36) for his ‘command of the sound, the music, the weight and taste and texture of English words’. Consequently, Milton’s life and work has been greatly researched. Given the literary-linguistic focus of this thesis, the following literature review will provide a broad overview of Milton’s linguistic ability and literary legacy

and an in-depth discussion of existing work on Milton's neologisms.³

2.3.1 Language

Early modern England was inherently multilingual, both at a societal and individual level (Hale 2005; Gallagher 2019; Nikkel 2019). During this era, and the preceding medieval period, England was a state of triglossia, with the languages of English, Latin, and French all used within the society (Townend 2006: 63). In situations like this, when languages co-occur within a speech community, there are 'high' and 'low' varieties, each with differing levels of social prestige (J. J. Smith 2006: 121). Görlach (1991: 462) illustrates that the three languages were used for different functional roles based on their status; the 'high' or prestigious varieties were Latin and French, which were used in scholarly and legal texts, and the 'low' variety was vernacular English. In the earlier stages of this period Latin was used as the *lingua franca*, especially within scholarly texts to facilitate the exchange of knowledge across Europe (Nevalainen 2006: 16, 29). Over time, vernacular English began to replace Latin as the language of learning, with the accessibility of English opening up a wider readership to native authors without the demand for a Latin education (Durkin 2014: 306). Through the sixteenth and seventeenth centuries, we begin to see the establishment of a 'standard English' which becomes favoured across different registers, displacing both Latin and French. As Görlach (1991: 477) notes, Latin progresses from a second language to a foreign language in this period. Durkin (2014: 307-308) also observes this

³For a comprehensive introduction to Milton's life and works see Lewalski (2000), Campbell and Corns (2008), and Campbell (2009).

shift in his study of foreign borrowings; he notes that at the turn of the mid-seventeenth century, there is a shift in favour towards ‘clarity of expression’ over the use of ‘multiple synonyms’ or etymological word play with a decrease in the number of borrowings.

Given the multilingual climate of early modern England, emphasis was placed on the need to learn languages (Gallagher 2019: 2). The linguistic repertoire of individuals would vary greatly based on need: lawyers and scholars would need competence in Latin, whereas traders would need to know the vernacular language of those they were trading with. Consequently, languages (both classical and vernacular) were taught as part of school curricula, within private domestic educational settings by tutors, and even by what Wyatt (2005: 3) terms ‘language-merchants’ in city coffee-houses (Gallagher 2019: 17, 28).

Milton was no exception to this multilingualism as a ‘lifelong polyglot’ (Hale 2005: 1). Milton openly embraced language-learning and even advocated for it in his tract *Of Education*. As an early modern schoolboy, Milton received a humanist education, in which he learnt Latin and Greek by iterating through a cycle of classical languages and translating from one to another (Fletcher 1956: 254). This type of iterative teaching encouraged an awareness of previous exemplar writing by the classical ‘giants’ such as Roman and Greek poets and orators known as ‘imitatio’ (Hale 2005: 10-11). Milton’s education would have focused on Latin and Greek in the fifth, sixth, and seventh years at secondary school, and progressed to include Hebrew in the eighth (Campbell and Corns 2008: 21). At this point in Milton’s linguistic career, we begin to see his early

productions in Latin including *Elegia Prima ad Carolum Diodatum* (~1626) and *In quintum Novembris* (1626);⁴ both poems demonstrate his firm grasp of his Latin learning. In addition to his school education, Milton learnt vernacular languages including Spanish, Dutch, French, and possibly Portuguese (Fletcher 1956: 294). His biblical studies led him to learn more unusual ancient Oriental languages such as Syriac and Aramaic, alongside Hebrew so he could study the bible passages first-hand (Campbell and Brock 1993: 74). His competence in Latin, Greek, French, Italian, and Hebrew was aided by the financing and encouragement from his father; something that Milton praises in his Latin poem ‘Ad Patrem’ (Lewalski 2000: 11) (see figure 2.3).

*‘Cum mihi Romuleæ patuit facundia linguæ,
Et **Latii** veneres, & quæ Jovis ora decebant
Grandia maniloquis elata vocabula **Graïis**,
Addere suasisti quos jactat **Gallia** flores,
Et quam degeneri novus **Italus** ore loquelam
Fundit, Barbaricos testatus voce tumultus,
Quæque **Palæstinus** loquitur mysteria vate.’*

Ad Patrem 79-85

*... had been made accessible to me, at your expense, the beauties of **Latin** and the high-sounding words of the sublime **Greeks**, words which graced the mighty lips of Jove himself, then you persuaded me to add to my stock those flowers which are the boast of **France**, and that language which the modern **Italian** pours from his degenerate mouth (his speech makes him a living proof of the barbarian invasions), and also those mysteries which the prophet of **Palestine** utters...*

Translation from Milton (1997: 160)

Figure 2.3: *Ad Patrem* from Milton (1980b: 136). All languages mentioned highlighted in bold, in order: Latin, Greek, French, Italian, and Hebrew.

⁴Textual sources taken from Milton (1980b: 108-110, 126-130) and date information from Corns (2012: 106, 184) respectively.

Milton was also in a position of great language contact during his time as the Secretary of Foreign Languages in the Cromwellian parliament (Fallon 1993: 1). This position required Milton to flex all his linguistic muscles to translate and produce Latin texts on behalf of Cromwell and his government. Although the exact number of letters and papers that Milton was responsible for in this position is unknown, it is believed to be a great number. Patrick estimates that Milton contributed to the Latin of 'at least two hundred state papers' and Fallon (1993: 7) estimates an average of sixteen Latin letters a year. In the published collection of Milton's state papers, the featured letters are 'addressed to some twenty-six different nations, states, and cities' across a variety of recipients and purposes (Fallon 1993: 8). The volumes of Milton's letters demonstrate the variety and extent of his Latin knowledge in the professional sphere. This position makes Milton an interesting figure linguistically, as he was at the centre of language contact between English and Latin during the interregnum.

At this time, Milton did not only write state papers and letters, but also some of his famous political tracts in a mixture of English and Latin, including *Pro Populo Anglicano Defensio* (1651) and *The Readie and Easie Way to Establish a Free Commonwealth* (1660) (Corns 2012: 295, 312). Given Milton's outspokenness about the monarchy, these papers became treasonous following the Restoration. Milton was consequently arrested for his heterodox views and a proclamation was released ordering the destruction of *Pro Populo Anglicano Defensio* and *Eikonoklastes* (The British Library 2020).

Milton has become recognised for his linguistic prowess and mastering an

estimated ten languages in his lifetime (Hale 2005: 8). Although Milton's linguistic competency of all ten of these languages is uncertain, he produced texts extensively in both Latin and English throughout his life. Given the impressive linguistic repertoire available to Milton, his language choice in each of his work is noteworthy. As acknowledged in sociolinguistics, the language choice of an individual for a particular language production is important: it aids in presenting an identity, and demonstrates the producer's awareness of the suitability of that language to the intended purpose (Meyerhoff 2019: 129). Hale (2005: 56) summarises this in succinct way: 'the choice of tongue suits an occasion *and* declares an allegiance'. For Milton, his switching from Latin to English does not go unnoticed and his choice to write in English is significant, both linguistically and politically (Hale 2005: 56; Haan 2011; Corns 2012: 205). For example, during his time in Italy, Milton wrote most of his poetry in the 'high' variety of Latin to present to Italian academics (Haan 2011: 54). In contrast, some of his later political tracts such as *The Tenure of Kings and Magistrates*, he wrote in the vernacular for a wider English readership. We can see Milton's command of both Latin and English in the 1645 edition of his poems (Milton 1645). This book is formed of two almost equal halves: the first presents Milton's English poems (with some Italian sonnets), and the second the Latin poems (with some Greek poetry) (Hale 1991: 37). This collection of poems is unique in its printed presentation of a poet's aptitude for languages: no poet previously presented an edition of poems with an equal volume of 'mother tongue' and 'the tongue of civilized European discourse' (Hale 1991: 38). It is also within this volume that

Milton states his future linguistic intentions; Haan (2011: 64) notes that Milton's potential departure from Latin occurs during the final Latin poem in the volume. Yet, the extent to which Milton fully left Latin behind is debated, it is proposed he uses 'both English and Latin' in a 'neo-Latin' vein in his works (Haan 2011: 64). Haan (2007: 682) maintains that 'Milton's act of poetic composition was essentially bilingual'. The bilingual nature of Milton's composition makes the linguistic choice between the two languages an important consideration when tracking Milton's neologisms through his career.

A disagreement pervades the works of Milton's commentators, biographers, and critics - few men have been credited with mastering languages as well as he did (Fletcher 1956: 254). Yet, this is not the belief of all critics, with Hale (2005: 15) noting that Milton was merely 'typical of his time, in the sense of being touched by widespread renaissance contentions'. Here, we begin to observe tensions in the perception of Milton's exceptionalism - with contrasting perspectives on the ability of the man, in contrast to the norm of the times.

2.3.2 Literature

Having discussed Milton's linguistic background, aspects of his literary reception are presented next. As mentioned in the introduction (chapter 1), Milton has been the recipient of a mixed reception over the course of history. A full discussion of Milton's literary reception would go beyond the scope of this thesis, so only relevant literary criticism related to Milton's use of language will be

discussed in this section.⁵

Like Milton's linguistic ability, different and contrasting perspectives surround Milton's use of language. This literary criticism can be broadly distinguished into two overarching arguments concerned with the impression Milton made on the English language - known as the 'Milton Controversy' (Ricks 1978). The first argument believes that 'our language sunk under him' and the second defends Milton's 'grand style'. Again, a tension pervades discussions around Milton with contrasting criticism; one calling for demotion and the other for celebration.

The first of these arguments relates to the 'anti-Miltonists'. Supported by the lectures and essays of Pound (1917), Leavis (1947), and Eliot (1948, 1957), this type of Miltonic reception greatly criticises Milton's use of the English language (Leonard 2013: 5). Under the rallying call that 'our language sunk under him', these critics set out to explain how Milton's use of English directly damaged the language (Leonard (2013: 183); Ricks (1978: 183)). The anti-Miltonists took issue with Milton's 'artificial' language (Eliot 1957: 140). They argued that Milton incorporates elements of classical languages into English and consequently separates the sound and sense of his words (Eliot 1957: 143). Although contemporaries were also influenced by these languages, it is how Milton incorporated this influence into his work that the anti-Miltonists took issue with. Ezra Pound (1917: 154) directly criticises Milton for trying 'to turn English into Latin; to use an uninflected language as if it were an inflected one, neglecting the

⁵For a comprehensive guide to Milton's literary reception, see Leonard (2013).

genius of English, distorting its fibrous manner'. These beliefs have led to Milton being associated with violence towards English through his classical influences. The word 'violence' and actions related to damage have become metaphorical vehicles for these critics. Examples include: Milton has 'done damage to the English language from which it has not wholly recovered' (Eliot 1957: 145), 'every idiosyncrasy is a particular act of violence which Milton has been the first to commit' (Eliot 1957: 154), and 'we find grace in its [Milton's language] deformity' (Johnson 2010: 202).

The second of these perspectives in the 'Milton Controversy' relates to Ricks (1978)'s defence of 'the grand style'. In this study, Ricks directly evaluates the criticism of the anti-Miltonists through anti-Miltonist methods: 'he answers Leavis in Leavis's terms' (Leonard 2013: 251). Ricks (1978: 22) explores the style of Milton's language through the considerations of musicality, syntax, metaphor, and wordplay to assess the comments made by the anti-Miltonists. Ricks' volume is seen as a turning point in the 'Milton controversy' with a celebration, rather than condemnation, of Milton's 'grand style' (Patterson 2009a: 2). The work of Ricks influenced other scholars such as Corns (1990), Hale (2005) and Patterson (2009b), who use systematic approaches like stylistics to explore the language of Milton's poetry. Ricks (1978: 12, 17) does agree that Milton has a 'habit of Latinizing' in his poetry, but argues that this has been misread or wrongly labelled as inaccurate by the anti-Miltonists.

At the heart of both positions within the literary discussion surrounding Milton is the influence of Latin on his English, and how this may have influ-

enced the language. Middleton Murry (1922: 118) neatly summarises this and asks the question at the centre of both of the debates above: ‘it is magnificent, but is it English?’. Both positions discussed above focus on the effect that Milton’s (potentially Latinate) literary language had on the English language, without seeking to qualify the potential extent of this peculiarity within Milton’s language. Consequently, the next section focuses specifically on the criticism surrounding the extent of Milton’s use of ‘Latinisms’ and offers an extended discussion of this from a linguistic standpoint.

2.3.2.1 Latinisms

A great deal of criticism about Milton has focused on his Latinate style; so much so, that in the words of Fowler (2013: 15), ‘the most notorious feature of the style of *Paradise Lost* is its Latinity’. This notoriety is also echoed in Baldick (2015: 241), who states that Milton has the ‘most notoriously Latinate style in English verse’. Baldick and Fowler are not alone in exploring this - other critics have considered what is Milton’s Latinate style and its extent in his writings (Addison 1738; Boone 1953; Emma 1967; Corns 1990; Hale 2005; Haan 2007). An exploration of the literature surrounding Milton’s notorious Latinate style will be addressed below.

Firstly, it is important to clarify what phenomenon is referred to by the term ‘Latinate’ within the literature. ‘Latinisms’ and ‘Latinate’ style can refer to either Milton’s use of ‘a foreign idiom’ (Johnson 2010: 202), or the ‘Latinity of Milton’s language’ (Boone 1953: 118). Therefore ‘Latinate’ is used by scholars

to refer to **two** different linguistic aspects contained within or contributing to Milton's style. This term encapsulates descriptions of both Milton's grammatical phrasing and his lexis - if one is present, then the style is consequently considered 'Latinate'. This ambiguity is not unique to Milton, but occurs generally within literary criticism. Baldick (2015: 240) in his dictionary of literary terms, defines Latinisms as:

Derived from or imitating the Latin language. Latinate diction in English is the use of words derived from Latin rather than those originating in Old English, e.g *suspend* rather than *hang* ... Particular instance of words, phrases, or constructions taken from the Latin are called **Latinisms**.

Consequentially, by this definition a style could be described as Latinate if Latin-derived words were used within native phrasing or constructions, or if English words were used within phrasing or constructions taken from Latin. Therefore, to understand the observations made about Milton's 'Latinisms', it is important to consider from which of these standpoints the claims are being made.

Latinate syntax presents a distinct difference from English syntax: Latin is a synthetic language, whereas English is an analytic language. In synthetic languages, the inflectional endings of words carry the syntactic information, rather than the positioning of the words (Millar 2008: 43-44). Figure 2.4 provides an example with translations and annotations. As shown, inflectional endings carry

- (i) heri *Melissa* cenam *optimam* *paravit*
- (ii) adverb *noun (subject)* noun (object) *adjective (object)* *verb*
- (iii) yesterday *Melissa* a dinner *very good* *prepared*
- (iv) yesterday *Melissa* *prepared* a very good dinner

Figure 2.4: Example of Latin syntax, with each word labelled (Latin from *Cambridge Latin Course, Book 1* (2007: 91), translation my own). Sentence (i) is the original language. Sentence (ii) labels each word for part of speech. Sentence (iii) translates the sentence literally. Sentence (iv) provides a translation observing English syntax.

syntactic meaning, giving Latin poets more freedom in the positioning of their words. As a result, there are some characteristic features of Latinate syntax within classical epic poetry. For example, the verb occupying the final position in a sentence, or the suspension of adjectives after the noun (Addison (1738: 139); Adamson (1999: 620)). Figure 2.5 presents an annotated example from the Latin epic poem, *The Aeneid* (Book 11, line 67). In this example, the verb ‘ponunt’ occurs in the terminal position in the sentence, which is one of the stylistic features employed within epic poetry. Another stylistic motif of epic poetry is the inversion of adjectives and nouns; something that is also illustrated within figure 2.5. Here, as shown by the matching inflectional endings to mark grammatical case (‘iuvenem’/‘sublimem’ - accusative, and ‘agresti’/‘stramine’ - ablative), the adjective ‘sublimem’ meaning noble, follows the noun ‘iuvenem’ meaning the young man.

Milton has been observed replicating some of the stylistic features discussed above within his own epic *Paradise Lost*, to reflect the tradition of epic poetry. These classical syntactic features have been observed by some critics and dis-

- (i) Hic **iuvenem** agresti **sublimem** stramine *ponunt*
- (ii) here **the young man** rustic noble on the straw bed *they placed*
- (iii) here *they placed* **the noble young man** on the rustic straw bed

Figure 2.5: Example of Latin epic poetry from Virgil (2020: xi, 67), with each group of corresponding words labelled (direct object, indirect object, and verb). Sentence (i) is the original quotation. Sentence (ii) translates the sentence literally. Sentence (iii) provides a translation observing English syntax. Translation is my own, with aid of McGill (2020: 84).

cussed under ‘Latin idiom’ (Addison (1738: 139); Johnson (2010: 202); Ricks (1978: 36)). However, given the focus of this thesis on Milton’s neologisms, the observations addressing Milton’s Latinate lexis specifically are of most relevance and will be considered below.

The Latinate style of Milton’s lexis has been identified by early commentators, such as Addison in a series of essays on *Paradise Lost* within *The Spectator*. Addison (1738: 137, 140) argues that Milton deliberately deviates from the ‘Idiomatick Ways of Speaking’ and the ‘Language of the Vulgar’ to raise his poetry to the likes of the classical poets before him. Addison presents several ways in which the Greek and Latin poets achieved this elevated style using methods outlined in Aristotle’s *Poetics* and uses this to discuss Milton’s poetic style (Gigante 2016: 11). Although both the grammatical and the lexical devices used are considered in *The Spectator* essays, this thesis will present those about lexis only.

Addison (1738: 140) argues that Milton employs a similar method to the Greek epic poet Homer when he adds or removes syllables from existing English words. Although these word alterations affect the meter of his epic verse, they

also suggest that Milton creates new word forms to deviate from existing English in a way that reflects the style of classical poetry. Addison (1738: 140) also observes that Milton coins new words to create ‘a greater Air of Antiquity’. Examples given by Addison (1738: 140) include ‘Cerberean’, ‘miscreated’, and ‘hell-doom’d’. Interestingly, Addison (1738: 140) is quick to defend ‘this Liberty’ of coining within English and highlights this as a characteristic of epic poetry too. Addison does not elaborate on the types of words that Milton creates, nor does he present them as inherently Latinate in origin. However, Addison does argue that through coining new words within an epic poem, Milton emulates the poets that came before him. Through comparison to the methods of classical poets, Addison (1738: 140) celebrates Milton for selecting ‘the noblest Words and Phrases which our Tongue could afford him’ and as a result ‘carried our Language to a greater Height than any of the *English* Poets have ever done before or after him’ (emphasis Addison’s). This is in stark contrast to the Addison (1738: 188) quotation adopted by the anti-Miltonists that our ‘language sunk under him’ (see section 2.3.2). Instead, as Leonard (2013: 191) highlights, Addison argues that the English language was unable to provide the resources needed for Milton’s epic, and rather the language let Milton down, rather than Milton letting the language down as argued by the anti-Miltonists. This is an argument that has been made more generally during the sixteenth and seventeenth centuries, with contemporary commentators questioning the linguistic prestige of English and the suitability of its native vocabulary for artistic and literary expression, which Addison acknowledges in his criticism (Nevalainen 1999: 358). In summary,

Addison argues that the act of coining words within English reflects the methods used by epic poets to raise the language above that of the vernacular. Although Addison only discusses the extent of Milton's Latinate lexis within a single poem, this is an important observation on the particulars of the epic tradition and Milton's adoption of them.

One of the very few studies dedicated to exploring Milton's Latinate lexis is Boone (1953). In their study, Boone (1953: 118) argues that 'the Latinity of Milton's language has been overestimated'. Through use of the OED, Boone (1953: 116) assesses the etymology of all the vocabulary within *Paradise Lost*, Book VI. In this quantitative analysis, information within the OED reveals that Milton's vocabulary within this part of *Paradise Lost* is 74.3% native, and 18% Latin (Boone 1953: 117). This is a much lower proportion of Latin than perhaps expected based on the comments of previous critics. Boone (1953: 118) conducts further analysis of the Latinate vocabulary specifically, and reveals that Milton often uses Latin words which entered English via French, rather than from Latin directly. Of the 39.2% of words labelled as Latin, 10.2% of these come from Latin directly, and 29.2% of them enter English via French (Boone 1953: 118). Boone's analysis suggests that the extent of Latinate vocabulary in Milton is more complex than originally thought by early scholars. This result leads Boone (1953: 115) to posit that the impression that Milton's vocabulary is Latinate arises from early criticism of Milton, rather than from a systematic standpoint.

Although much of the paper is focused on the vocabulary of Book VI of *Paradise Lost*, Boone (1953: 119-124) also conducts a preliminary analysis of words

undergoing ‘conversion, derivational change, or semasiological change’ within 1500-1667. Of the 268 words identified within these criteria, Boone (1953: 122) identifies Milton as responsible for the changing the meaning of 66. Of these 66, 59 were listed in the OED, and seven were found through antedating. Interestingly, Boone (1953: 124) considers these semantic shifts as examples of neologisms and linguistic innovation, as well as illustrative of the changeable nature of words in this period. Unfortunately, Boone does not discuss these semantic shifts from a Latinate lexis perspective, or go beyond presenting a comprehensive list of these findings. However, Boone’s (1953) early systematic evaluation of Milton’s vocabulary within Book VI of *Paradise Lost* demonstrates some of the benefits of using a historical dictionary to test claims from literary criticism.

Boone (1953) is not alone in questioning the extent of Milton’s Latinate lexis. Even before Boone’s systematic review of Book VI, Tillyard (1947: 122) argued that ‘too much has been made of the supposed Latinization of Milton’s style’. Although most of the comments made by Tillyard (1947: 129-130) are in relation to Milton’s Latinate idiom, they make an important point regarding his lexis: ‘Milton used many Latin words in a double sense’. Tillyard (1947: 129-130) explains that Milton has a sensitivity towards the original meanings of words derived from Latin, and given that Latin loan-words were closer to their source in early modern English, Milton uses this to suggest both meanings to his contemporaries. This observation makes identifying Latinate lexis more complex: how do you disambiguate between Latinate borrowings, or Latinate resonance in

borrowings/derivations from other languages? The Latinate resonance is something that Milton and his contemporaries would have been aware of, so this is an important question for those investigating the Latinity of Milton's lexis: how do you make this distinction?

The complexity of identifying Latinate lexis in the writings of Milton has become accepted and gained more traction since Boone (1953) and Tillyard (1947). One potent example of this change in perception related to Milton's Latinate lexis over time is presented in Fowler's commentary on *Paradise Lost* between two annotated editions of the poem. In Carey and Fowler (1968: 433), Fowler presents a fairly rigid inclusion policy for his annotation of Latinisms within *Paradise Lost*; he states that if a word occurs in 'non-technical, non-fiction prose contexts earlier than *Paradise Lost*' is it assumed to be standard seventeenth-century usage, rather than a Latinism. Through contextualising Milton amongst his contemporaries, Fowler aimed to acknowledge what may be part of the standard vocabulary of the time. In Carey and Fowler (1968: 432), Fowler refers to the words thought to be Latinisms as 'ghost Latinisms', and believes that these are mislabelled and are actually regular English lexis of the time. However, in his more recent revision of this edition, Fowler (2013: 17) acknowledges that this inclusion (and exclusion) policy may have been 'too stark'. Instead, Fowler (2013: 17) acknowledges that subsequent work by scholars such as Corns (1990) has proven that Milton's lexis is not as Latinate as he originally proposed in 1968. However, in the revised edition, Fowler proposes that the Latinate origin and connotations of Milton's lexis should not be overlooked. Instead, he argues that

- (i) Latin sense primary, and new in English. E.g. ‘omnific’.
- (ii) Latin sense primary, but occurring in English poetic contexts. E.g. ‘liquid lapse of murmuring steams’, where liquid = ‘flowing’.
- (iii) Latin sense secondary, contributing an allusion or additional suggestion. E.g. ‘expanse’ alluding to Latin ‘expansum’.
- (iv) Normal English prose usage, derived from Latin. E.g. ‘person’ = role.

Figure 2.6: Four bands of the ‘Latinity spectrum’ and examples of each, taken from Fowler (2013: 16).

these words ‘do not amount to Latinisms in the ordinary sense’ but supports the idea that ‘Milton’s language is fully English, but also more than English’. In the more recent edition, Fowler (2013) states that most of Milton’s supposed lexical Latinisms fall into band four of his ‘bands of Latinity’ (see figure 2.6). Although the bands are also presented in the 1968 edition, Fowler is more confident in placing Milton’s Latinisms into band four in the revised edition.

This section has presented some of the key debates and studies into Milton’s Latinate lexis. It has been concluded that the extent of Milton’s Latinate lexis may not be as great as perceived by earlier critics, supporting Tillyard’s (1947: 129) observation that ‘to write your own language in a foreign way and to get help from a foreign poet are two quite different things’. Milton appears to draw on his knowledge of Latin and its connotations or possible ‘double senses’ in English, to create what has become known as his notorious Latinate style. This distinctive style has caused some ambiguity and tensions to pervade the literature and the commentary surrounding it, with mixed approaches and opinions yielding different conclusions. With the rise in computational approaches and the use

of historical dictionaries such as the OED, the extent of Milton's Latinate lexis perceived by earlier critics has been diminished.

2.3.3 Neologisms

Upon surveying the literature, what is striking is the lack of studies dedicated to the sole study of Milton's neologisms. Instead Milton has been used as a point of comparison with other canonical authors and their neologisms, and in particular, with Shakespeare (Broadbent (1972: 112), Schäfer (1980: 43), Brewer (2012: 348)). Consequently, little research has been conducted specifically on Milton's neologisms, especially within the last 10 years, which this thesis aims to address. The following section discusses the studies that solely investigate Milton, presenting their respective methodologies and findings.⁶

The studies into Milton's neologisms can be divided into two broad groups with contrasting research aims. The first of these groups is concerned with the **number** of neologisms that Milton has been credited with coining; practitioners in this group aim to count the number of neologisms. In contrast, the second group are concerned with the **types** of neologisms that Milton has been associated with coining. The main research aim of this second group is to observe similarities and differences across groups of Milton's neologisms. Both approaches are empirical in nature - they require a calculation of the number of neologisms and neologism types to be counted in either a dictionary, a corpus of Milton's work or both. Most studies that have researched Milton's neologisms, including

⁶Given the lack of research in the area of Miltonic neologisms, some of the studies and references are drawn from across the twentieth century.

those presented in this section, use the OED as their reference work. The OED has become an established authority in literary neologism work (Schäfer (1980), Schäfer (1989b), Crystal (2005), Brewer (2012) and Hope (2016)).

The first group of studies focuses on the **number** of neologisms Milton has been credited with coining. These studies aim to conduct a survey of Milton's neologisms and present their readers with an estimated figure of the total that Milton coined. As stated in the introduction, the most recent example of this has been conducted by Alexander (in Crace (2008)). However, Alexander's study lacks the clarity of selection criteria, OED version information and other methodological considerations. Other studies, such as Brewer's (2012: 348) study of Shakespeare and his contemporaries including Milton, state the OED version they used so it can be replicated for reliability. I have tried to reproduce Alexander's findings, based on the list from Milton's Cottage (figure 1.1). This involved searching for Milton as first citation for the words listed in both OED3 and OED2.⁷ However, given that Alexander does not state any methodological information, I have been unsuccessful in replicating his results. Surprisingly, some words listed as Miltonic by Alexander, do not even feature Milton in the quotation data for either OED2 or OED3 (see appendix table A1 for my results). As outlined in the introduction (chapter 1) and stated again here, Alexander's piece does not contain a methodology, so his chosen selection criteria and OED version data is missing. Yet, Alexander's work is demonstrative of the value we place on Milton's contribution to the English language and the figure of 630

⁷The version data from so-called 'stable versions' of the OED, i.e. OED1 and OED2 which are fully revised, are available through OED Online.

neologisms is welcomed by scholars and the public alike.

Another study which counts the number of Miltonic neologisms in the OED is Bradley (1904). Although this example is less empirical than Alexander's, it also seeks to quantify the impression Milton made on the English language. Bradley was a lexicographer and second editor for the OED between 1888 and 1923 (Gilliver 2000: 234), and Bradley's work *The Making of English* is based on his time working on the dictionary. In this work Bradley explores contributions from those he terms 'some makers of English' including Shakespeare and Milton. In contrast to Alexander, for Bradley (1904: 233), 'it is not possible to find any considerable number' of Milton neologisms within the dictionary. This is an interesting finding, given that it contrasts the recent results of Alexander, and foreshadows the decrease in the number of neologisms attributed to these canonical authors with the rise of digital databases (Brewer (2009: 352) and Hope (2016)). Consequently, Alexander's and Bradley's respective findings go against the trend, with Milton seemingly gaining neologisms in the 100 years separating these two studies. Like Alexander, a clear methodology is absent from Bradley. Yet, Bradley offers some explanation for why he believes there are no 'considerable number' of Milton neologisms in his search of the dictionary. The first of these is Bradley's notion of 'potentially English' words. These are words that are produced by 'anglicising' Latin words or by attaching a Latin affix to an existing English word (Bradley 1904: 234-235). Bradley (1904: 235) argues that this was the norm in the seventeenth century and if 'Milton had not used these words some one writer of the period would almost certainly have done so...

without any consciousness of innovation'. Through his knowledge of English, and the types of words entering the dictionary, Bradley can take the linguistic climate of Milton and his contemporaries into account, and provide an explanation for this absence of Miltonic neologisms. Bradley's second explanation considers the role of literary figures and their influence on the language. Bradley (1904: 232) explicitly argues that 'there is no constant relation between a writer's literary greatness... and the extent of his influence on the language in which his works are written'. Again, this is an insightful comment for someone working on the early compilation of the OED, given that he would have been familiar with its use of literary sources in providing quotations (Brewer 2009: 94).

Having considered the studies orientated on the quantification of Milton's neologisms in the OED, we now turn to those studies which I consider to be the second group of Milton neologism studies. These studies consider the types of neologisms that Milton has been credited with coining.

In his edition of *Paradise Lost*, Leonard (in Milton (2003)) employs a similar method to that of both Alexander (in Crace (2008)) and Bradley (1904). He also trawls the OED for evidence of Milton's neologisms.⁸ However, instead of counting the number of neologisms, Leonard uses the information to inform his readers of *Paradise Lost* about the presence of neologisms in the poem. He marks the neologisms, as based on the OED, with an asterisk in his edition. There are two things of note in Leonard's tracking of neologisms. First, he acknowledges

⁸Leonard (in Milton (2003: lv)) makes use of the OED CD-ROM for his search for Milton's neologisms. The CD-ROM contains the data from OED2 - the original OED and its supplement (see Brewer (2019b) for more information on OED versions).

some of the issues relating to the accuracy of the OED, due to its editorial and compilation practices. He (in Milton (2003: lv)) notes that his ‘asterisks should be used with caution’, and that he is at the mercy of the accuracy of the OED for his own conclusions; Leonard adds that he ‘silently omitted’ any inaccuracies in the OED. The second thing of note is Leonard’s definition of a neologism; in his edition, Leonard includes the lexical forms that Milton has extended through introducing a new semantic meaning. By including these new senses, Leonard increases the number and range of words in the OED that Milton is credited with influencing. Arguably, what is interesting about Leonard’s study is that it was done for an edited edition of Milton’s *Paradise Lost*, suggesting that both neologisms and Milton’s influence on the English language are of interest to modern readers. Leonard conducts an antedating approach to Milton’s neologisms, given that he also searches for earlier sources and examples of the neologisms in the OED. In preparing his edition, Leonard aims to further our understanding of these neologisms by considering their dating and their accuracy within the OED. Although a similar methodology to Alexander is applied, Leonard goes beyond a surface-level quantification by considering the types of neologisms and their corresponding dates for his readership.

To date, the most comprehensive study of Milton’s neologisms has been conducted by Tom Corns (1990) as part of his volume, *Milton’s Language*. In this investigation, Corns presents his observations with an extended commentary on a text-by-text basis. These observations include unusual collocations, archaisms, Latinisms, and neologisms (including new word forms and new senses).

Again, the OED is used in this study of Milton's neologisms.⁹ By breaking down Milton's neologisms into their individual source texts, Corns can present neologism differences with a sensitivity towards the source text's content, genre, and chronology in Milton's canon. Like the method employed by Leonard (in Milton (2003)), Corns makes use of the lexicographic information in the OED to draw conclusions about the types of neologisms that are listed under Milton. However, Corns does not present an overall figure for the number of neologisms that the OED attributes to Milton, but rather only presents neologism frequencies by text. Consequently, Corns observes that the greatest number of neologisms occur in Milton's landmark poem, *Paradise Lost*. However, the number of neologisms in *Paradise Lost* is just shy of double that of the masque *Comus*, even though the epic poem is ten times as long (Corns 1990: 84). Corns presents a justification for this difference in the rate of neologism occurrence, based on his knowledge of the texts and the linguistic climates at their respective publications. *Comus* was first performed in 1634 and *Paradise Lost* was first published in 1667 (Corns 2012: 234, 270). Although there is only thirty years separating these two works, the English language of poetry had begun to shift from 'Elizabethan exuberance' to 'neoclassical austerity' with a possible reduction in the number of neologisms coined by this later date (Corns 1990: 84). For a greater discussion on the linguistic climate of England during Milton's life, see section 2.3.1.

Given the detail of Corn's impressive study into Milton's neologisms, I present

⁹Corns makes use of the OED CD-ROM, which contains OED2 to search for Milton's neologisms in the dictionary.

some of his main findings from across the works of Milton, with nuances of specific works highlighted where appropriate. For comparison, Corns' results will be compared to the results of Hunter (1989) who employed a similar methodology to the study of Milton's neologisms a year prior. Firstly, Corns (1990: 52, 55, 70, 84, 88) observes that Milton uses existing English resources in his neologisms across all the texts. Examples include: combining existing word stock such as 'fleecy' (Corns 1990: 78) and extending the meaning of an existing word like 'tipsy' (Corns 1990: 55). Milton's use of English resources in his word formation, results in Corns (1990: 59) noting that Miltonic 'coinings from classical tongues are very few'. Corns (1990: 51,59) highlights 'haemony' and 'Chalybean-tempered steel' from *Comus* and *Samson Agonistes* respectively as some of the few examples in Milton's canon. What is noticeable in other neologisms, such as 'swinked' and 'mutely' (Corns 1990: 52, 70), is that Milton has a tendency to use Latin or Greek roots in his word creation, via established English lexemes rather the classical source directly (Corns 1990: 70, 80). These observations are also found in Hunter (1989: 227), who agrees with Corns that Milton uses existing English lexemes in his word creation. It has been argued that Milton's readiness to use established English lexemes as the basis for his coinings marks him as 'distinctive' from his immediate contemporaries (Corns 1990: 83-84); Milton does not 'give the impression of mere anglicizing from Latin', especially in comparison to those such as Sir Thomas Browne (Hunter 1989: 241). This is a noteworthy observation given the literary criticism surrounding Milton's use of Latinisms.

Both Corns (1990) and Hunter (1989) seek to address the extent of Milton's individual creativity in comparison to his contemporaries. Early Modern English was rife with word creation and some of the words attributed to Milton 'do not appear to be of any real significance' (Hunter 1989: 226). Instead, Hunter (1989: 226) argues that given the climate of creativity within this period, some of these less significant Miltonic neologisms would have been created by a contemporary instead. Although this may present Hunter as dismissive of Milton's creativity, he does argue that Milton is creative in his production of compounds, stating that Milton contributed 'such original examples' to the language (Hunter 1989: 226). Miltonic compounds are an area of interest and extended discussion for both Corns and Hunter. Across his works, Milton favours compounding adjectives which dominate in poems such as *Paradise Regained* (Corns 1990: 60). Typically, these adjectival compounds combine an attributive with a noun, adjective, or adverb (Corns 1990: 58). Examples include 'arch-fiend', 'full-grown', and 'never-ending' (Hunter 1989: 226); other examples include 'sea-idol', 'love-quarrels', and 'wedlock-treachery' (Corns 1990: 58). Hunter (1989: 226) questions the originality of some of these compounded neologisms; in most cases both parts already existed in the lexicon and do not demonstrate a creativity beyond combining a memorable adverb or adjective with a noun. In contrast, Corns (1990: 77) argues that some of the compounds are remarkable due to their stylistic recurrence and poetic function in Milton's work. He (1990: 77) observes that these adjectival compounds perform an allegorical role in Milton's minor poems and are often used to describe abstract concepts or mythological figures.

'Thunder-clasping hand', 'golden-tressed sun', and 'leaden-stepping hours' perform this allegorical action in the poems, and as Corns (1990: 77) argues reflects Milton's awareness of renaissance iconography and cultural representation.

Affixation is also observed as characteristic of Milton by both Corns and Hunter. Affixation is the process by which a prefix is attached to a base, such as 'mis-' + 'spell' → 'misspell' (Nevalainen 2006: 59). The prefixes 'un-' and 'self-' are of note: 'un-' is the most productive native prefix within early modern English, and was often combined with native and borrowed bases (Nevalainen 2006: 63). Similarly, according to the OED, 'self-' was a native and productive prefix in the early modern period. In his study, Hunter (1989: 239-240) observes 38 words formed with the prefix 'un-' for the first time, of which 35 are adjectives and three are verbs. He lists 'unadorned' (adj.), 'undiscording' (adj.), and 'unfurl' (v.) as examples (Hunter 1989: 239). Disappointingly, Hunter does not provide any explanation for why Milton may have favoured this particular prefix. However, Corns (1990: 85-86) and Patterson (2009c) dedicate some time to exploring the effects of this prefix: the negative prefixation appeared to give Milton the freedom to express something by what it is not. Positives expressed through negative 'un-' occur frequently in Milton's vernacular prose (Patterson 2009c: 166). The frequency of these 'un-' neologisms and their collocation with connectives such as 'and' and 'or', suggests that this coining was not only deliberate on Milton's part but a stylistic marker or rhetorical device (Corns 1990: 85). The other prefix observed by Corns (1990: 86) to feature in Milton's neologisms is 'self-'; examples include 'self-tempted', 'self-begot', and

'self-knowing'. The use of the reflexive affix emphasises Milton's concern with the concept of the individual in his works such as *Paradise Lost* and *Samson Agonistes*, where these examples come from. The final affix to discuss is the suffix '-n' (more specifically '-en') which features in several Miltonic neologisms found by both Hunter and Corns. Like the other affixes '-en' is a native English suffix (Nevalainen 2006: 62). The '-en'/'-n' suffix has become marked as an 'antique suffix' commonly associated with the poems of Edmund Spenser, a poet that Milton would have been familiar with (Corns 1990: 52). Examples of Miltonic neologisms that incorporate this suffix are 'azurn' and 'cedarn' (Milton 1980b: 171).

The final group of neologisms of interest to both Hunter and Corns are those formed by conversion. Hunter (1989: 235-236) observes nine different types of conversion in his investigation into Milton's neologisms, a summary of which is provided in table 2.3. As shown in the table, Hunter (1989: 236) finds that 30% of the neologisms formed by conversion are adverbs formed from existing adjectives, and 25% are adjectives created from substantives (or nouns). What can be observed is that verbs and prepositions fall behind the rest, as Milton favours the coining of nouns/substantives, adjectives, and adverbs through this formation method. Corns (1990: 88) also observes the presence of conversions in Milton's neologisms and notes the conversion of participles into participial adjectives such as 'imitated state', 'bannered host', and 'trading flood'.

To conclude, Milton's neologisms have had little attention in recent scholarship. Overall, we can divide the few studies of Milton's neologisms into two

Conversion type	Example	New meaning	No. found
Substantive from Adjective	'terrene'	the earth	9
Substantive from Noun	'chant'	a song	8
Substantive from Interjection	'hosanna'		1
Adjective from Substantive	'torrent'	pouring forth	15
Adjective from Verb	'adorn'	ornate	1
Adverb from Adjective	'altern'	in turns	18
Adverb from substantive or preposition	'midst'	in the middle place	1
Verb from substantive	'pillow'	to lay down on a pillow	6
Preposition from adjective or Adverb	'aloof'		1

Table 2.3: Types of conversion found in Hunter (1989: 235-236) including examples.

groups: those interested in the amount of new words, and those concerned with the types of words Milton may have coined. Most of these studies use the OED as the lexicographical source for their investigations. However, the extent and type of neologisms that Milton is credited with coining is debated amongst these scholars, with a lack of agreement on either a number or most common type. Also, across these studies what constitutes a neologism is not agreed upon. Some, such as Hunter (1989) and Alexander (in Crace (2008)) include new senses as neologisms in their survey. One of the benefits observed is that computational studies have enabled a finer grain analysis as additional lexicographical information can also be retrieved (such as Hunter (1989) and Corns (1990)).

The different interpretations of Milton's neologisms are of interest and demonstrate a tension in how Milton is perceived. This is something that pervades other

aspects of Milton's life and writing, with scholars often disagreeing on the extent to which Milton may be exceptional or merely a product of his time.

2.4 Research Aims

This section presents some of the research questions and concerns that have been informed by the literature review conducted above.

The overarching aim of this study is to observe any linguistic trends in the neologisms attributed to John Milton in the OED: do Milton's neologisms in the OED have any salient linguistic features or patterning? To answer this question, any linguistic patterns across Milton's own writing career need to be considered, and also contextualised in relation to his literary contemporaries. Given the literary study surrounding Milton's language, another aspect of this research includes the comparison of the findings from this project to literary critical claims relating to Milton's lexical innovation. Therefore, to assess and contextualise any linguistic trends, the following questions are proposed:

1. **Milton's Neologisms:** What are the linguistic properties of the neologisms associated with John Milton in the OED? How do these vary across his works and his broader writing career?
2. **Milton and his Contemporaries:** Linguistically, are Milton's neologisms different to his contemporaries? How does Milton compare to his contemporaries in his word formation methods? Do Milton's neologisms in the OED belong to one part of speech category more than his contem-

poraries? Are the source languages of neologisms associated with Milton in the OED like those of authors writing in the same period?

3. **Testing Literary Critical Claims:** How many neologisms is Milton associated with in the OED? How are the contrasting literary perceptions relating to Milton's use of Latinate lexis reflected in the OED data? Does Milton have 'a habit of Latinizing', supporting the comments of Ricks (1978: 12)? or is this dependent on genre as suggested by Corns (1990)?

CHAPTER 3

DATA

To assess the variation in neologisms between Milton and his contemporaries in the OED, the relevant data from the OED had to be obtained. To do this, I used the new OED API which was in its early stages of development at the time of writing (version 0.1). This study is one of the first to use this new method to access the OED data.

3.1 Working definition of ‘neologism’

Like other work into literary neologisms, this project draws on the OED as its primary data. Consequently, it is important to acknowledge the history, editing practices, and structure of the OED in order to produce a relevant working definition of a neologism for this thesis.

As outlined in section 2.2, the early OED compilers relied on their readers to find quotations based on provided reading lists (Oxford University Press 2018). The earliest of these quotations was then used as evidence of a neologism or

‘first use’ of a word. However, given the rise of searchable electronic texts and the recent ante-datings of neologisms within the OED (see section 2.2.2), care must be taken as to whether these examples of ‘first use’ should be considered as neologisms. Instead, perhaps they should be considered as suggestive evidence of possible neologisms. As discussed in section 2.2.2, the OED compilers favoured ‘famous’ or ‘well-known’ literary figures as their sources, so words presented in the OED as the ‘first usage’ will also be considered as popularised by these figures. In other words, it may have been the famous literary work that enabled these words to be initially added to the dictionary, even if they may not be the ‘true’ first instance in the lexicon. As a result, this thesis will consider neologisms in the OED to be **early** attestations or popularisations of literary words, rather than a definitive list of neologisms.

The structure of the OED should also be considered when producing a working definition: OED entries can be formed of a single word, with multiple senses. For example, the noun ‘moment’ has nine different senses with further semantic differences under each one. Therefore, for a word to be considered a neologism within this thesis, it must be a new formation. New senses of a word or inflections are not counted as neologisms in contrast with other studies. This decision was made to keep the results focused on the new word formations, rather than semantic differences, that Milton has been credited with coining in the OED; by focusing on a smaller subset of Milton’s linguistic innovation than previous studies, a more in-depth analysis can be presented.¹ However, words changing

¹An investigation into Milton’s new senses may yield interesting results, and the same for if first senses and uses are considered in combination. This could be a possible area of future

to a new grammatical category, through conversion, do still count as neologisms within this thesis. For example, Milton is credited by the OED as the first to convert the noun ‘brow’ to a verb, in his masque *Comus*. Within the constraints outlined above, the entry for the verb ‘brow’ would be counted as a Miltonic neologism, because the lexeme has changed word class (i.e. been converted from a noun to a verb). In contrast, Milton’s first use of the noun ‘moment’ to mean ‘a movement about an axis or centre’ would not be considered a neologism under the criteria above. This is because Milton extends the semantic meaning of the pre-existing noun ‘moment’ rather than creating a new word.

The final criteria to discuss is compounds. For the OED, there seems to be some disagreement because ‘the decision as to what constitutes a word [has not been] a straightforward one’ (Brewer 2012: 353). This is found in the editorial treatment of compounds: the OED Online has a different number of ‘words’ attributed to Milton than the OED API, even though they are based on the same database. For the OED API, a broader inclusion policy has been adopted, with compounds included within these word counts. Within this thesis, compounds (including those formed with proper nouns) will be considered neologisms, reflecting the literary criticism surrounding Milton’s creation of compounds (as discussed in section 2.3.3). Although, this may a broader inclusion policy than some studies, the inclusion of these types enables the literature around Milton’s compounds to be tested empirically.

The following brings together all the considerations and criteria mentioned

research.

above into a single working definition of ‘neologism’ for this project:

A Neologism: a word form, inclusive of compounds and proper nouns, listed as the ‘first use’ of a word within the OED. These neologisms are also acknowledged as possible early attestations or words popularised by a specific author based on the dictionary compilation methods.

The definition above attempts to encompass and reflect the nuances of the primary data source, and aims to satisfy the research concerns in section 2.4.

3.2 Application Programming Interfaces (APIs)

In order to extract the data from the OED, I made use of the new OED API. In this next section, Application Programming Interfaces (APIs) are introduced generally and examples of their use in research are presented. Following this, the OED API is presented in detail.

3.2.1 What is an API?

First, an Application Programming Interface (API) needs to be defined; for Chambers et al. (2019: 18-19) an API ‘is typically a defined set of Hypertext Transfer Protocol (HTTP) request messages, along with a definition of the structure of response messages, usually in an Extensible Markup Language (XML) or JavaScript Object Notation (JSON) format’.

The definition above provides a technical explanation. However, the API procedure and definition above can be broken down to reveal the ‘request-and-response’ mechanism that underpins API-based research.

Firstly, the ‘HTTP request messages’ are a set of instructions that are sent to an alternative ‘door’ of a website. Normally these retrieval instructions are sent alongside credentials which are given to a user by the company or organisation that own the API. These instructions ask the server to retrieve the data requested and return it in a specific format which makes up the ‘structure of the response messages’ (i.e. the XML or JSON formats). The process works similarly to requesting a library book: a book is requested and is retrieved in the format required (such as an electronic book or a paperback). Depending on the instructions provided in the initial request, the outcome can be determined; by specifying the ‘structure of the response message’ from the API, the same information can be retrieved in different formats. In short, an API offers a user, an alternative route into a website, and through doing so provides a way to ‘retrieve the data stored in a company’s databases’ in a specified format (Manovich 2012: 464).

3.2.2 Types of APIs and their Use in Research

APIs themselves can vary greatly in terms of content, access, and amount of data available, and all of this is dependent on the developers and the company that own the API. In this section, two APIs that could be used for humanities research are discussed.

The first example is Twitter's APIs. The use of these APIs is particularly common in the social sciences and are the APIs used the most for API-based research in social science (Lomborg and Bechmann 2014: 257). Although this may be an outdated statistic, it would not be surprising if Twitter's APIs are still one of the most used, for numerous reasons. The first reason being the vast content available through these APIs. There is so much information available through these APIs, that Twitter have produced six individual APIs, each with a different purpose (Twitter Inc 2019a). The content of these APIs varies from the developmental (such as the Ads API and the Direct Message API), to the informational (such as the Premium API to retrieve historical tweets) (Twitter Inc 2019a). For humanities research, the ability to retrieve historical tweets would probably be of greater interest and has already been used in some studies. Some recent examples include: a social network analysis of the humanities Twitter community (Grandjean 2016) and a linguistic study of lexical variation in American tweets (Grieve et al. 2018). Yet, one major drawback of these Twitter APIs is the restriction enforced on usage; Twitter imposes limits on the number of requests (both GET and POST types) a user can make within a certain time period (Twitter Inc 2019c). Commercially, Twitter offer various options to improve request rates through subscribing to premium API packages (Twitter Inc 2019b). Therefore, if this API was used for research, one would need to consider how to optimise free requests or consider the cost of using the premium API.

In contrast to the Twitter API, the Folger Digital Texts API (Folger API)

is very different (Folger Shakespeare Library 2014). Although the Folger API has no limits for the number of requests a user can make, it is arguably less developed than the Twitter API. Rather than a standardised ‘structure of the response message’, the Folger API has some features retrievable in XML or JSON, but the majority is structured in Hypertext Markup Language (HTML). Unfortunately, HTML requires more pre-processing and ‘cleaning’ than XML or JSON, so a scholar must spend more time doing this in comparison (I will explain the process of cleaning data further in section 3.3). Again, this is a consideration that needs to be accounted for before using this API. The variation in response format is due to the development of this API: the Folger Digital Texts API is an amalgamation of different digital Shakespeare projects involving the Folger Shakespeare Library. Following the completion of different projects, their outcomes were combined to form the API database. Although this API could be argued to be a fragmented resource and suffering from a lack of consistent response formats, it is in its early stages of establishment (Beta phase) and still allows new questions to be asked of its specially tagged dataset. For example, one unique feature is its ability to search a play by line number, which returns who is on the stage at that moment: an automated way of tracking interaction between characters through the plays. This API allows Shakespeare scholars to begin to ask new questions of the plays and to use different techniques, such as ‘distant reading’ (Moretti 2013: 48) to observe macroscopic patterns in the plays.

Although APIs have been established as a data collection method for large-

scale research in computer science (Manovich 2012: 464) and the social sciences (Lomborg and Bechmann 2014: 257); it has not been until fairly recently that humanities scholars have also turned to APIs for data collection.² Consequently, companies and organisations within the humanities, such as the OUP and the Folger Shakespeare Library, have begun releasing APIs to encourage researchers in the humanities to ask different questions of the data they have made accessible. In the words of Tasovac et al. (2016: 94) APIs ‘have the potential to be powerful, practical building blocks of digital humanities infrastructures’, something that I hope to demonstrate in this thesis through the use of the OED API which is discussed in the next section.

3.3 The OED API

In this section, the OED API is introduced, and the methodology employed in this study outlined using the workflow illustrated in figure 3.1.

As shown in figure 3.1, the methodology employed by this project can be broken down into five main stages: finding the API, gaining access permission, retrieving the data, processing the data and formatting the data. This section takes each stage in turn and describes the process involved in each one.

3.3.1 API Availability

The first stage of this process involved selecting a data collection method. In the early stages of this project, existing methods for collecting OED data were con-

²See Tasovac et al. (2016) for conference panel on recent uses of APIs in the humanities.

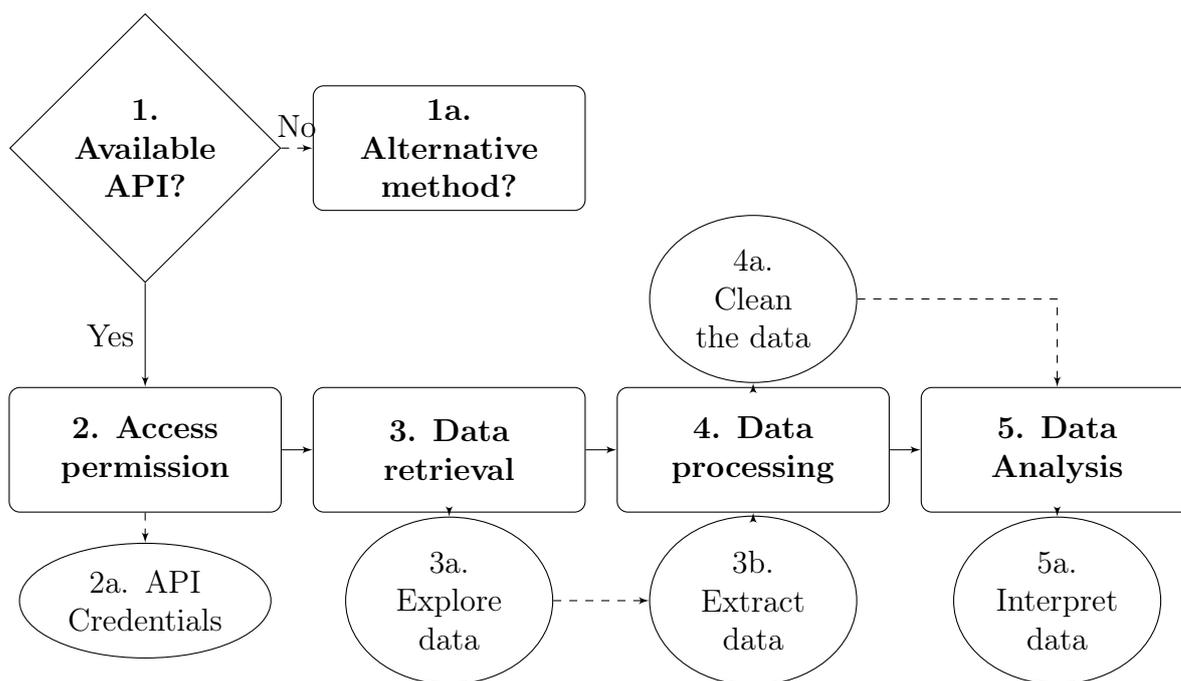


Figure 3.1: OED API workflow implemented in this study. Each rectangular node represents a stage of the process with the circular nodes depicting the exploratory processes or considerations at each stage.

sidered. This included obtaining the OED data directly with an agreement from the OUP (Williams 2017a: 108), searching the OED website manually (Brewer 2012; Brewer 2015), or using the CD-ROM version (Culpeper and Clapham 1996; Crystal 2005). However, with the development of the OED API, I decided that this new tool may prove to be the best option, given its comprehensive access to all the OED data (see Oxford University Press (2016a) for data available). The OED API is also updated quarterly to reflect any changes made in the current OED3 revision; whereas some of the other available databases, especially the CD-ROM, are outdated.

By developing the API, the OUP has initiated the process of ‘opening up the lid’ of the OED. Previously, by situating their data behind the website the OED has faced criticism about restricting research, given the lack of searchability in

their online tools (Brewer 2012: 350). As a result, some scholars have created their own OED datasets, by manually encoding complementary metadata for the data (Williams 2017a; Williams 2017b). These additional materials seek to expand on existing categories, such as source text genre, gender of the quoted author, OED2 update dates, and others (see Williams (2017b)). However, with the release of the OED API, some of the metadata fields are now accessible. These fields already exist in the raw OED data, but are not present in the OED online.

The API was originally released as a prototype for researchers to use, after being advertised at Digital Humanities Conferences such as the Digital Humanities Congress 2018 (McCracken 2018). The release of the prototype enabled researchers to explore the data available and give feedback to the OED developer team. Consequently, the early stages of this project were conducted on the prototype, including testing various retrieval scripts. The actual OED data used in the project was retrieved from version 0.1 in February 2019 (Oxford University Press 2019). By working closely with the developers and the early stages of the API, new data fields were added to version 0.1.³

In fact, after exploring the data in the API, the scope of the project widened; rather than focusing on Milton's neologisms and their associated lexicographic data, the project widened to situate Milton amongst his contemporaries. The data available meant that the API request could be expanded, from being author

³Thanks to James McCracken and his developer team at the OED, who kindly added fields such as OED update dates in their API v0.1 release in February 2019, following feedback sessions.

specific to include the whole of the Early Modern English period.

3.3.2 API Access Permission

The second stage of the method involved obtaining permission to access the API. Like the Twitter API, the OED API has differing levels of access (and cost) depending on requirements and use (Oxford University Press 2016b). At the time of writing, there are three plans available: a free prototype plan which has limited access and requests to the data, a developer plan with differing levels of cost depending on number of calls to the API, and finally an enterprise level with more exclusive access. However, if you are a researcher and using the API for non-commercial purposes, the OUP are willing to grant access to the API after submitting a written request outlining intended use. For this thesis, I was granted researcher access and given unique API credentials, which enabled full access to the OED data. This meant that for any call to the API, I would need to use a unique ID and key to gain access, which are sent alongside the request url (see figure A1 in the appendix for example, with fictional key and ID). Without these credentials, the call would not be authorised, and an error returned.

3.3.3 Ethics

This research was approved by the University of Birmingham (ERN_18-1663) and was conducted within their guidelines for ethical research. The OED data is available on subscription including through public libraries. I was granted permission from the OED to access the API and its prototype.

3.3.4 Data Retrieval

The third element in the workflow is the most exploratory aspect of using the OED API. Retrieving the data can be divided into two smaller sections: exploring the API data (3a) and then extracting the desired data based on these explorations (3b).

Firstly, to explore the OED API data (workflow section 3a), it is important to understand the overarching structure of the OED API and its endpoints.⁴ The OED API has been structured in a hierarchical system, to reflect the layout of the original OED entries with three main data types: words, senses, and quotations (highlighted blue, red, and green respectively in figure 3.2).⁵ As a result, all the entries are interconnected across the three main data types with ‘each quotation belong[ing] to a sense, and each sense belong[ing] to a word’ (Oxford University Press 2016a). See figure 3.2 for an illustrative breakdown of an OED online entry into these data types.

To manage the connection between the three data types, the OED API developers implemented an ID system. In this system, each data type has a unique ID, resulting in three separate IDs: one for the word (blue in figure 3.2), one for the sense (red), and one for quotation (green). It should be noted that an entry can have multiple senses and words, so can have multiple IDs for these data

⁴An endpoint is part of the API system that houses the data and is where the requests are sent. For the OED API, the required endpoint constitutes part of the API url request, e.g. ‘/words’ is added to the end of the main url ‘https://oed-api.oxforddictionaries.com/oed/api/v0.1’ to specify that this is a call to the words endpoint.

⁵There are a total of six data types, but words, quotations, and senses are listed on the API website as having their own endpoints, and are treated as the primary data types.

OED | Oxford English Dictionary
The definitive record of the English language

Quick search: Find word in dictionary **GO**

Lost for Words? | Advanced search | Help

« Previous | Back to Results

Help on Dictionary Entry | Print | Save | Email | Cite

accommodating, *adj.*

View as: Outline | [Full entry](#)

Quotations: Show all | [Hide all](#) | Keywords: On | [Off](#)

Pronunciation: Brit. [▶](#) /ə'kɒmədeɪtɪŋ/, U.S. [▶](#) /ə'kɑmə,deɪdɪŋ/
Forms: see ACCOMMODATE *v.* and *-ING suffix*.²
Frequency (in current use): ●●●●●●●●
Origin: Formed within English, by derivation. **Etymons:** ACCOMMODATE *v.*, *-ING suffix*.²
Etymology: < ACCOMMODATE *v.* + *-ING suffix*.². Compare earlier ACCOMMODATIVE *adj.* ... (Show More)

That accommodates (in various senses), *esp.* obliging, pliant, conciliatory; easy to deal with. [Thesaurus ▶](#)

1642 D. ROGERS *Matrimoniall Honour* xi. 224 An accomodating, plyable and acceptable spirit to traffique with others.
 1768 tr. Voltaire *L'Ingenu* xv. 119 He is a pious accomodating man, who has also the direction of some women of fashion.
 1775 E. BURKE *Speech Resol. for Concl. Colonies* 21 Perhaps a more smooth and accomodating Spirit of Freedom in them would be more acceptable to us.
 1852 H. B. STOWE *Uncle Tom's Cabin* II. xxxix. 261 Cassy had been unusually gracious and accomodating in her humors.
 1875 TROLLOPE *Way we live Now* II. lxix. 118 The numerous acceptances for large sums which the accomodating purveyor held from many of the members had all been sold to Mr. Flatleece.

This entry has been updated (OED Third Edition, December 2011).

Entry history
Entry profile

Previous version:
OED2 (1989)

In other dictionaries:

[Oxford Dictionaries](#)
accommodating: view definition in Oxford Dictionaries

Figure 3.2: The OED online entry for the adjective ‘accommodating’, with the three different data types bordered to show the distinct endpoints of the API. Blue is the word endpoint, red is the sense endpoint (with its links to the Historical Thesaurus), and green is the quotation endpoint. All these endpoints return the data shown by its coloured border, but it should be noted that each endpoint can also return specific information beyond the website too.

types. An ID provides a user with a passage to move between the three data types/endpoints for a specific entry. The ID system is helpful in one sense, as it enables users to retrieve different information about the entry from the IDs of other data types. However, this ID system could become a methodological issue for studies with research questions across data types, such as this thesis. To move between data types, the data must be collected for one data type, and the relevant IDs (word/quotation/sense) need to be extracted from this first. Once extracted, the IDs can then be used iteratively to call the other data types. For example, in this thesis the API was used to retrieve all the lexicographical data from words with first quotations marked as coming from texts dated between

1500 and 1700 (the justification for this selection is below). To do this using the API ID system, all the entries with quotations in the date range had to be extracted using the quotation endpoint. Then each word ID had to be extracted from the quotation data. Finally, the word ID found in the quotation data run iteratively one-by-one through the words endpoint to retrieve the required data for each word. Unfortunately, given that the data is contained in multiple data types, two (or more) separate API calls must be made to get all the required data, which adds to the total time and computing power needed.

Having explained the overarching API structure, we can now begin to inspect the JSON response. As described in section 3.2.1, the JSON data constitutes the ‘response envelope’ from the API. The JSON response is a standard data format returned by the OED endpoints; unlike the differing response formats in the Folger API (see section 3.2.2). Like the hierarchical structure of the OED and the API, the JSON data is also structured hierarchically. To explain this, I will use an extract from the OED API JSON response for the adjective ‘accommodating’ (see figure 3.3 for extract).

As can be seen from the extract, the JSON data is structured in clear levels, with ‘meta’, ‘links’, and ‘data’ forming the highest level, and the ‘created’ and ‘updated’ fields at the lowest level. These hierarchical structures are one of the benefits of JSON responses, as the levels can be indexed using a scripting language. For most of the scripting in this thesis Python was used. The use of Python, especially for indexing JSON, meant that no additional packages were required (Python Software Foundation 2018). It took some trial and error

```
1 {
2   'meta':
3     {
4       'provider': 'Oxford University Press'
5     },
6   'links':
7     {
8       'self': '/oed/api/v0.1/word/accommodating_jj01'
9     },
10  'data':
11    {
12      'id': 'accommodating_jj01',
13      ...
14      'meta':
15        {
16          'created': 1884,
17          'updated': 2011
18        },
19      ...
20    }
21 }
```

Figure 3.3: Extract of the OED API JSON data.

to explore the JSON response and index what Python terms dictionaries and embedded lists (see figure A2 in the appendix for worked example). The indexing process becomes more complex with embedded lists inside dictionary values, yet with some scripting trial and error the desired value was returned. Once this was achieved, I could then turn to the extraction of the relevant data fields (figure 3.1 section 3b).

After exploring the JSON data, scripts were written to extract the relevant data fields from the API (see table A2 for full list).⁶ Before justifying the parameters chosen in the calls to the API, the research aims for this project are restated, in order to demonstrate how the parameters chosen align with and

⁶For scripts created to access the API, please see the GitHub repository: <https://github.com/EllenRoberts/MA> (Roberts 2020).

reflect the purpose of this study. As stated in chapter 2.4, this project has three overarching research questions: the first is to observe any linguistic trends in the neologisms attributed to John Milton in the OED. The second is to compare Milton's neologisms to his contemporaries; and finally, to test literary claims relating to Milton's lexical innovation. In order to answer these questions using the API, it was necessary to ensure that the parameters chosen were done with these research aims in mind. The justification for which are as follows:

For the quotation date range, 1500 to 1700 was chosen. This date range was chosen for multiple reasons: firstly, this range is generally considered by linguists as the early modern English period (Nevalainen 2006). Secondly, as stated in my research questions, this thesis aims to assess the variation in OED neologisms between Milton and his contemporaries. Given Milton's own writing career spanning the middle of the seventeenth century, and his life extending from 1608-1674, Milton is situated in the middle of this period (Campbell 2009). As a result, I believe that the range 1500 to 1700 is a wide enough period to enable the linguistic 'norm' pre- and post-Milton to be observed, but also keeps the date range narrow enough to keep this project focused on Milton and his contemporaries.

Another key aspect relates to the collection of neologisms: to retrieve neologisms from the API, 'first in word' quotations were included but 'first in sense' excluded. These parameters reflect the working definition of a neologism, as defined in section 3.1. For a word to be considered a neologism, it must be a new entry into the lexicon, as marked by the OED compilers, rather than a

Parameter	Value	Type
First in Word	True	Boolean
First in Sense	False	Boolean
Year	'1500-1700'	String
Offset	$x + 100$	Number
Limit	100	Number

Table 3.1: Summary of all selected query Parameters for retrieving all the quotation data between 1500 and 1700, where x is the previous offset value.

change in sense: therefore, 'first in sense' is not relevant to this thesis. The OED API offers a boolean selection (assigning a true or false value) for both 'first in word' and 'first in sense'. In order to reflect the scope of this thesis, the 'first in word' parameter was marked as true, and the 'first in sense' as false.

The final selected parameter was the limit and offset values. These perform a practical role in the use of the API, and tell the API which entries, and how many, to retrieve based on the ones previously received. In the scripts written to pull data from the API, these parameters are changed automatically with each iteration through the data. The limit parameter remained constant at 100, which is the maximum number of entries that can be retrieved in one pull. The offset parameter increased by increments of 100 with each iteration. For a summary of the parameters used in this project, see table 3.1 for a breakdown with values and Python object type.

3.3.5 Data Processing

Next, datasets are processed and compiled from the extracted JSON data, which is the fourth stage of the workflow. With all the data extracted from the OED API (as outlined in section 3.3.4), the text files containing this information

needed to be concatenated into a single dataframe. The scripts to do this were also done in Python and can be found on GitHub (Roberts 2020). Once the dataframes were built, the data was explored for its accuracy.

Inconsistent spellings were an issue within the raw OED data, especially for the etymon language data. The variation between entries is a long-standing feature of the OED itself, with inconsistencies present in its earliest editions. As Brewer (2013a: 103) highlights: ‘entries in the printed work vary considerably between one part of the dictionary and another in such things as usage and provenance labelling, quotation numbers and frequency, character and remit of definitions, content and quality of etymologies...’, something that has been carried over into the digital life of the dictionary upon the merging of OED1 and OED2. These inconsistencies have been observed in the data collected for this thesis. For computational and quantitative studies, inconsistent spellings cause issues, as the counts based on string matching are inaccurate. As a result, variable spellings in the data retrieved from the API had to be standardised into a regular form. For example, ‘Latin’ was spelt as ‘Latin’, ‘latin’, ‘LAtin’, and was standardised to ‘Latin’ in the data cleaning stages of this project (figure 3.1 section 4a). Beyond this, most of the data did not need correcting and checks were added to ensure that the data was consistent from different API endpoints.⁷

⁷These checks were done by taking the same field from multiple endpoints and cross-checking the fields for any differences.

3.3.6 The Data

The data retrieved from the OED API consists of 129,432 neologisms with their quotations coming from works dated between 1500 and 1700. For all the neologisms, 21 metadata fields were extracted for each word (see table A2 in appendix for details). Each data field was inspected and subjected to manual standardisation of spellings, if required, as outlined above.⁸ For further discussion on the specific texts and technical details of the data collected, see section 3.4.1.

3.4 The Datasets

In the following section, the data retrieved from the OED API is discussed in detail. The dataset for 1500-1700 was found to have biases towards dictionaries: both in terms of their frequent occurrence and the number of neologisms taken from them. As a result, it was necessary to construct a smaller dataset from the original, to keep the data relevant to Milton and his contemporaries.

3.4.1 The 1500-1700 Dataset

As mentioned in section 3.3.4, the dataset retrieved from the OED API satisfies the following selection criteria: the word is the first in the entry and the date range ‘1500-1700’. The resulting dataset is made up of 129,432 neologisms and their accompanying metadata fields.

⁸This standardisation process involved the correction of spellings, and the condensing of like categories for each field.

Before answering the research questions outlined in section 2.4, the content of the data retrieved was explored first. To do so, a diachronic distribution of the neologisms across the 200-year period was plotted (figure 3.4). As the graph shows, with its accompanying local regression line (marked in red), neologisms are introduced across the entire period, with at least 25 neologisms added to the OED each year. Although the data shows a large range between the greatest and lowest frequencies (a maximum of 3,514 and a minimum of 25), the overall trend is a steady increase over the period. This peaks in the middle of the early seventeenth century, and then tails off again by the latter part of the date range. The number of neologisms taken from texts situated in the middle of the period is the greatest, with the highest point reached around 1610. This observed increase in neologism frequency is reflective of other diachronic studies of the OED, with Finkenstaedt et al. (1970) and Wermser (1976: 27) finding similar patterns in OED2 data.

However, the fluctuations in frequency present in figure 3.4 reveal more about the distribution of neologisms in this dataset. Taking the five highest peaks in turn; the textual sources contributing the neologisms for each year (1518, 1611, 1615, 1623, and 1656) were consulted. Based on this, it was found that each of the peaks are caused by a single text or source used by the compilers to contribute a large proportion of neologisms for that year. For example, the largest peak is for the year 1611, and has a frequency of 3,514 neologisms. Of the 3,514 neologisms recorded in this year, Randle Cotgrave's 'A Dictionary of the French and English Tongues' provides evidence for 2,000 (56.92%) of

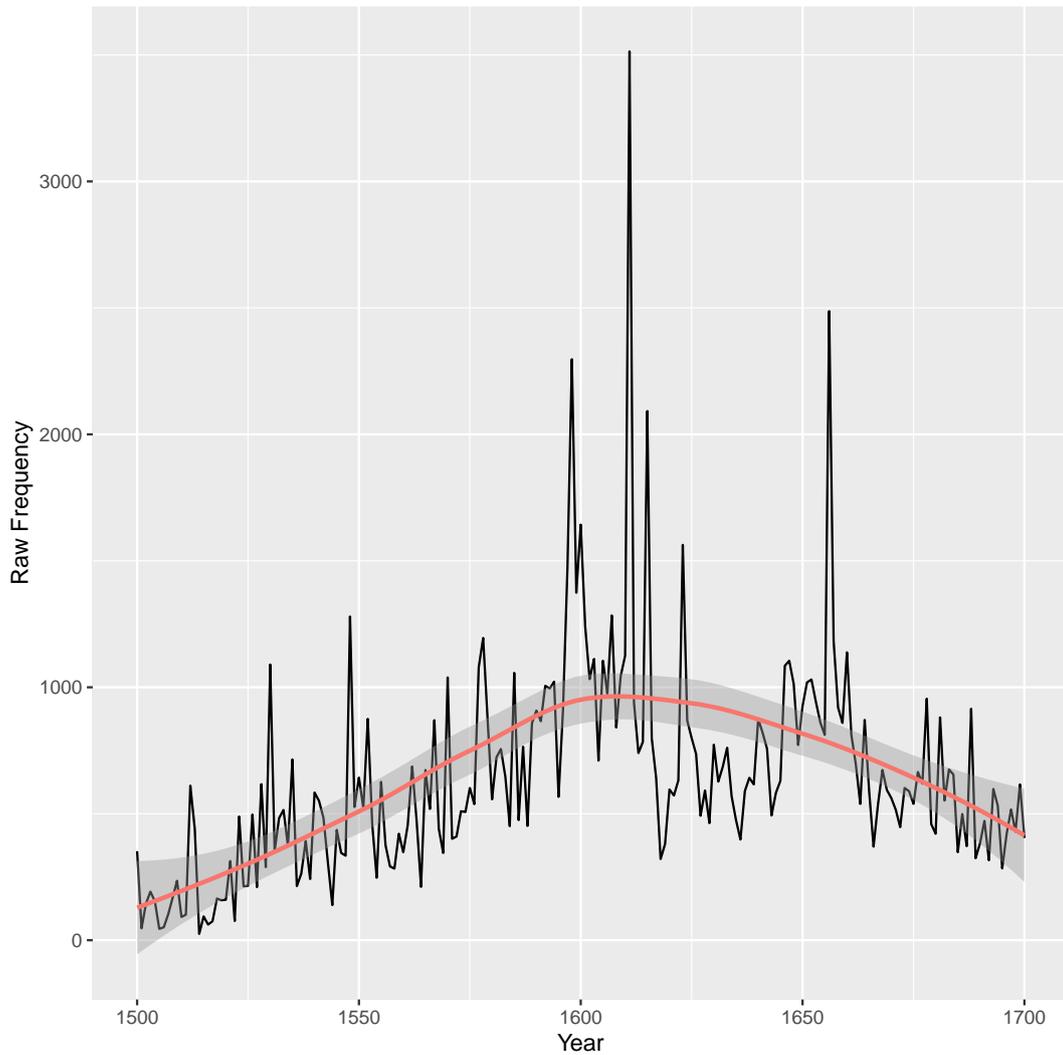


Figure 3.4: Line graph for the raw frequency of neologisms across 1500-1700. The red line is a local regression line with shading to demonstrate the overall distribution of neologism frequency over the period.

them.⁹ The same occurs in 1656 with Thomas Blount's 'Glossographia' which provides 1,518 (61.04%) neologisms out of the total 2,487 recorded for the year. Finally, and perhaps unsurprisingly to those familiar with the work of Schäfer (1980) and Brewer (2012), a similar pattern occurs for Shakespeare's works, even though each play and poem is listed as an individual text in the OED data. When they are grouped together by author ('W. Shakespeare'), they contribute 50.76% of the total neologisms for 1615.¹⁰ To assess whether this was the case for most of the data, the average number of neologisms per text for each year was calculated.¹¹ The results of this are illustrated in figure 3.5. One may have expected that as the number of neologisms rise in a year, the number of source texts would also rise, given that the OED compilers may have had to turn to other sources to find more neologisms. If this were the case, the result would be a fairly level graph with the ratio of neologisms to texts remaining at a constant rate.¹² However, this is not the case for the OED, as shown by figure 3.5. Instead of a constant relationship between number of neologisms and number of texts, the relationship increases at the turn of the seventeenth century. Therefore, as the raw frequency of neologisms rises, the average number of neologisms per text also rises. In other words, more words must have been taken from the texts already

⁹All percentages rounded to two decimal places.

¹⁰As Brewer (2012: 253) highlights in her work on the ongoing OED3 revision, the dates of Shakespeare's works are becoming standardised to 'a1616' (before 1616) under a new OED dating policy.

¹¹This was done by dividing the number of neologisms for a year, by the number of source texts from the respective year.

¹²If one text contributed one neologism, it would have a neologism to text ratio of 1 ($1 \div 1 = 1$). Whereas, if one text contributed two neologisms, it would have a ratio of 2 ($2 \div 1 = 2$). However, if the number of texts contributing neologisms also increased, this ratio would become 2 ($2 \div 2 = 1$). It is impossible for this ratio to be less than one, as two or more texts cannot contribute one neologism between them.

sampled for neologisms in that year. Although this may not be a surprising observation, it is revealing about OED editorial practices. This result seems to reflect the use of reading lists in the early editions, with the OED readers being asked to focus on a small number of specific texts in order to select quotations (Brewer in Mugglestone 2012).

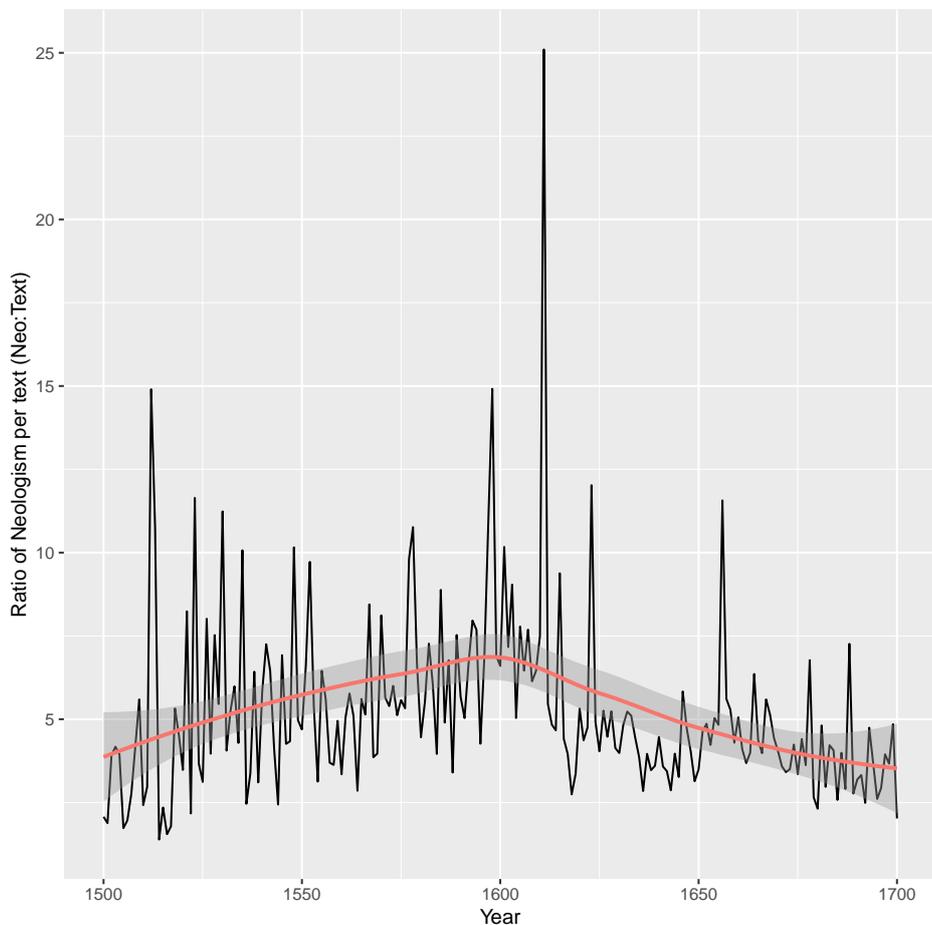


Figure 3.5: Line graph of the average number of neologism per text across the 200 year period. Again, a local regression line has been added to illustrate the general trend.

When compared, both figure 3.4 and 3.5 demonstrate the same trend over the period in question. That is, a general increase over the two centuries, with a decrease at either end of the date range and a peak occurring at the beginning

of the seventeenth century. The trends in these graphs aid in demonstrating the tendency of the OED compilers to draw on a single text to contribute many neologisms into the dictionary. Given the apparent weighting of neologisms towards a few individual texts, an exploration into these texts was conducted.

3.4.2 An issue of dictionaries?

The types of texts that contribute quotations and neologisms to this dataset vary greatly, both in terms of form and function. This observation supports the findings of others, with Hoffmann (2004: 20) stating that ‘the range of sources for the quotations is extremely varied... It goes far beyond the nineteenth century practice of including only the works of ‘the best writers’’. Although the works of the ‘best writers’ do feature, such as Shakespeare’s *Hamlet* and Spenser’s *Faerie Queene*, there are also many obscure works. Examples of obscurer works include, Risdon’s *A chorographical description or survey of the county of Devon* and works from other linguistic registers, such as personal correspondences. But, when considered in order of frequency, the spread of neologisms across the works does not seem as ‘varied’ as the types of sources. Instead, the 10 works contributing the most neologisms to this dataset are all non-literary texts which could be situated in a formal and educational register (see table 3.2 for frequencies).

As table 3.2 shows, the five highest contributing texts are dictionaries and contribute 4.71% of all the neologisms in the entire dataset. This is a high proportion from five texts out of a total 18,258 in the dataset. Studies that focus on quotations (rather than neologisms) have found that quotation sources

Author	Work	Date	Freq.	Type of work
R. Cotgrave	Dict. French & Eng. Tongues	1611	2000	Dictionary
T. Blount	Glossographia	1656	1518	Dictionary
H. Cockeram	Eng. Dict.	1623	1068	Dictionary
J. Palsgrave	Lesclarcissement	1530	774	Grammar and Dictionary
J. Florio	Worlde of Wordes	1598	740	Dictionary
P. Holland	Hist. World	1601	669	Translation (History)
J. Gerard	Herball	1597	654	Translation (Botany)
R. Huloet	Abcedarium Anglico Latinum	1552	653	Dictionary
Sir T. Browne	Pseudodoxia Epidemica	1646	628	Scientific Theory
R. Holme	Acad. Armory	1688	616	Encyclopedia on Heraldry

Table 3.2: Top 10 most frequent individual works in the OED dataset. Listed as per OED notation.

are mainly from literary sources (Schäfer 1980; Brewer 2009; Hope 2016); which is unsurprising given the reading programme supplied by the early OED editors (Philological Society 1858). This is an interesting comparison of results, as it suggests that neologisms (rather than quotations) seem to come from dictionaries and lexicographic records, rather than literary sources. To test this, I ran a search of the OED Online using the ‘top 1,000 sources’ tool for the dictionary. The results from this test are shown in table 3.3. For comparison, the authors of the top 12 works in my dataset were used, alongside Shakespeare for a literary comparison (see figure 3.6 for the frequency breakdown of the top 12 in my dataset).

When the ‘First Evidence for Word’ criteria is selected as the primary sort

Author	First Evidence for Word Rank	Total Number of Quotations Rank	Difference
R. Cotgrave	8	39	-31
T. Blount	7	79	-72
H. Cockeram	17	265	-251
J. Palsgrave	33	41	-8
J. Florio	10	77	-67
P. Holland	11	23	-12
J. Gerard	154	251	-97
R. Huloet	71	216	-145
Sir T. Browne	25	73	-48
R. Holme	93	103	-10
H. Lyte	135	223	-88
Shakespeare	6	2	+4
Milton	41	8	+33

Table 3.3: OED Online quotation sources, based on author. The respective ranks for each author are based on the entire OED data (it is not only inclusive of 1500-1700 material), and shows how these ranks change depending on the filters applied.

criteria,¹³ dictionaries rank a lot higher for the entirety of the OED. Whereas, when the total number of quotations (i.e. ignoring whether the quotation is an example of a neologism) are considered, the dictionaries fall down the ranking, and are replaced with literary figures like Milton and Shakespeare. In particular, Henry Cockeram, who was ranked 17th for First in Entry, falls 251 places when considered for all quotations. This difference suggests that literary quotations are used demonstratively for various senses and general quotations in the dictionary. One could suggest that the literary sources provide interesting or novel uses of the words in question, and are included on these grounds, rather than to provide a possible coining. In contrast, dictionaries and glossaries may be the first written record of a spoken utterance established in the language, resulting in a higher

¹³This is the same as the API 'First in Entry = True'.

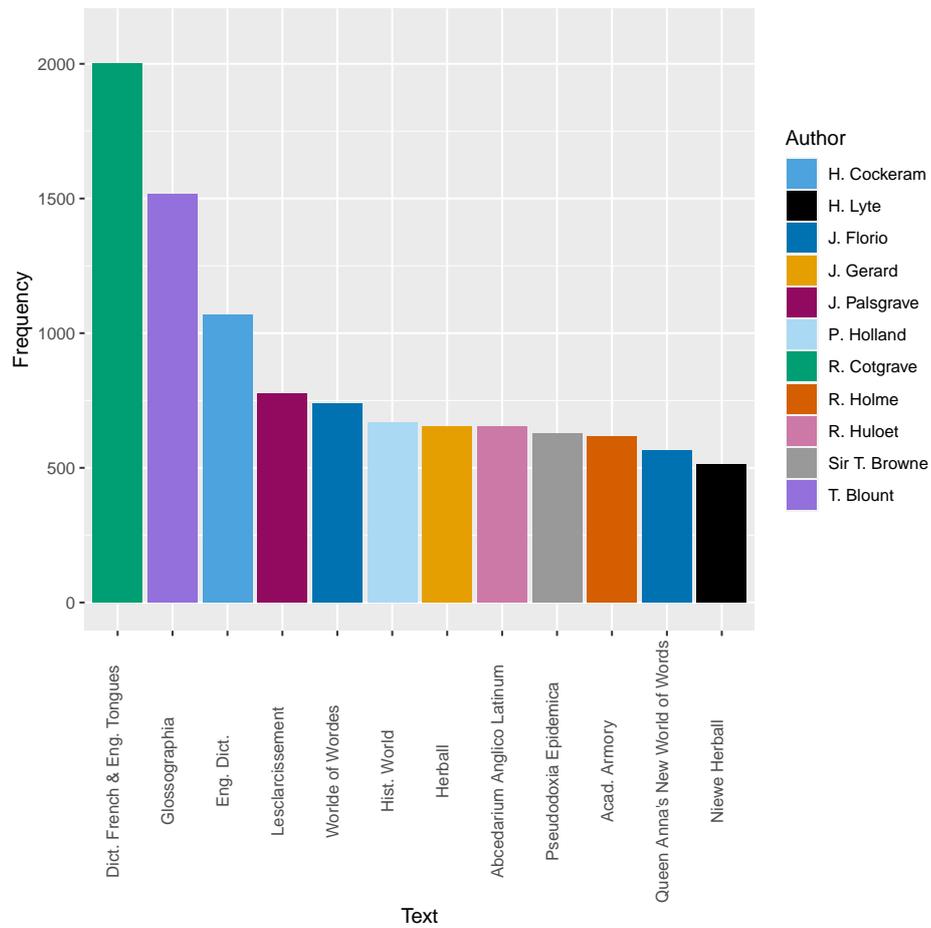


Figure 3.6: Bar chart illustrating the 12 texts with the highest frequency of neologisms in the 1500-1700 dataset.

contribution of neologisms taken from dictionary quotations in the OED. This is an interesting difference between the two ways of ranking quotations; however, the scope of this project is limited so this apparent distinction cannot be explored further - but it would be an interesting comparison to come back to in the future.

Now it has been established that dictionaries contribute the most neologisms to my dataset, the effect this has on the overall dataset can be assessed. To do this, the graph in figure 3.6 was expanded to include all texts contributing 50 neologisms or more. The result was a logarithmic type distribution of the frequency of neologisms by text (see figure 3.7). The first two bars are Cotgrave's

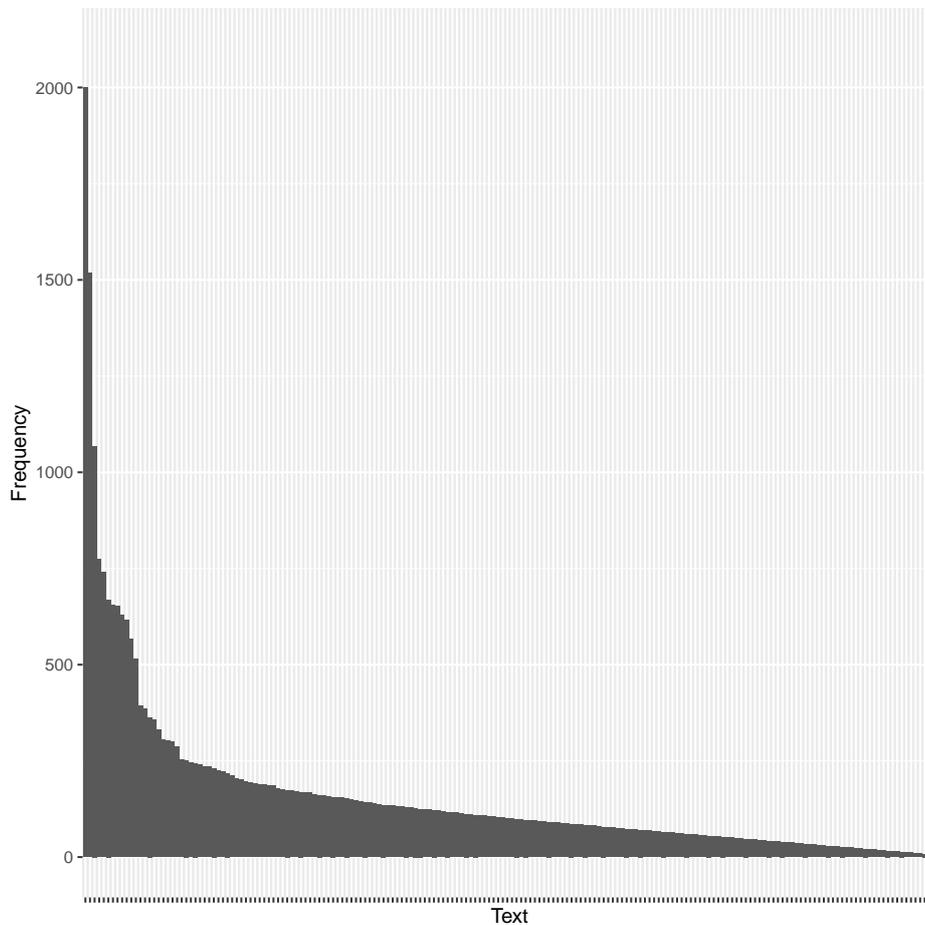


Figure 3.7: Frequency distribution displaying all texts in the 1500-1700 dataset contributing 50 neologisms or more to the OED.

Dictionary of French and English Tongues, and Blount's *Glossographia* (as seen in figure 3.6). However, when this graph is expanded, the extent to which these texts contribute a much higher frequency and dwarf the neologisms coming from other texts is emphasised. If the plot is continued to include all the texts in the entire dataset, the tail of the graph continues until it levels off at one neologism. There are 9,472 texts (51.9% of all texts) with only a single neologism in this dataset. Therefore, this graph emphasises the varied distribution of neologisms in the dataset and the extremity to which dictionaries feature in this 1500-1700 dataset.

3.4.3 The Author Subset

The presence of dictionaries in the dataset was problematic: they are disproportionate in the data and are not a fair comparison to Milton's work. As a result, it was necessary to create a smaller subsection of the larger two-century dataset, to keep the project relevant to the research questions stated in section 2.4.

3.4.3.1 Selection of authors

To subset the data, the Antwerp EMMA corpus (Early Modern Multiloquent Authors) was used as a starting point (Petré et al. 2018b). EMMA is a corpus of 50 of the most prolific writers of the seventeenth century, and was originally built to study quantifiable changes across a lifespan (University of Antwerp 2018). One of the attractions of using EMMA was its clear selection criteria for the inclusion of individual authors:

- (i) a large body of work comprising at least 500,000 words;*
- (ii) a relatively even distribution of works across a long career;*
- (iii) a demonstrable link to London society;*
- (iv) further social, political, and stylistic connections to other individuals in the selection.*

(Petré et al. 2018a: 2)

The criteria outlined above seemed like a good place to start in compiling my list of suitable authors, due to its comprehensive outlook on both the social and

linguistic factors of early modern authorship. By using EMMA, a list of well-known and prolific authors (including Milton) could be compiled and checked against the OED data. If an author was absent from the OED data, they were excluded, but EMMA aided in shortlisting authors within the seventeenth century.

Unfortunately, EMMA only spans five generations of writers, and starts with those whose birth dates begin at the turn of the seventeenth century. Consequently Milton features in the first generation, and writers before Milton's generation are not included (Petré et al. 2018a: 2). As a result, the authors prior to Milton had to be selected manually from the OED data. Given the mass of data within the original 1500-1700 dataset and the time available for this project, the authors had to be selected based on an inclusion policy, rather than an exclusion policy. After ordering the works in the original dataset by neologism frequency, the process then involved selecting authors based on their typical genre and domain of work. Where possible, authors were selected that would have been known to Milton, for example, the likes of Spenser and Sidney. Alongside these, authors that wrote on similar topics, such as Donne, were also included. The shortlisting process was also conducted on those from the original EMMA list, and saw the likes of Robert Boyle, listed in EMMA as a 'natural philosopher, chemist, physicist, inventor' excluded on the grounds of his scientific domains not aligning with Milton's more philosophical, religious, and political writings (Petré et al. 2018a: 2). For all the authors included in the smaller dataset see appendix, table A4.

3.4.3.2 Features of the dataset

The resulting smaller dataset consisted of 58 authors (including Milton), and 17,751 neologisms or 13.71% of the original 1500-1700 data (see appendix A4 for authors selected). When selecting authors relevant to Milton, care was taken to ensure that Milton was situated in the middle of the selected group, with his own life (1608-1674) spanning 66 years in the centre of the group (marked in red, see figure 3.8). The earliest birth date occurs 56 years before Milton's, and the last death date 74 years after Milton's: the aim was to ensure that a large proportion of time was covered by the writing careers of those selected. The number of authors before and after Milton are fairly evenly balanced, with 30 authors preceding Milton and 27 authors after Milton.

A closer inspection of the resulting database found that the OED author tags could lead to possible ambiguities. For example, 'G. Harvey' could include Gabriel Harvey and Gideon Harvey, and for entries including Shakespeare, 'Shakespeare' and 'W. Shakespeare' had to be searched. As a result, the corresponding texts for these authors had to be manually checked. This was done by consulting *The Oxford Dictionary of National Biography* (ODNB) and EEBO. Any instances of works by other authors with the same initials were removed to ensure that the data corresponded to the authors selected.

During this process, a misattribution of a text in the OED data was discovered. The OED lists Gabriel Harvey as the author of *Trimming T. Nashe*, but this pamphlet has disputed authorship, with Harvey no longer believed to be

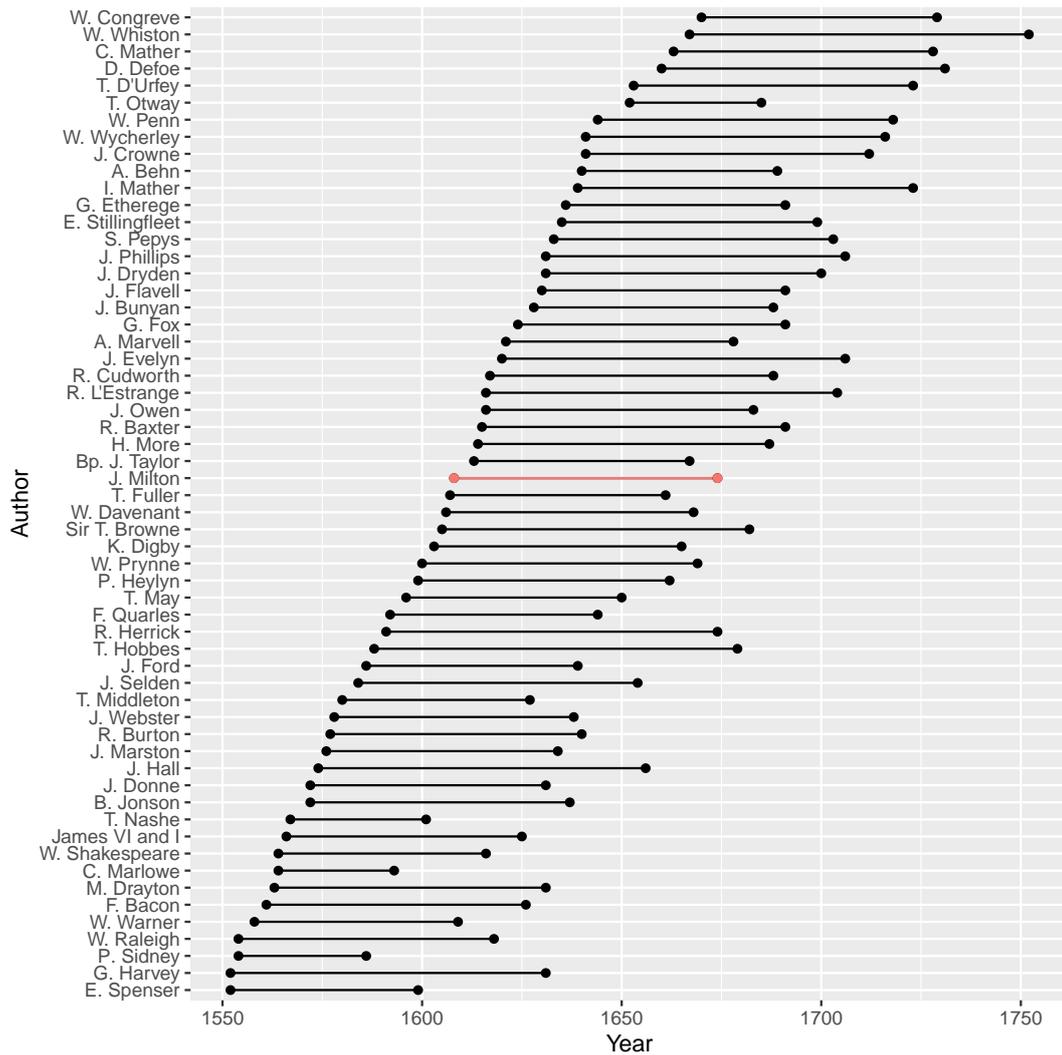


Figure 3.8: Graph illustrating the lifespans of all the authors included in the subsection of the 1500-1700 dataset, ordered by birth date. Milton's own life has been marked in red in the centre of the graph.

the author (Scott-Warren 2016). Generally, the accepted author of this disputed work has become Richard Lichfield (Hasler 2019: 382). Consequently, the neologisms from this pamphlet were removed from the Gabriel Harvey section of the subset, which meant 11 neologisms were removed in total. This misattribution illustrates two things about this dataset. The first is that the OED data is based on old scholarship and may not have been updated to reflect changes in schol-

arly thought - such as authorship debates. The second is that close attention must be paid to the data with checks conducted on the data in its entirety or spot checked for errors (as a minimum). Following the checks, each author tag was standardised to an initial and a surname, to ensure plots and analysis were conducted on the intended author, e.g. ‘J. Milton’.

Beyond practical issues within the subset, biases within the OED are also brought to the forefront. Although the authors in the subset are relevant to Milton and his neologisms, either as works he would have been familiar with and influenced by, in the group of 58 authors, only one is a woman and the majority are Victorian canonical figures. The subset also shows that certain authors are favoured for selection by the OED compilers, such as Shakespeare. Figure 3.9 shows the distribution of neologisms across the selected authors in the data subset.

To conclude, this section has presented the OED API, and the nuances of the data extracted. Given the dependence of the original OED data on reference works like dictionaries, a smaller and more relevant dataset to Milton and my research questions had to be constructed. This dataset was then cleaned and checked for errors. Following this, the data is ready to be analysed and the empirical results discussed, which is presented in the next chapter.

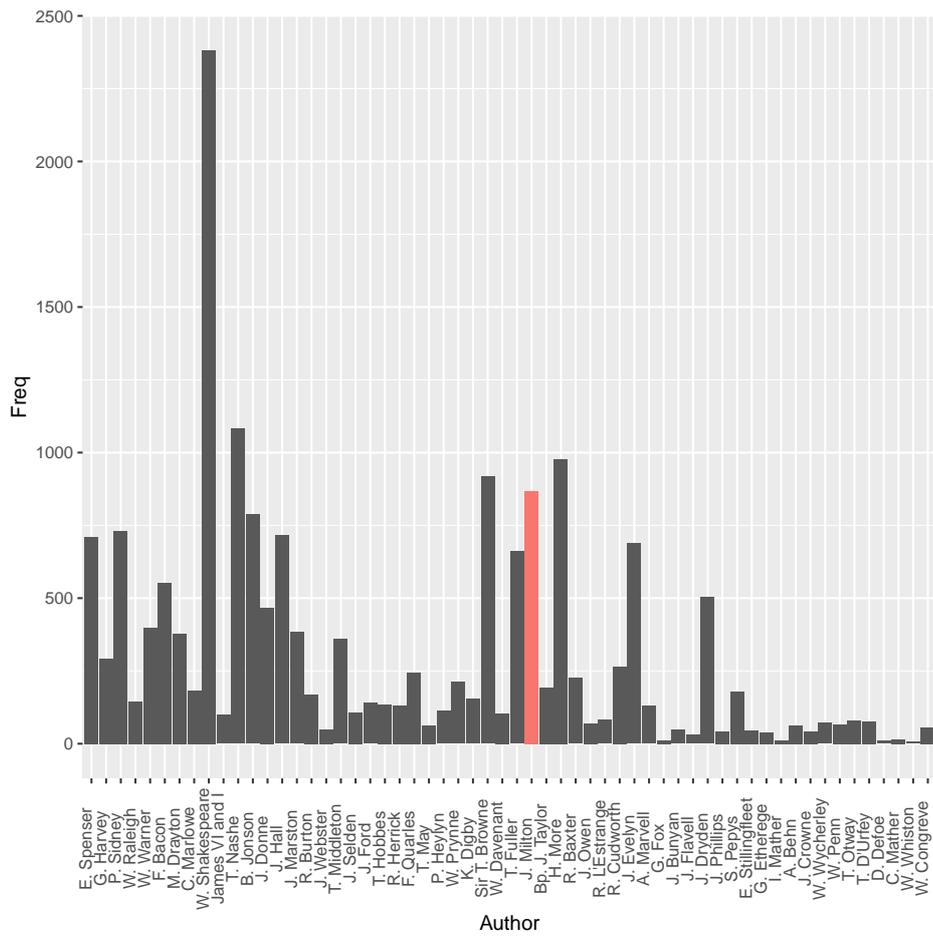


Figure 3.9: Bar chart displaying the distribution of neologisms by author in the smaller dataset. The authors are listed by birth year, so Milton features in the centre of the graph.

CHAPTER 4

ANALYSIS AND RESULTS

This next chapter presents the data analysis method and results from this exploratory investigation into Milton’s neologisms in the OED. Milton’s neologisms are considered on a number of features: word class, neologism density, genre, word formation, and etymon sources. Each of these features has its own section in this chapter.

4.1 Data Analysis

The final stage of the workflow, introduced in the chapter above, involves analysing the data. The data analysis for this project was done in the R programming language (The R Foundation for Statistical Computing 2018). In order to enable comparable analyses, the raw frequencies were converted into proportional frequencies.¹ This reduces skewness in the data, because some works with a

¹For example, a yearly proportion is calculated by summing all the counts for the categorical data by year, and then dividing by the total number of entries. E.g. The word formation processes in the 1650 entries consist of 15 different categories for the 926 entries (see appendix A3 for breakdown). So to calculate the proportion of these entries that are derivatives, the

greater number of neologisms, may skew the data if raw counts are considered. Therefore, the proportional counts for each text are representative of the total number of neologisms per feature (i.e. year or work). The following sections analyse and interpret the quantitative findings of this study and constitute the majority of the thesis.

4.2 Milton's Neologisms: An Overview

This section presents a general overview of the features of Milton's neologisms within the OED. In particular, the number of neologisms, and how they are spread across his career are discussed.

Within the OED there are 867 neologisms attributed to Milton.² These include compounded forms such as 'sapphire crown', 'warrior-angel', and 'dragon's teeth' (in contrast to the OED Online which excludes these from its counts). Before presenting detailed analysis of the types of neologisms, some general features of these neologisms are discussed.

Firstly, these neologisms come from a variety of Milton's works across his career, including both prose and poetry (see appendix table A5 for full breakdown). *Paradise Lost* contributes the greatest number of neologisms with 156 neologisms coming from the epic poem; this is almost double that of the *Doctr. Divorce* which has 79 neologisms and is the next most frequent. *Paradise Lost* contributes 17% of all Milton's neologisms which is a large proportion from a

raw frequency for derivatives, 368, is divided by the total number of entries for the year, 926; resulting in a proportion of 0.3974 (to four decimal places).

²Correct at the time of data retrieval (February 2019)

single source. Of the 46 Miltonic texts providing neologisms in the OED, 17% of them provide only one neologism. It is worth noting that some of these texts are small poems, so given the smaller number of tokens (words), the chance for neologisms to feature is smaller. However, *Hist. Brit.* contains 12 neologisms according to the OED, it also has over 10,000 tokens more than *Paradise Lost* but contains less than 10% of the number of neologisms in the epic. Comparisons between text length and the number of neologisms are discussed further in the rate of coining section (section 4.3). However, the frequency counts per text show a large difference between the contributions of single texts. *Paradise Lost* provides a large number of neologisms, and a large number of Milton's texts only provide a single neologism.

Milton's neologisms can also be plotted diachronically to assess the distribution over his career (figure 4.1). Neologisms are spread right across Milton's career, but there appears to be a higher number of neologisms in his earlier works (pre-1650) with the greatest number falling in the 1640s. Texts from the 1640s include Milton's anti-prelatical tracts (like *Apol. Smectymnuus*), his prose tracts (*Doctr. Divorce*, *Areopagitica*, and *Eikonoklastes*), and some earlier poetry (*Il Penseroso* and *L'Allegro*).³ There are two large peaks present in 1641 and 1667. The peak from 1667 displays the 154 neologisms coming from the ten-book edition of *Paradise Lost* with two neologisms coming from the 1674 second edition. The peak in 1641, with 153 neologisms, represents a collection of Milton's anti-prelatical tracts which were published in this year: *Animadver-*

³Other texts also feature within each of the categories given.

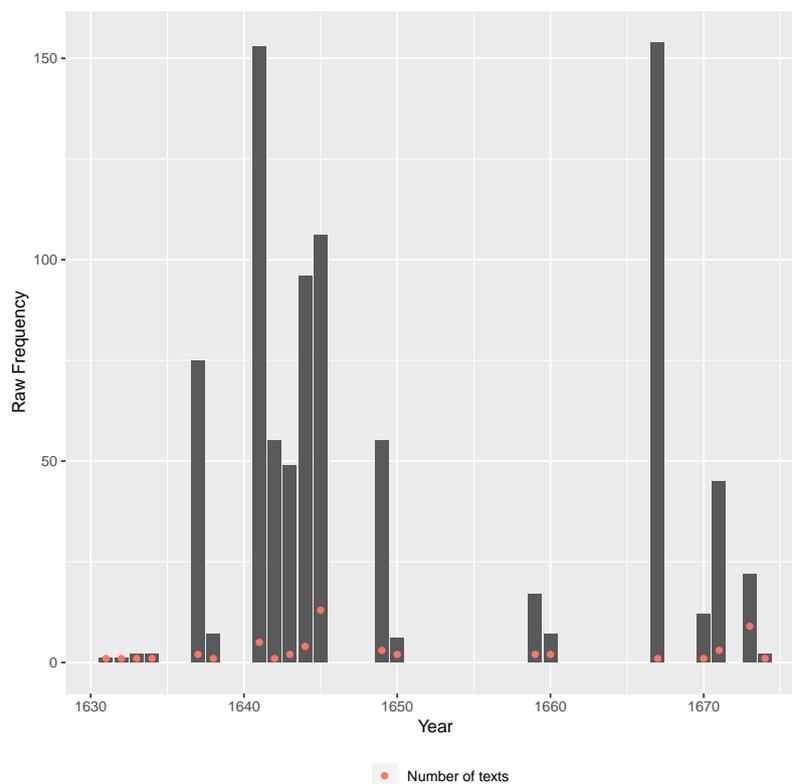


Figure 4.1: Bar chart presenting the raw frequency of neologisms across Milton's career, with number of published texts per year marked with red dots.

sions, Of Prelatical Episc., Of Reformation, and Reasons Church-government.

The 1640s do seem to be the most prolific period for coining neologisms, as seen in figure 4.1, with the number of neologisms tailing off by the end of Milton's career (excluding the peak from *Paradise Lost*).

4.2.1 Word Class

In terms of word class, or part of speech, Milton's neologisms differ from his contemporaries. To date, little research has been done on how neologisms may be divided across word classes for authors (the only study found was Wermser (1976)). However, the lexicographic data within the OED which accompanies

each neologism makes this sort of analysis possible. Insights into the types of neologisms, such as the different part of speech, may reveal more about the characteristics of an author's word creation.

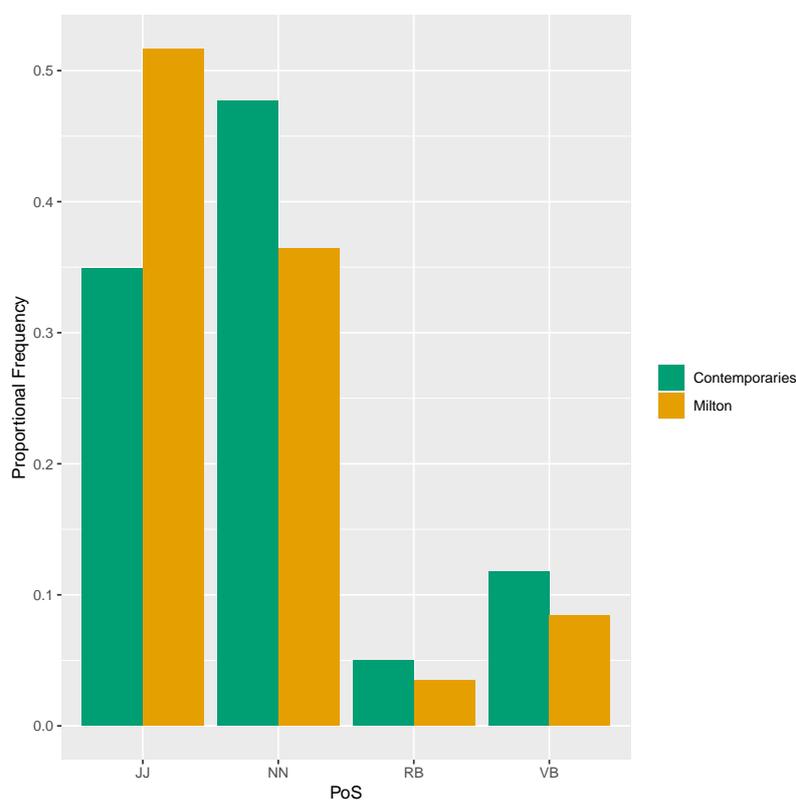


Figure 4.2: Stacked bar chart illustrating the proportional frequency of different word classes across the total neologisms in the OED for Milton and his contemporaries.

As shown in figure 4.2, Milton's neologisms are over 50% adjectives (JJ); this contrasts with the contemporaries who have a lower proportion of 35%. As a result, Milton forms a smaller proportion of nouns (NN), adverbs (RB), and verbs (VB) compared to his contemporaries - the proportion of adjectives is so much more, less is reserved for the remaining parts of speech. Milton's high proportion of adjectives, such as 'dimensionless' from *Paradise Lost* and 'tripersonal' from *Of Reformation*, could indicate that Milton's descriptive language may be

different to those around him; meaning that either he felt the need to coin new types of words to describe these phenomena, or the OED compilers were drawn to Milton's unusual adjectives, resulting in the high proportion in figure 4.2. In contrast, the contemporaries coin a greater proportion of nouns in comparison to Milton. This includes nouns such as Donne's 'umbrella' and Drayton's 'harlock'. Overall, this figure shows that Milton seems to have a preference for coining adjectives over other word classes; whereas, his contemporaries, on average, favour the formation of nouns. The results for the contemporaries are like those found in Wermser (1976: 82), who observed that nouns were also the most frequently created word class in this period (for Wermser's statistics, see appendix table A6). Wermser (1976: 82) does observe a greater proportion of nouns being coined in this period. They note that 56% of all neologisms are nouns, followed by a smaller proportion of adjectives (25%). These counts differ from those in this thesis, but this may be due to Wermser's use of a shorter and earlier version of the dictionary. However, a comparison to other results based on the Shorter Oxford English Dictionary (SOED), suggests that the high frequency of adjectives (over double of that observed by Wermser (1976)) is a distinctive feature of Milton's neologisms.

When compared on an author-basis, as shown by the boxplot in figure 4.3, Milton is towards the more extreme end of the proportions for nouns and adjectives. In both cases, Milton's proportional frequency, marked by the yellow diamonds, features along the whiskers of the boxplot. This means that Milton's frequencies are above or below the 25th or 75th percentile. For adject-

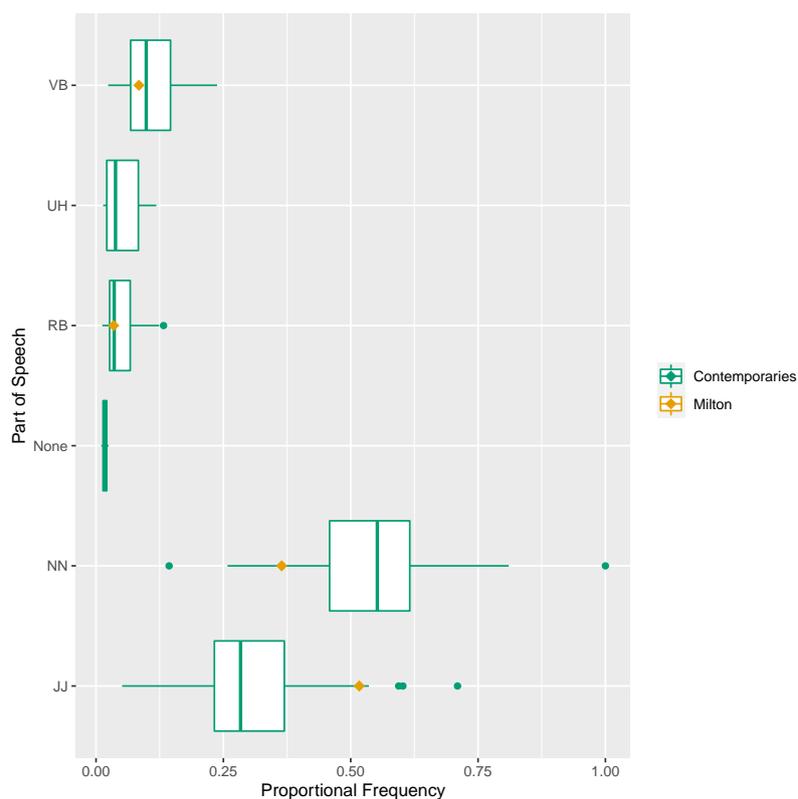


Figure 4.3: Boxplot presenting the distribution of different word classes across the total neologisms in the OED for contemporary authors. Milton's averages are marked with coloured diamonds.

ives, only four authors have higher proportional frequencies of adjectives than Milton. These are: T. May, F. Quarles, M. Drayton, and C. Marlowe. Of the 58 authors including Milton in the subset, Milton is ranked fifth for his proportion of adjectival neologisms. For nouns, Milton has a lower proportional frequency than the other authors. When compared to single authors within the subset, Milton is towards the lower end of this group and has the seventh lowest proportional frequency of nouns. Those that have fewer are: F. Quarles, T. May, M. Drayton, J. Marston, C. Marlowe, and W. Warner. By contextualising Milton amongst his other authors in this way, Milton's averages can be compared to those from individual authors, rather than the group combined to see if specific

authors show similar characteristics to Milton.

Across the following sections, part of speech will be used as a comparative feature across other neologism characteristics such as genre, rate of coining, word formations and etymon languages. Comparison between Milton and his contemporaries may also provide insight into why Milton may coin adjectives more than other parts of speech, or why the majority of contemporaries favour the production of nouns.

4.3 Rate of Coining and Neologism Density

This next section considers the rate of coining (the frequency with which neologisms occur in a work), and the neologism density of Milton's works. A new measure for neologism density is also proposed in this section.

As mentioned in the literature review (section 2.3.3), Corns (1990: 84) considered the rate of Milton's neologising in his stylistic approach to Milton's language:

I have noticed fewer than twice as many [neologisms] in his masque [*Comus*], though it [*Paradise Lost*] is ten times the length.

Although Corns does not explicitly reveal his methodology related to this conclusion, his wording suggests several things. Firstly, that by 'length' of *Paradise Lost*, Corns is referring to the total number of words in the poem. Secondly, his reference to the number of neologisms, suggests that he considers the number of distinct neologisms within a text, and not necessarily the frequency of each

within a text (i.e. he counts the neologism once per text). Finally, what can also be inferred is that this ‘rate of coining’ is calculated by Corns through dividing the number of neologisms by the number of words in the texts. This approach is likely given that Corns (1990: 9) explains that he makes use of the OED for the neologisms and concordances for the texts. However, as Corns (1990: 84) does not state clearly what he is counting in the chapter, this methodology is assumed from his results and commentary.

However, this approach is problematic within linguistics. To begin with the vocabulary surrounding lexical richness; tokens are the raw number of words in a corpus and types are the number of unique words in a sentence (McEney and Hardie 2012: 252-253). For example, ‘the cat sat on the mat’ has six tokens (total number of words regardless of their previous occurrence) and five types (unique words) - ‘the’ is repeated so only counted once for word types. Within this terminology, what Corns seems to have done is calculate a rate of coining by taking the types of neologisms within a text and dividing by the number of tokens within that text. Intuitively, this approach makes sense - if the number of unique features is divided by the number of total occurrences, then a standardised average is produced. However, the behaviour of natural language is more complex than this, both for inter-text and intra-text comparison. As Baayen (2008: 222) explains, as the length of a single text increases (i.e. the number of tokens), the number of types also increases - but importantly, this is not a linear relationship. Instead, the word types will increase dramatically at first and then increase at a slower rate, as the chance that type has been

previously used within that text increases (Baayen 2001: 27). Baayen (2008: 222-224) illustrates this phenomenon in *Alice in Wonderland*, and terms the curve produced, the ‘growth curve of vocabulary’. Further issues ensue when different texts are also compared using these type-token measures. To overcome the variation in these measures between texts, linguists have proposed different methods, including the comparison of the same first 1,000 words of a text, to ensure that the effects of the growth curve of vocabulary within each text is controlled. Interestingly, Corns (1990: 114) does acknowledge the need to control for text length in his ‘word frequencies’ chapter, but does not seem to put it in practice to calculate his rate of coining. As it stands, the issues surrounding type-token-ratio (TTR) based research remain unresolved, with statistical models being developed to overcome the nuances of this language phenomenon discussed above.

Considering the terminology above, Corns’ methodology is an example of a specialised ‘type-token-ratio’, with the types of neologisms within the text divided by the number of tokens within the texts. However, as discussed, this approach is problematic as it does not consider the length of the texts and the effect this has on the output. Therefore, an alternative measure which acknowledges and tries to overcome the issues related to differing text lengths needs to be used.

What is proposed in this thesis is a neologism density measure that considers the **types** of **both** the neologisms **and** words within a text. This seeks to address some of the TTR issues related to differing text lengths by considering

only the types of words; a comparison of types seems to reduce the effect of the growth curve of vocabulary issue found in TTR research. To assess the effect of text length on the proposed measure, the token and type counts available within the text files of the EMMA corpus were used. Attempts were made to ensure that these token and type counts were accurate - yet some errors may still be present. Consequently, these counts should be considered estimations rather than conclusive counts.⁴ To assess whether this measure accounted for the length of a text, the proposed density measure is plotted and the x-axis ordered by text length (based on token counts). As shown in figure 4.4, there does not seem to be any influence of text length on the measure proposed. Given that the x-axis is ordered by text length, this suggests there is no relationship between the proposed density measure and text length. In contrast, when Corns' measure is used, as shown in figure 4.5, there appears to be a negative correlation present, with the density decreasing (albeit in stages) as the text length increases. The presence of a trend suggests that text length does affect the TTR measure used by Corns.

To test whether the type-token measure was used by Corns, his results were compared to those within figure 4.5. Firstly, the token-based word counts from EMMA illustrate that the length of *Paradise Lost* is approximately ten times the length of *Comus*; with counts of 79,644 and 7,808 respectively. This satisfies the first assumption made. Secondly, the number of observed neologisms in the

⁴Summaries of the word counts (tokens) are available as part of the metadata that accompanies the corpus (Petré et al. 2018b). EMMA is based on EEBO, so some text duplicates were found and had to be removed. The files are given unique keys, but the specific titles of the files had to be checked and added manually.

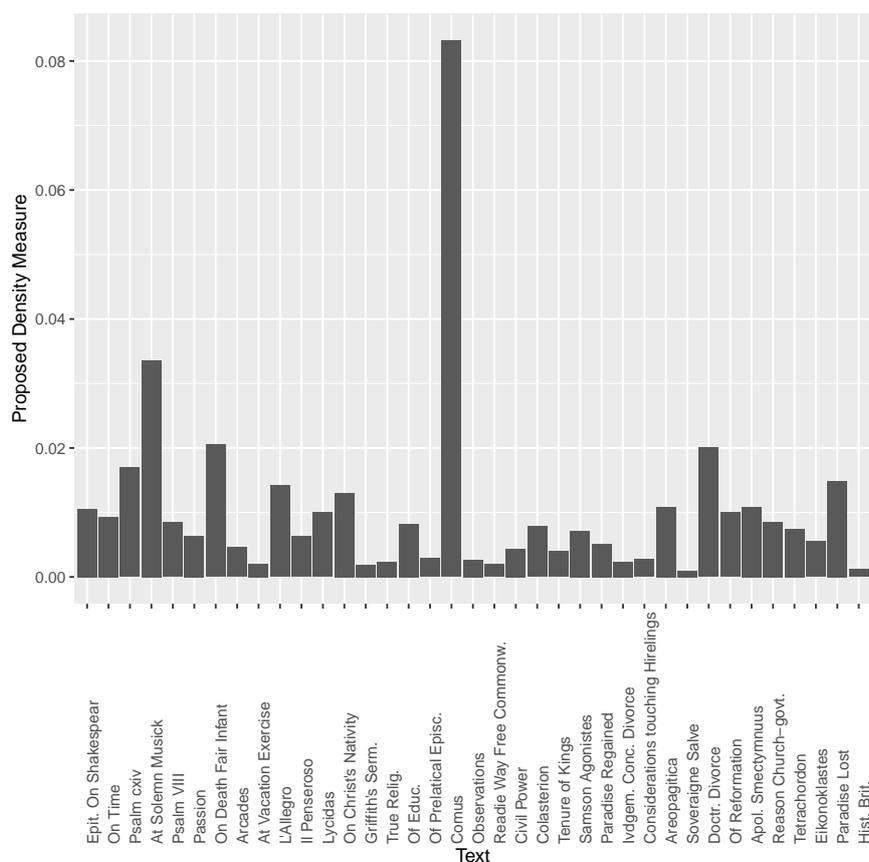


Figure 4.4: Bar chart presenting the proposed neologism density measure across Milton's works. The density is calculated by dividing the number of neologism types in each work, by the number of word types in each work. Length of texts have been acknowledged, by ordering the x-axis by number of tokens in each text.

OED also correspond to Corns': *Paradise Lost* has 156 neologisms and *Comus* has 76. This is regardless of Corns using OED2 to conduct his search, and this study using OED3 as of February 2019. Finally, Corns (1990: 84) notes that the rate of coining in *Paradise Lost* is like that of *Paradise Regained* and *Samson Agonistes*. In figure 4.5, *Paradise Lost*, *Samson Agonistes*, and *Paradise Regained* demonstrate similar rates of coining, with rates of 0.00196, 0.00178, and 0.00120 respectively. These findings support the assumption that the type-token measure was used by Corns (1990). Unfortunately, this measure does

not account for some of the complexities surrounding TTR research, and in particular, comparing different text lengths. Therefore, the measure proposed by this thesis will be used to draw conclusions related to Milton's neologism density.

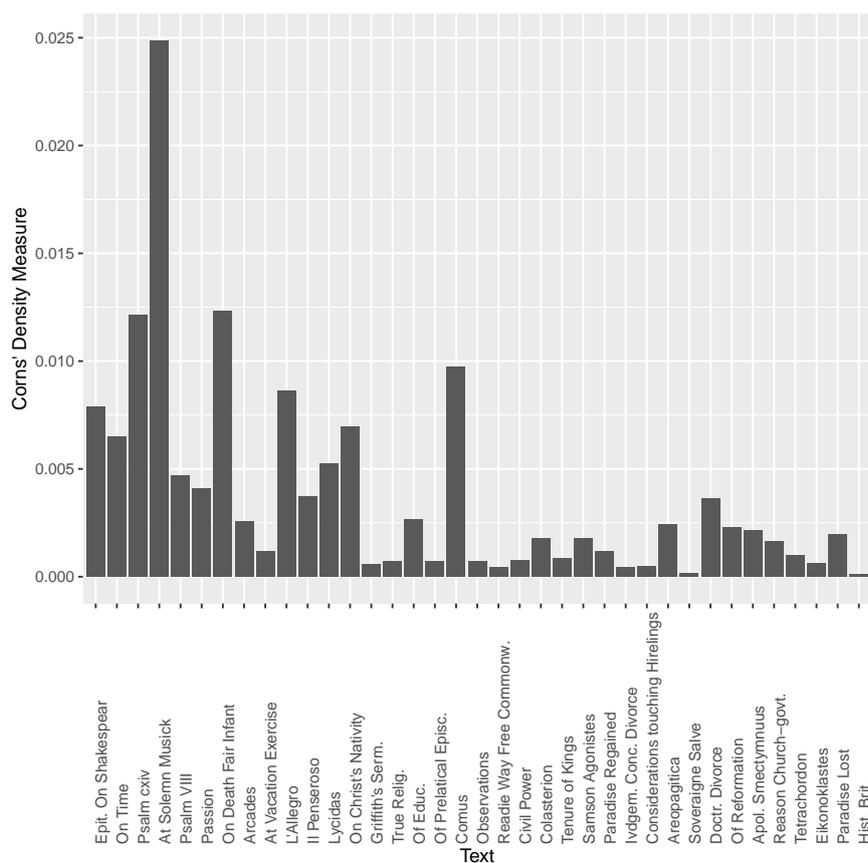


Figure 4.5: Bar chart replicating Corns' neologism density measure across Milton's works. Corns (1990) density measure is calculated by dividing the number of neologism types in each work, by the number of word tokens in each work. Length of texts have been acknowledged, by ordering the x-axis by number of tokens in each text.

Firstly, Milton's masque *Comus* is very dense with neologisms with over 8% of its word types identified as neologisms by the OED. This is considerably higher than any of the other works with *At Solemn Musick* being the next highest with 3.36% (under half of *Comus*), then *On Death Fair Infant* (2.05%). Within

figure 4.4, there is a variety of prose and poetry from across Milton's career and a noticeable division between these two generic groups. The prose, *Doctr. Divorce*, *Areopagitica*, *Apol. Smectymnuus*, and *Of Reformation*, were all written in the 1640s in the middle of Milton's career. Within figure 4.4, the prose features in the medium length and longer texts, so around the middle and right-hand-side of the x-axis. The density of these prosaic texts is lower from *Griffith's Sermon* to *Considerations Touching Hirelings*, excluding the peak for *Comus*, and the two poems *Samson Agonistes*, and *Paradise Regained*. In contrast, most of the poetry dates from earlier in Milton's career, from *Psalm cxiv* composed in 1624 to *Lycidas* in 1637. This is excluding the poems *Paradise Lost*, *Samson Agonistes*, and *Paradise Regained*, which were written towards the end of Milton's life in the 1660s and 1670s. Generally, poetry is denser with neologisms. The number of early poems scoring highly based on the neologism density measure suggests that Milton may have been more experimental with his language in these texts.

Briefly, when tokens are used to measure of word coining like in Corns (1990), *At Solemn Musick* scores most highly with 2.48% of all words in the text labelled as neologisms by the dictionary. *On the Death of a Fair Infant* is the second most prolific with a percentage of 1.23%, and *Comus* is ranked forth with 0.97%. As can be observed, the use of tokens as a measure of word coining rate changes the perception of word creation within the texts. These results are unlike those using the proposed density measure, and suggest that those with a smaller number of tokens (such as the shorter poems like *At Solemn Musick* and *On Death Fair infant*) will score better with this measure. When text lengths are accounted

for, a medium-length text (*Comus*), has the highest density of neologisms within its unique vocabulary. *Comus* therefore, appears to be one of Milton's more experimental pieces with a higher proportion of neologisms amongst the types of words used.

4.3.1 Rate of neologisms: *Comus*, *Paradise Lost*, *Doctr. Divorce*, and *On Christ's Nativity*

Given the high rate of neologisms observed in *Comus*, attention turned to the types of neologisms Milton is associated with coining in the masque. 76 neologisms are noted by the OED as coming from *Comus*, which is the third most of any Milton work. However, *Comus* greatly outranks all others based on its rate of coining from a word-type perspective; so a consideration of the types of neologisms in *Comus*, might reveal patterns relating to their high frequency. For comparison, the texts with higher coining rates within figure 4.4 are used, with a selection across genre and date. These texts include: *Paradise Lost* for an example of later poetry, *Doctr. Divorce* for later prose, and *On Christ's Nativity* for early poetry. Proportional counts for each text are presented in figures 4.6, 4.7, and 4.8.

To begin with part of speech, figure 4.6 shows the results from the texts sampled above. Graph A shows the average across all Milton's texts, including those sampled, graph C shows the results from *Comus*, graph D shows results from *Doctr. Divorce*, graph N shows results from *On Christ's Nativity*, and graph

P shows results from *Paradise Lost*. Across these texts, adjectives are the most frequent word class coined by Milton. In particular, for *Comus*, *On Christ's Nativity*, and *Paradise Lost* adjectives constitute over 60% of their neologisms. *On Christ's Nativity* has the greatest proportion of adjectives at 81.8%, with *Comus* following at almost 70%. In contrast, both the global Milton average and *Doctr. Divorce* have fewer adjectives proportionally than these other texts, but have a greater number of nouns (over 30%). Figure 4.6 also illustrates that the texts have a similar proportion of verbs to the global average, except *On Christ's Nativity* which has no verbal neologisms. Adverbs are also only coined within *Paradise Lost* and *Doctr. Divorce*, and not within *On Christ's Nativity* or *Comus*.

When word formation is considered, the differences between the neologisms in the texts become pronounced (figure 4.7). Firstly, within *Doctr. Divorce*, a large majority of the neologisms are formed through derivation (68.4%) - a larger amount than any of the other texts and a higher proportion than the Milton average. The neologisms within *On Christ's Nativity* and *Comus* do not follow the trends shown in graph A. Instead of derivation, their most frequent word formation process is compounding. In fact, 63.6% of the neologisms within *On Christ's Nativity* are formed via compounding, almost 10 times as many as the global Milton average (6.60%). In *Comus*, the split between compounding and derivation is a less pronounced than in *On Christ's Nativity*, with 44.7% and 40.8% respectively. Of the texts sampled, the word formation processes for the neologisms within *Paradise Lost* reflect the global trends of graph A in figure

4.7: derivatives are the most frequent, followed by compounding then borrowing.

Finally, the relative word formation processes were plotted across parts of speech to observe different types of neologisms within these texts (figure 4.8). By plotting the word classes and the word formation processes together, how the different words were formed within each word class can be observed. This is based on an observation by Corns (1990: 53, 75) who notes that Milton tends to coin compounded adjectives in particular. Corns (1990: 75) notes that this type of compounding occurs especially in the minor poems. This observation is reflected in figure 4.8: *Comus* and *On Christ's Nativity* have 41.5% and 55.6% of their adjectives formed via compounding, respectively. In contrast, *Doctr. Divorce* has only 4.65% of the adjectival neologisms formed by compounding, almost 10 times less than *Comus* or *On Christ's Nativity*. Examples of compounded adjectives from *Comus* include: 'coralpaven', 'easyhearted', and 'viol- etembroidered'. Words such as 'intermitting', 'misjudged', and 'unaccountable' are some of the 67.4% of adjectives coined within *Doctr. Divorce* through derivation. This number is a lot less within *On Christ's Nativity*, with a third of its adjectives formed by derivation, almost half of that of the *Divorce* tract. In *Comus*, 45.3% of adjectives are formed by derivation, a number similar to *Paradise Lost* (44.5%).

Figure 4.8 also displays differences in the formation of nouns across the texts. Firstly, in *On Christ's Nativity*, all nouns are formed by compounding, with examples including: 'nightsteed' and 'turtlewing'. In *Comus*, nouns are formed in four different ways; the most common of these is compounding which accounts

for two thirds of the nouns, the second most after *On Christ's Nativity*. This is followed by derivation (16.7%), then borrowing (11.1%), and finally conversion (5.56%). A similar pattern is seen in *Paradise Lost*, with compounding contributing to just over half of the nouns coined in the epic (52.4%), with derivation and both types of borrowing (borrowing and borrowing hybrids) contributing to another 21.4% each. Unlabelled data (none) and backformation make up the remaining 4.76%. *Comus*, *On Christ's Nativity*, and *Paradise Lost* have compounding as the most common word formation process for nouns, but *Doctr. Divorce* does not. Instead, derivation forms most of the nouns in this tract (72%), 8% are compounded and 4% are borrowed (the remaining 16% are unlabelled in the OED). *Doctr. Divorce* presents a very different constitution of neologisms and how they were formed, in contrast to the other three texts. It is also noticeable that across all word classes, *Doctr. Divorce* has very few words coined through compounding in contrast to the others and the Miltonic average. Unlike the other texts, *Paradise Lost* presents the most variation across all word classes with word formation. Interestingly, the trends shown by *Paradise Lost* reflect those of the overall Miltonic average. This may be because of the sheer number of neologisms that *Paradise Lost* contributes to the Milton total. Consequently, the average without *Paradise Lost* is shown in graph A1. When *Paradise Lost* is removed from the overall Milton average, we see a slight shift in the averages, but no overwhelming difference. The proportion of adjectives decreases, and the proportion of nouns increases; the amount of borrowing within the adjectives also decreases when *Paradise Lost* is removed. Therefore, the

trends within *Paradise Lost* cannot be affecting the overall averages too greatly for them to remain when it is removed.

What figures 4.6, 4.7, and 4.8 illustrate is that there is a level of variation between the types of neologisms in individual works by Milton. Several further observations can be made when the genres and dates of texts are considered. Firstly, the texts cluster by genre based on word formation and part of speech. A higher proportion of adjectives (over 60%) is found within *Comus*, *Paradise Lost*, and *On Christ's Nativity* - the poetic works of Milton. In contrast, a higher proportion of nouns (and consequently a lower proportion of adjectives) is observed within *Doctr. Divorce* - the prose tract. A similar clustering by genre is found when word formation processes were plotted in figure 4.7. Again, *Comus* and *On Christ's Nativity* display similar features, with compounding forming a higher proportion of their neologisms than derivation. The opposite can be said for the prose, which has 68% of words formed via derivation and only few by compounding. However, unlike the word classes in figure 4.6 which have a clear division between the poetry and prose, word formation is more ambiguous with *Paradise Lost* not sharing the same characteristics as the other poetry. Instead, what might influence the word formation processes in *Paradise Lost* could be a result of diachronic change rather than generic. When considered along the chronological dimension, *On Christ's Nativity* (1629) and *Comus* (1634) are early poetic works. *Doctr. Divorce* (1643) was composed towards the middle of Milton's life, and *Paradise Lost* was written much later

(1667).⁵ With these dates of composition, not publication, in mind, the patterns seen in figure 4.7 suggest a diachronic change over Milton's lifetime, instead of a genre-based one. If we consider the poetic works chronologically, *On Christ's Nativity* displays the greatest proportion of words formed by compounding (over 60%), then derivation (approximately 27%). By *Comus*, the observed difference in these word formation processes begins to narrow, with 45% of its neologisms produced by compounding and 41% produced by derivation. Finally, *Paradise Lost*, written 30 years later sees the reversal of the proportions of these processes, with derivation more frequent than borrowing. Although the examples above are only a small sample of Milton's poetic work, these observations suggest that a diachronic dimension may cause changes in word formation processes across his career. The relationship between time, genre, and word formation is addressed in further detail in section 4.4.

When the word class and formation features are combined in figure 4.8, differences can again be observed when the texts are grouped by genre. In particular, compound adjectives are ten times more common in the poetry than the prose. Instead of compounding, most of the adjectives in *Doctr. Divorce* are formed via derivation. For the poetic texts, compounding offers a productive process for Milton to create neologisms - the proportions of nouns formed by compounding remain stable across the poetry sampled. In contrast, compounding does not form many nouns within the prosaic *Doctr. Divorce*, instead, derivation is the most productive within this genre. Finally, verbs in *Comus* and *Doctr. Divorce*

⁵All dates are related to composition of the respective texts and are taken from Corns (2012).

show similar proportions across word formation processes, with both derivation and conversion contributing evenly to both genres. However, in the combination of word formation and part of speech, *Paradise Lost* presents an interesting case. In some respects, it reflects a diachronic change in Milton's poetry, like the results in figure 4.8, especially in the decrease in the proportion of adjectival compounding between *On Christ's Nativity*, *Comus*, and *Paradise Lost*. This decrease in adjectival compounds is substituted with an increase in the number of derivational adjectives. The fewest number of derivational adjectives occur in the earliest work, and the greatest number occur in the latest work. This is an inversion of the adjectival compounded trend. However, the proportion of derivational adjectives in *Paradise Lost* is not as much as in the prosaic *Doctr. Divorce*, suggesting that even at their highest proportion in *Paradise Lost*, derivational adjectives are more frequent in prose than poetry. What is noticeable in *Paradise Lost* is the types of word class. Like *Doctr. Divorce*, *Paradise Lost* has four types of word class, whereas the other poetical works sampled have fewer. Here, we may be witnessing some of the editorial decisions within the OED - if *Paradise Lost* has more neologisms attributed to it (possibly due to its canonical status and availability to the OED readers), it may have some more unusual (or even over-represented) results when compared to other, lesser-known Miltonic works. It is worth noting that even though the texts sampled have the greatest number of neologisms among those with the highest coining rates, which should aid in removing extreme outliers, some of the differences observed may be due to the composition of the dictionary.

In summary, on a generic level we see differences in the Miltonic neologisms based on their formation and word class. Poetry has a greater proportion of adjectives which tend to be formed by compounding. Whereas the prose has a greater proportion of nouns in comparison. The sampled prosaic text also suggests that derivation is more productive within this genre for creating nouns and adjectives. The poetry also demonstrates possible diachronic variation across Milton's career, with the neologisms in *Paradise Lost* having different characteristics to those within the earlier *On Christ's Nativity*. However, this is only a small sample of Milton's work. Therefore, to test the genre-based observations found in this section, the next section focuses entirely on generic differences across Milton's works.

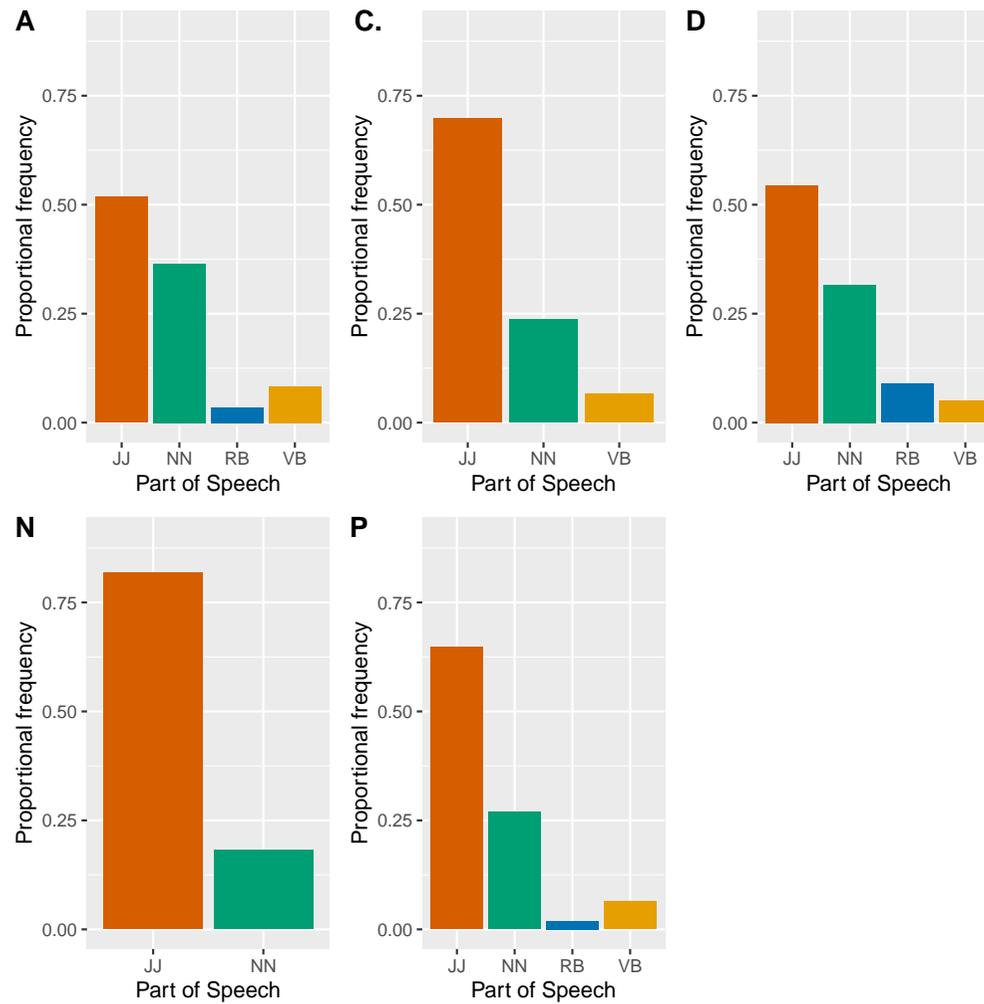


Figure 4.6: Proportional frequency plots across part of speech in selected Milton texts. **A** represents all Milton texts (including those sampled individually), **C** represents *Comus*, **D** represents the *Doctr. Divorce*, **N** represents *On Christ's Nativity*, and **P** represents *Paradise Lost*.

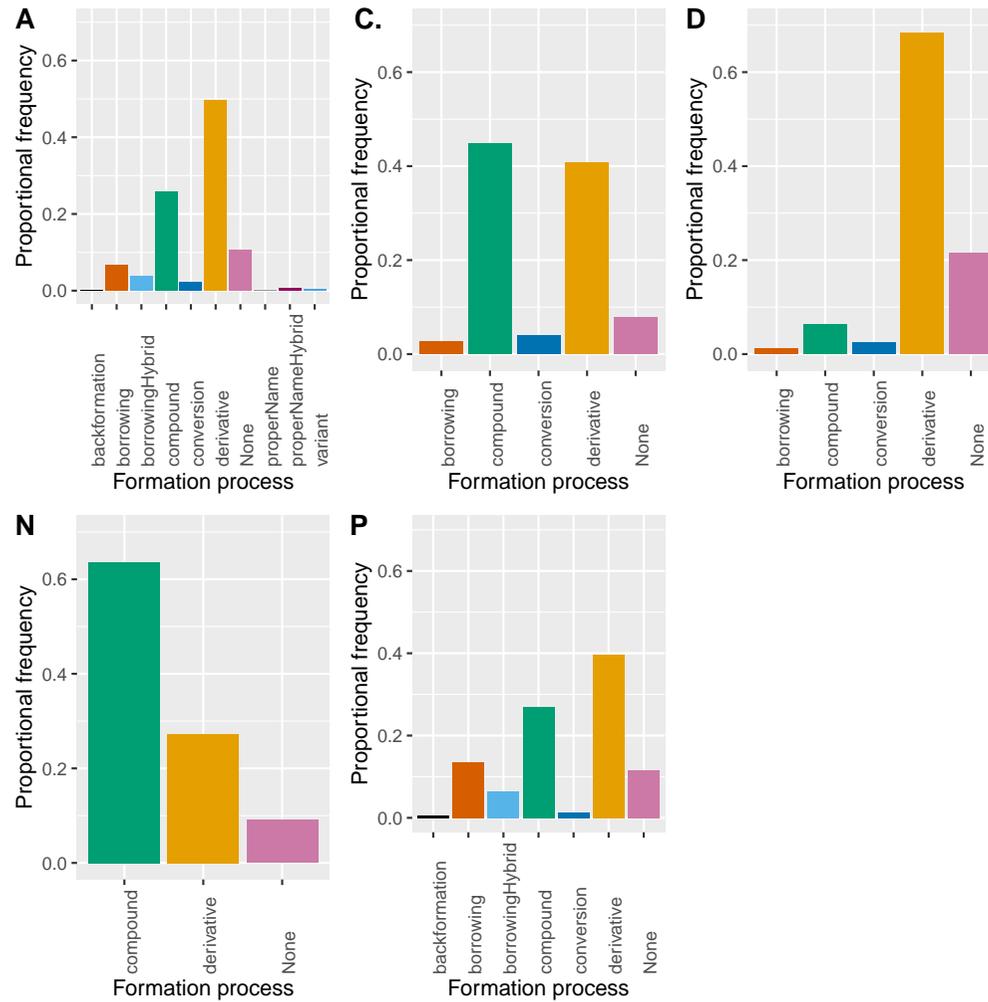


Figure 4.7: Proportional frequency plots across word formation processes in selected Milton texts. **A** represents all Milton texts (including those sampled individually), **C** represents *Comus*, **D** represents the *Doctr. Divorce*, **N** represents *On Christ's Nativity*, and **P** represents *Paradise Lost*.

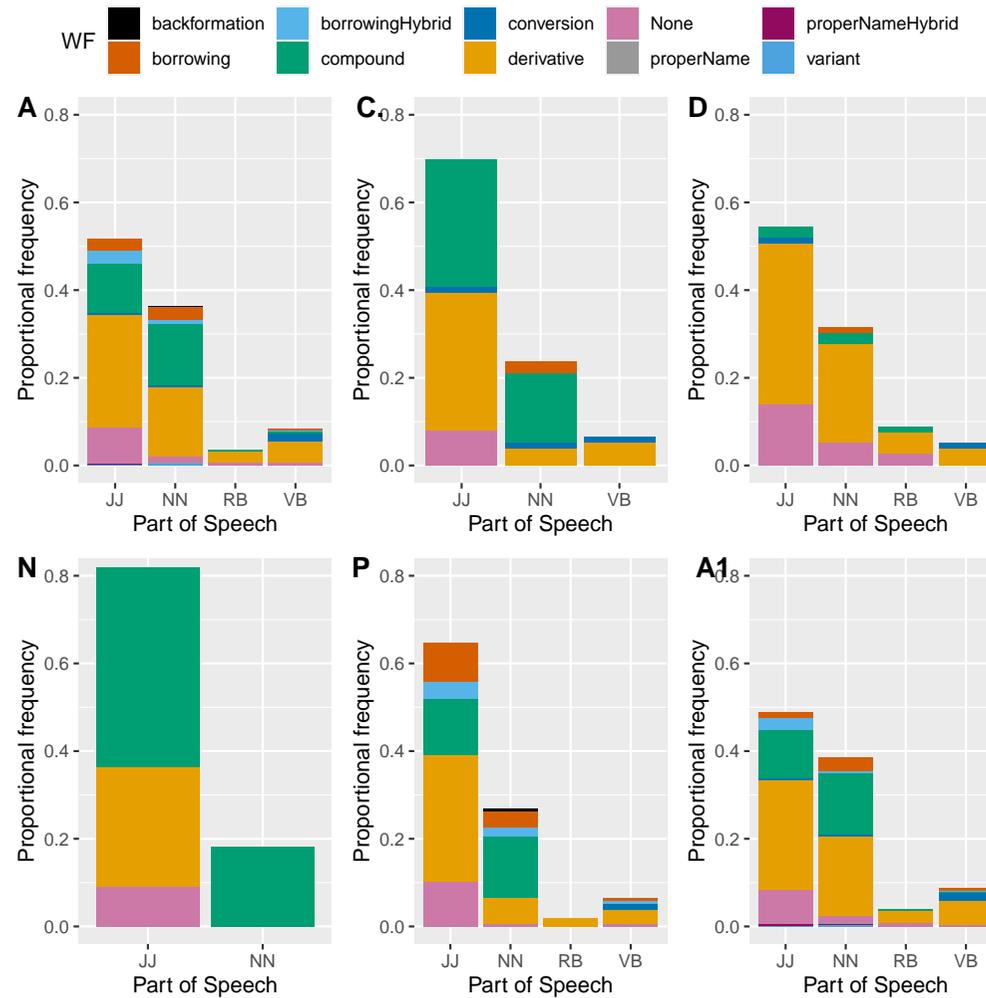


Figure 4.8: Proportional frequency plots across part of speech and word formation processes in selected Milton texts. The shading represents the proportion of each part of speech formed by each word formation process. **A** represents all Milton texts (including those sampled individually), **C** represents *Comus*, **D** represents the *Doctr. Divorce*, **N** represents *On Christ's Nativity*, and **P** represents *Paradise Lost*.

4.4 Genre

Genres in Milton's works have been manually tagged into the OED data, based on various editions of Milton's prose and poetry work (Milton 1953; 1957; 1980; 1997). Perhaps surprisingly, given Milton's status as a well-known poet, his prose is the source of more neologisms than his poetry within the OED: 336 neologisms come from Milton's poetry, and 529 from his prose (see figure 4.9).

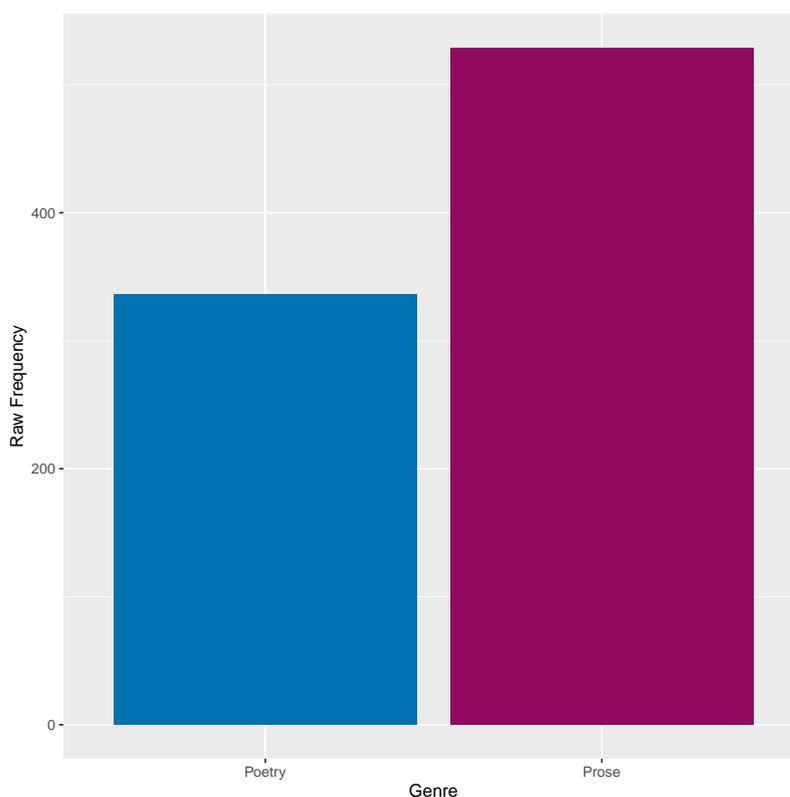


Figure 4.9: Raw frequency of neologisms in Milton's prose and poetry respectively, based on the OED data.

However, the number of the neologisms taken from texts within both genres varies within the data (figure 4.10). The plots show the spread of neologism totals coming from individual prose and poetry texts. As shown in graph A, the

median for the number of neologisms coming from prose and poetry texts is 11 and two respectively; so, on average, more neologisms come from a single prose text than a single poem. When the mean is calculated, a higher average is again seen for prose (23) than poetry (15.3). However, what is perhaps most interesting about graph A is the distribution of the data: prose has a larger interquartile range than the poetry. To observe further differences, graphs B and C show the density distributions of prose and poetry, respectively. A smaller interquartile range (IQR) in poetry means that there is a concentration in the number of texts contributing between one and eight neologisms in graph C. Whereas in graph B, there is a gentler slope, reflecting the larger IQR ranging from five to 46 neologisms for prose.

Outliers are present in figure 4.10. These outliers (marked by dots in graph A, and small peaks in graph C) represent those texts that fall outside of the whiskers of the boxplot, and are not representative of the general trends of the genre.⁶ The maximum value for poetry is 156 neologisms taken from one text, *Paradise Lost*. This is followed by three further outliers: 76 neologisms from *Comus*, 25 neologisms from *Samson Agonistes*, and 19 neologisms from *Paradise Regained*.

The variation in the spread of neologisms across the different genres are illustrative of two possible things. Firstly, they could suggest that Milton's creativity peaks in certain poems such as those listed above, and that he coins

⁶The calculation for outliers takes the Upper Quartile (UQ) and adds 1.5 x the IQR. In this case, any text contributing more than 19 neologisms is considered an outlier: $8 + (1.5 \times 7) = 18.5$.

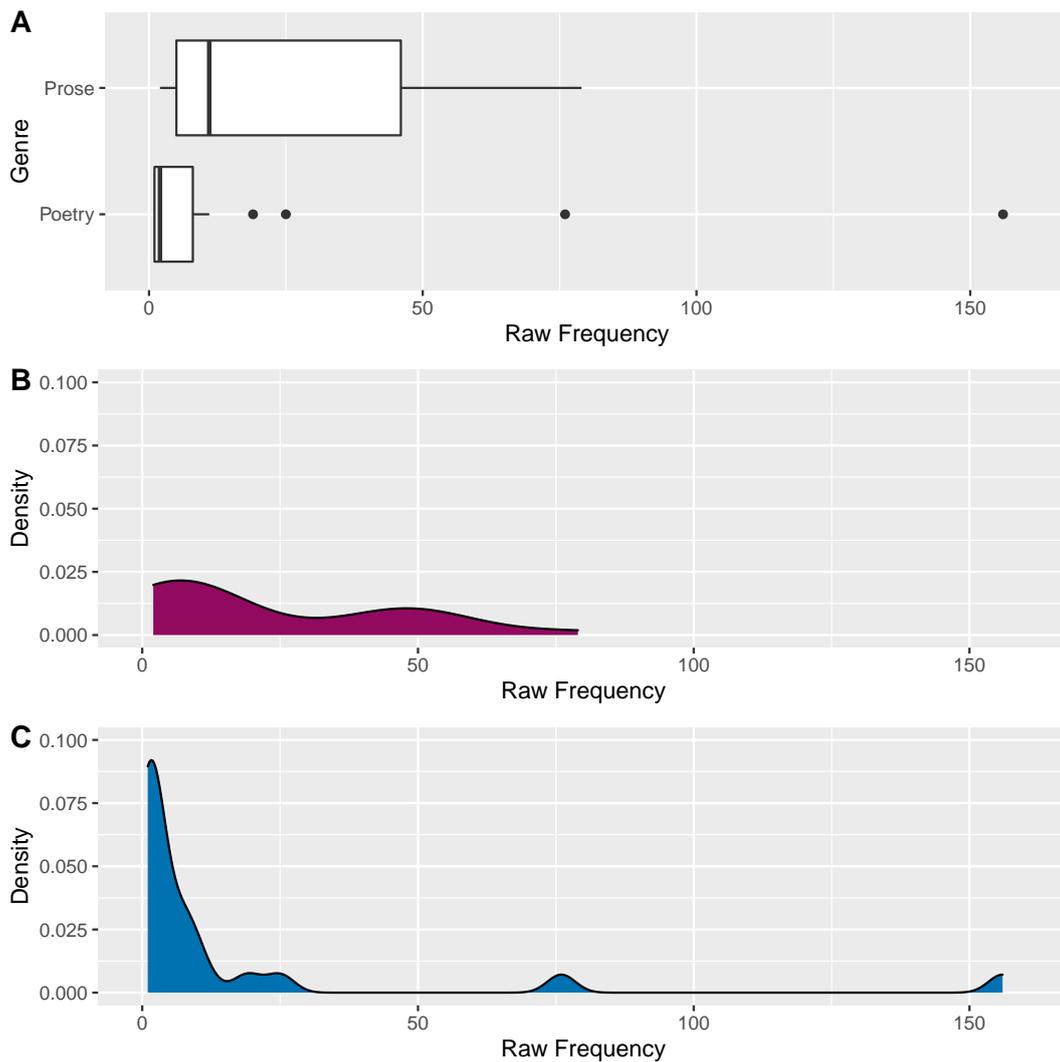


Figure 4.10: Boxplots and density plots of neologism frequency over Milton's prose and poetry texts. Graph B shows the density plot for prose and graph C shows the density plot for poetry.

words evenly in his prose. In this possibility, Milton only coins a few words in most poems - possibly related to the size of the poems themselves. However, I think this first possibility is unlikely. Instead, what is probably the case, is that these graphs illustrate some of the features of the OED's composition. What is shown, is that certain poems such as *Paradise Lost* (Milton's most famous work), contribute many neologisms compared to the remaining poetry and prose

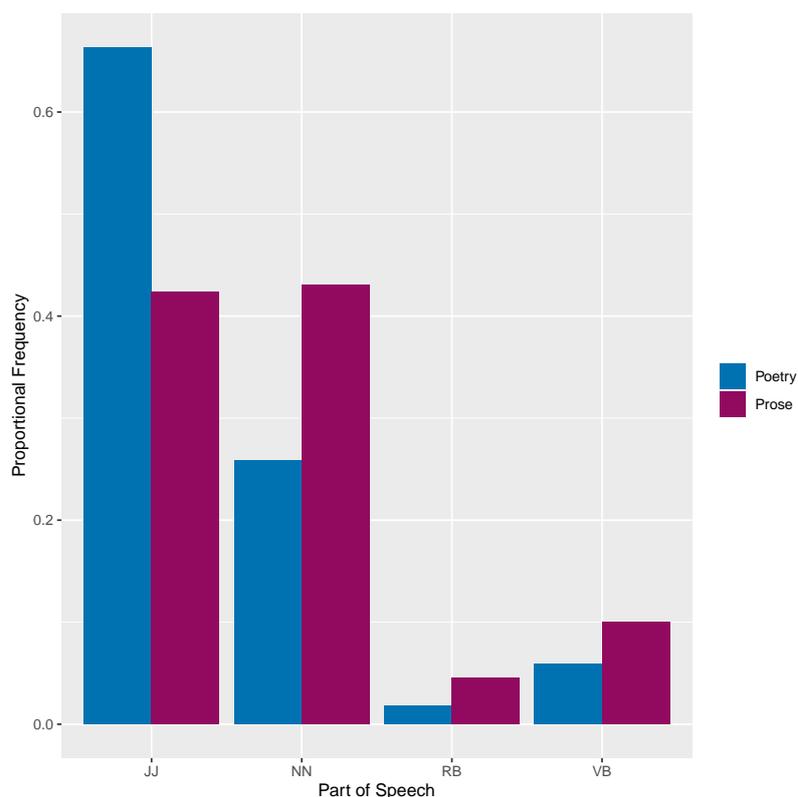


Figure 4.11: Bar chart displaying the proportional frequency of word classes within the total neologisms for each Miltonic genre.

texts. This could be a possible effect of the OED reading programme, which emphasised that certain texts were to be read in more detail than others.

To explore the generic differences between Milton's neologisms further, part of speech and word formation across the two genres are plotted in figures 4.11 and 4.12. Figure 4.11 illustrates the distribution of neologisms across word classes as a proportion of the neologisms within each genre. Within poetry, there is a higher proportion of adjectives than any other word class (0.664), and over twice as much as nouns, the next most frequent word class (0.259). Not only are adjectives the most frequent in poetry, but they have a higher proportion when compared to the prose by a difference of over 20%. Examples of Miltonic poetry

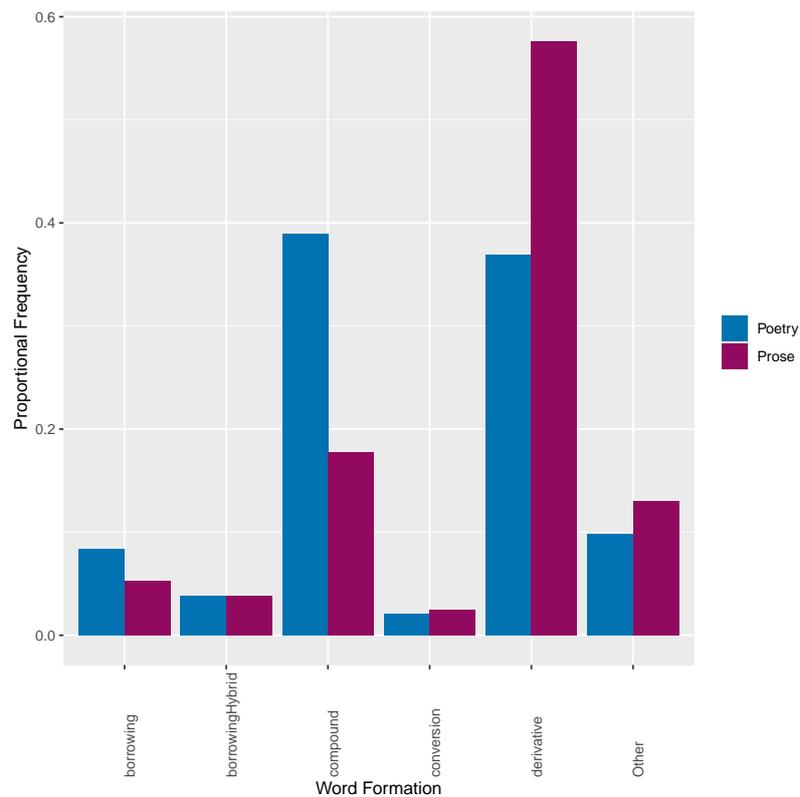


Figure 4.12: Bar chart illustrating the proportional frequency of word formation types within the total neologisms for each Miltonic genre.

adjectives include: ‘flowery-kirtled’ (*Comus*), ‘supplanted’ (*Paradise Regained*), and ‘bickering’ (*Paradise Lost*). In contrast, nouns have the greatest proportion in the prose with a frequency of 0.431, followed by adjectives with a frequency of 0.423. The difference between the two most frequent word classes in the prose is less pronounced than the poetry. Examples of prose nouns include: ‘anti-creator’ (*Apol. Smectymnuus*), ‘embellishing’ (*Reason Church-govt*), and ‘overtalking’ (*Eikonoklastes*). For the remaining word classes, the prose has a greater proportion of each than the poetry, although the differences are not great.

Figure 4.12 presents the proportional frequencies of different word formation processes within the two genres, and further differences can be observed. Of

all the word formation processes presented, compounding and derivation are the two most productive types within both genres. The other word formation types are a less productive way of forming neologisms for Milton, with fewer than 10% of neologisms formed this way (excluding the 'other' category). The relative proportions of compounding and derivation within poetry and prose are the most noteworthy within figure 4.12.

To begin with compounding, this is the most productive formation process within the poetry, with a frequency of 0.390 which is over double that of the prose (0.178). Like the number of adjectives in figure 4.11, this presents a clear difference between the two genres. Examples of Miltonic poetry compounds include: 'deep-vaulted' (*Paradise Regained*), and 'inbreathed' (*At Solemn Musick*). In contrast to compounding, the trend reverses for derivation with a higher proportion found in prose than in poetry. Although this difference is less pronounced between the genres, with frequencies of 0.577 and 0.369 respectively, derivation constitutes a large proportion of the total neologisms within the prose genre, with 57.7% of its neologisms formed through this process. Neologisms formed through derivation within prose include: 'antiquitarian' (*Of Reformation*), 'defraudment' (*Colasterion*), and 'tripersonality' (*True Relig.*). Although the difference between the proportions of derivation and compounding is substantial in the prose, this difference is less clear in the poetry. Again, this suggests the presence of differences between the two genres - in this instance, between the word formation processes and parts of speech.

4.5 Word Formation

In this next section, word formation is considered further. The differences between Milton's word formation is discussed generally, and then each word formation process is considered in turn.

Word formation is at the heart of neologisms. As seen in figure 4.13, there are five main types of word formation processes within the dataset: borrowing, borrowing-hybrid, compound, conversion, and derivative. Approximately 10% of Milton's neologisms and 7% of the contemporary neologisms have this information missing in the OED. For clarity, the graph in figure 4.13 only includes the word formation processes with a proportional frequency greater than 5% (for all word formation proportional frequencies, see appendix table A7).

As figure 4.13 shows, derivation is the most common word formation process for both Milton and his contemporaries, with almost 50% and 43% on average, respectively. Miltonic examples of derivation include the noun 'incompleteness', the verb 'overarch' and the adjective 'unaided'. These examples illustrate Milton's addition of bound morphemes to existing English words, with the addition of '-ness', 'over-', and 'un-'. When individual authors' proportional frequencies are plotted in figure 4.14, derivation has a large spread and variation across the dataset - ranging from 0.639 to 0.154. Milton, marked with a yellow diamond, features above the upper quartile of the plot. Only six of the other 58 authors have a proportional frequency greater than Milton; these are: J. Donne, R. Baxter, Bp. J. Hall, H. More, W. Penn, and W. Warner. The

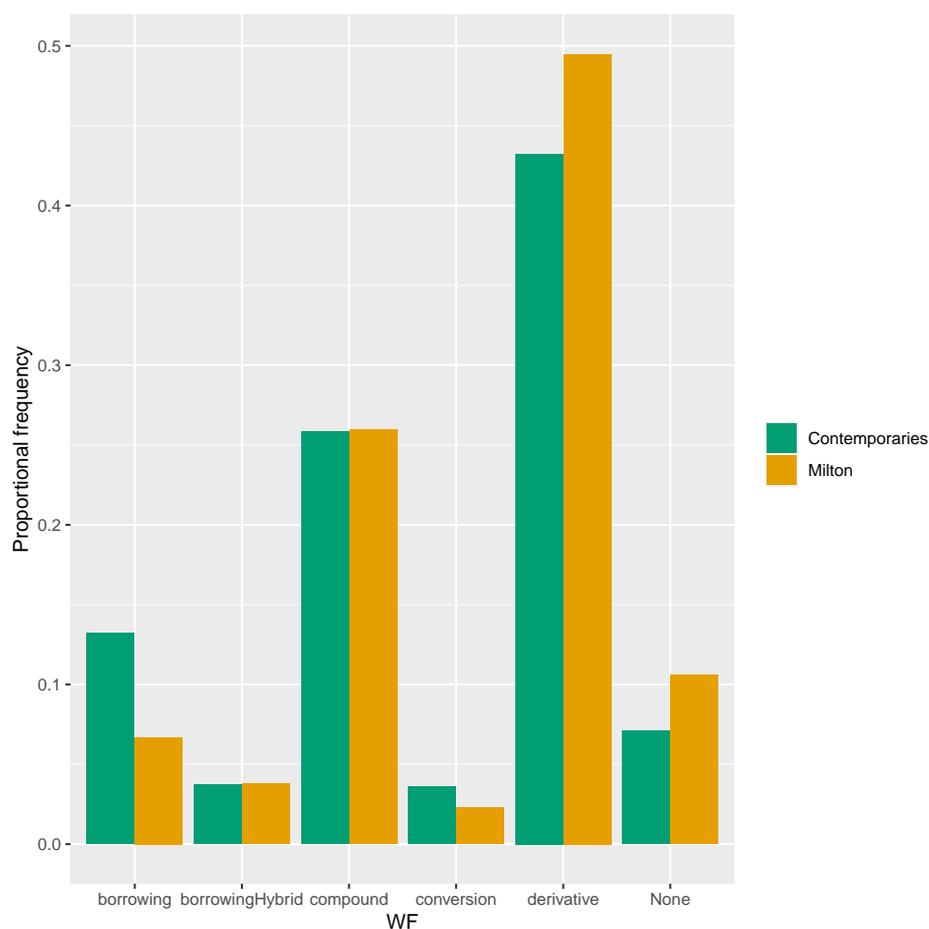


Figure 4.13: Bar chart illustrating the proportional frequency of word formation processes across Milton and Contemporary neologisms in the OED. Note: this graph only contains processes with a proportional frequency greater than 5% (or 0.05).

individual author results support the observations in figure 4.13, that Milton does seem to prefer this type of word formation process in comparison to most of his contemporaries (by a 7% difference in proportional frequency).

Compounding is the second most common word formation process within the dataset. Milton and his contemporaries have a similar amount of neologisms formed through this process, with approximately 25% of their respective neologisms created this way. Examples of Milton's compounds include the noun 'ocean bed', the adverb 'wise-judging', and the adjective 'double-mouthed'. Contem-

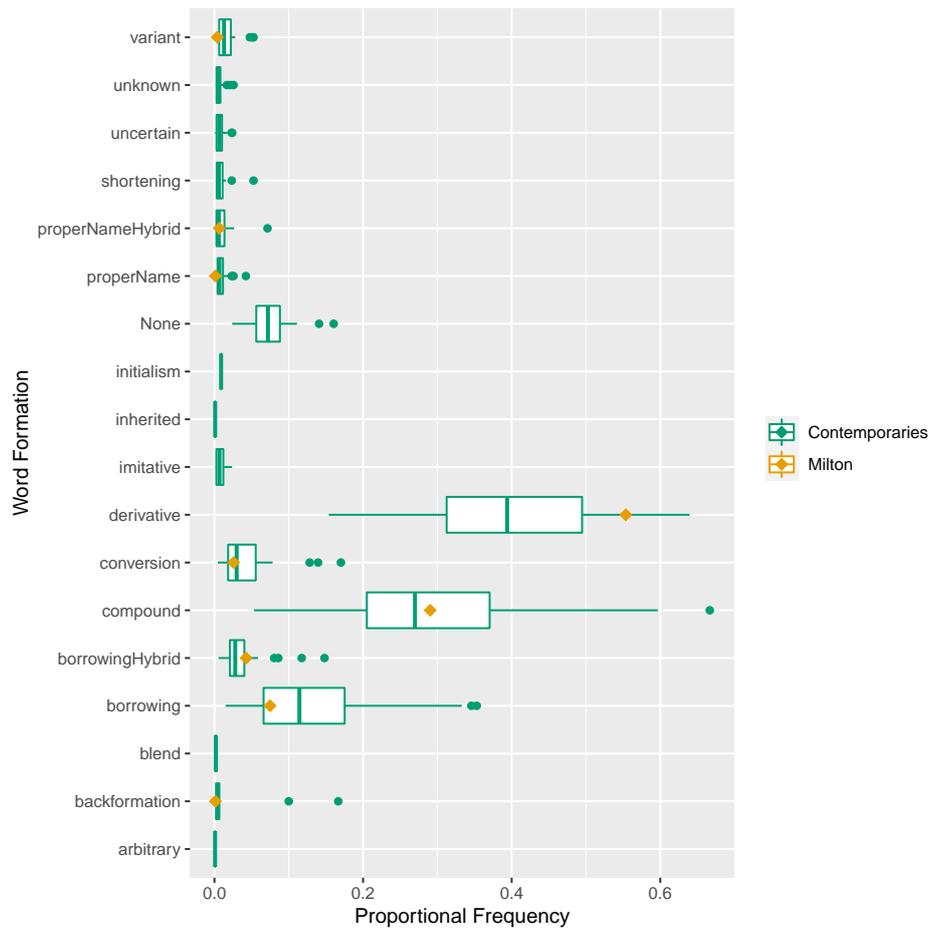


Figure 4.14: Boxplot illustrating the distribution of word formation processes for contemporary authors. Milton's averages marked with coloured diamonds for comparison.

porary compounds include the noun 'brainchild' (Jonson 1631), 'cheese chamber' (Fuller 1632) and the adjective 'rough-tongued' (Marston 1598). In figure 4.14, compounds have the most variation across the authors with proportional frequencies ranging from 0.667 to 0.0530. For some authors, compounding offers a productive means of forming words and for others, a much less productive process.

Behind compounding, the next largest group is formed by borrowing. As figures 4.13 and 4.14 illustrate, Milton is behind his contemporaries in forming

words via this process. Milton's contemporaries produce around 13% of their neologisms via borrowing, whereas Milton only produces approximately 6% of his new words this way, which is about half of the frequency of his contemporaries. Consequently, Milton features near the lower quartile for borrowing. Most authors use borrowing more than Milton (see figure 4.13), but some use this process less than him - something that was obscured by the global averages. In fact, 17 authors use this formation process less than Milton, suggesting he was not alone in coining few words via this process. Examples of contemporary borrowings include: the noun 'stoicity' (Jonson 1616) and the verb 'impassion' (Spenser 1591). Miltonic borrowings include the adjective 'salutory' and the noun 'typography'.

Alongside borrowings, the OED also features a group called 'BorrowingHybrid'. This group contains those words which have borrowed elements combined with English affixes or are otherwise changed from the direct borrowing.⁷ These hybrid forms can carry a foreign root and an English inflection: for example, a Miltonic borrowing hybrid is the adjective 'obtrusive'. 'Obtrusive' originates from the Latin 'obtrūs' and is combined with the derivational English suffix '-ive' to create the new word form. This contrasts with direct borrowings such as the Miltonic adjective 'prejudicant', which is formed directly from the Latin 'praeiūdicant'. As displayed in figure 4.13, both Milton and his contemporaries have a similar proportion of neologisms produced in this way (around 4%). For contemporaries, there is a pronounced difference between the proportion of bor-

⁷Thanks to Peter Gilliver from the OED, for providing clarity on the in-house guidelines on the allocation of this subtype.

rowing hybrids and direct borrowings; hybrids are about a third of the direct borrowings, but for Milton, this difference is less pronounced. However, when compared for single authors, a different picture is presented. As figure 4.14 illustrates, borrowing hybrids show a narrow interquartile range (IQR) with four distinct outliers (marked with green dots). What the boxplot shows is that these four outliers each contribute a large proportional frequency, whereas the bulk of the authors feature within the narrow IQR, with the median being less than Milton's average. Consequently, these four outliers will distort the global average for the contemporaries, making the contemporary average look closer to Milton's in figure 4.13. Instead, Milton uses this process more than most of the contemporary authors, with only nine of 28 having a higher proportional frequency than Milton.

The final word formation is conversion, or zero-derivation. Again, Milton's contemporaries favour this formation process over Milton, with 4% of contemporary neologisms formed this way, in contrast to Milton's 2%. A Milton example is the conversion of the noun 'padlock' into the verb 'padlock' meaning 'to fasten with or secure by means of a padlock', without changing the word-form itself. Contemporary examples include the noun 'juggle' from the verb (More 1664) and the verb 'stranger' from the noun (Shakespeare 1608).

Overall, this graph presents a perhaps surprising result given Milton's knowledge of many foreign languages, which he could have drawn on in his word formation. Instead, Milton seems to prefer derivation, or forming words within English, over borrowing words from other languages. What is particularly strik-

ing is the comparison of Milton with his contemporaries, who collectively seem to draw on more foreign resources. Milton seems different from his literary peers in his choice to form words within the existing English lexicon. To explore these perceived differences further, each word formation type is considered further below.

4.5.1 Derivation

As shown in figure 4.13, derivation is the most common word formation process for Milton's neologisms. Unfortunately, the OED does not divide this group up into specific types of derivation, such as affixation. Consequently, given that at 49%, derivation accounts for almost half of Milton's neologisms, this group needed to be broken down into further constituent parts, such as prefixes and suffixes, to observe further trends within this large number of neologisms. Based on the literature, specific affixes were extracted from the data. Affixes were collected from both Milton's neologisms and the entire OED dataset between 1500 and 1700, to observe both local and global trends.⁸ As far as possible, this process was automated, however there were some cases which had more than one affix, specifically both a prefix and a suffix. For example, the adverb 'unclearly' contains both the prefix 'un-' and the suffix '-ly', and the adverb 'selfconsciously' contains both the prefix 'self-' and the suffix '-ly'. For these types, the OED Online was consulted and the affixation type added.

⁸This process included string matching the chosen affix within the derivative data class. Given the commonality for affixes such as '-ly' with other common longer affixes such as '-ably' and '-ily', these were also removed at this stage. For a list of excluded forms, see appendix A8.

4.5.1.1 Global trends

Figure 4.15 shows the raw frequencies of each extracted affix over the 1500-1700 period (including dictionaries and other texts). What is shown in this graph is the higher frequency for the prefix ‘un-’ and the suffix ‘-ly’ - they appear to be the most productive affixes extracted. There is a peak in these affixes in 1611, with 154 ‘un-’ neologisms and 138 ‘-ly’. The progress of ‘un-’ and ‘-ly’ appear related, and when this relationship is calculated, they have a strong positive correlation of 0.794 (to three d.p.).⁹ This means that as the frequency of the ‘un-’ form increases so does the frequency of the ‘-ly’ form, and vice versa. The prefix ‘self-’ increases in frequency during the middle of the seventeenth century, when ‘un-’ and ‘-ly’ decline. Both ‘-en’ and ‘arch-’ forms seem fairly consistent in raw frequency and do not fluctuate as much as the others.

To account for the possible fluctuation in neologism frequency, the affix neologisms are standardised. Again, the affixes ‘un-’ and ‘-ly’ are the most frequent as a proportion of all the neologisms for that given year over the other extracted affixes. Instead of the sharp peaks around 1611 (in figure 4.15), the smoothed curves for these affixes show a steady increase peaking around 1550, followed by a steady decline to around 1600. Another steady peak appears around 1640, before a steeper decline into the start of the eighteenth century. Both ‘-ly’ and ‘un-’ display this m-shaped correlation. This m-shaped curve suggests that there is probably a high influx of neologisms around 1600 which reduces the overall proportion of neologisms formed with ‘-ly’ and ‘un-’ in that year.

⁹This is calculated using the Pearson correlation coefficient.

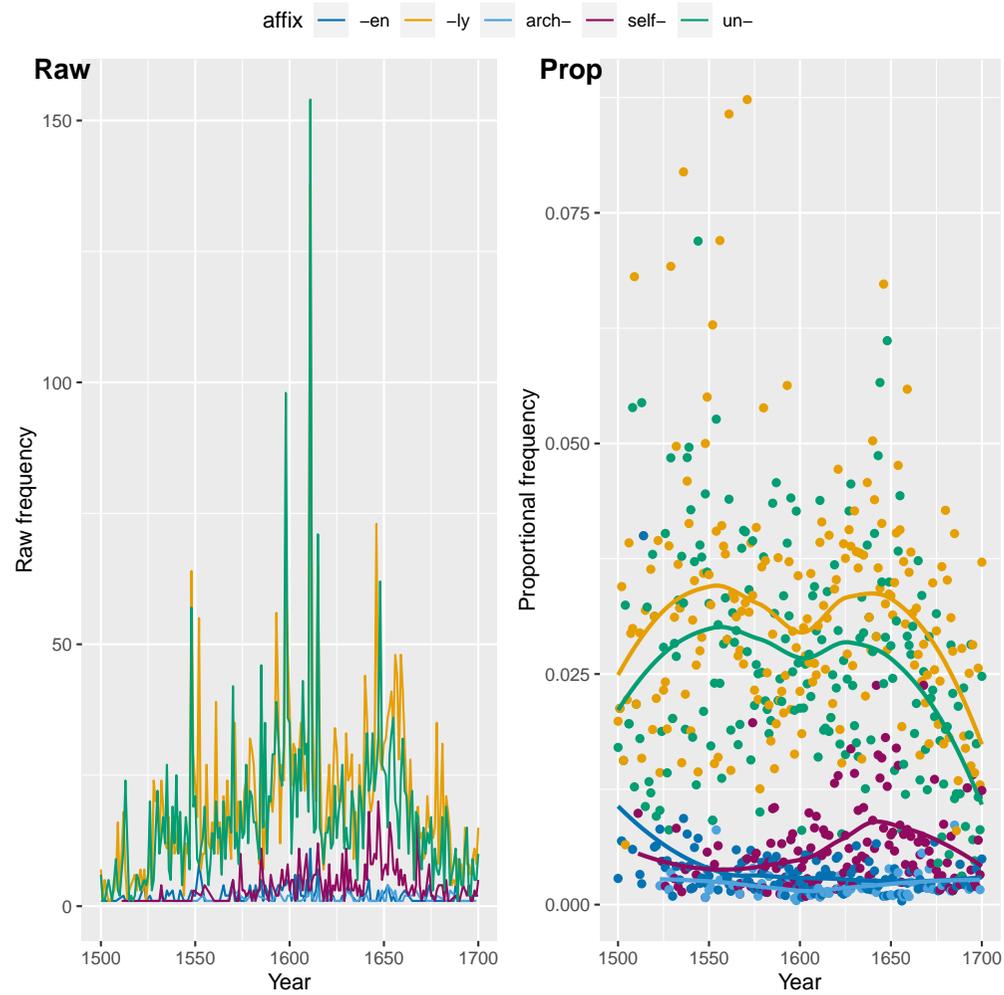


Figure 4.15: Graphs showing the raw frequency of selected affixes (raw) and proportional frequency (prop) of selected affixes in the entire 1500-1700 OED data.

4.5.1.2 Milton trends

Now the global trends for the period have been observed for these specific affixes, how Milton compares can be assessed. In figure 4.16, the proportional frequency of each affix is presented for both Milton and his contemporaries. It is shown (in the left of graph M) that Milton makes more use of these affixes than his contemporaries. By adding the frequencies together, the overall proportion of neologisms with affixes can be found: 11.0% for Milton and 7.55% for his contemporaries. However, the distribution of the affixes amongst Milton and his contemporaries varies, with some forms more productive than others. The most productive affix for Milton is the prefix ‘un-’, and his use of this affix has become recognised in literary criticism, with the negative prefix described as a characteristic of Milton’s style (Carey and Fowler 1968: 516, Corns 1990: 84, Patterson 2009). Milton’s characteristic use of ‘un-’ is found within the OED neologisms, with Milton coining over double the number of ‘un-’ neologisms than his contemporaries: 7.15% of all of Milton’s neologisms in the OED, in contrast to only 3.04% for his contemporaries. For the contemporaries, the most productive affix is the adverbial suffix ‘-ly’. This suffix is used more by contemporaries than by Milton, with 3.49% and 2.30% of their respective neologisms formed this way. Amongst the other three affixes, the prefix ‘arch-’ is used to produce more neologisms in Milton (0.692%) than his contemporaries (0.101%). However, this affix is not that productive in either group, as both proportions are less than 1% of their total neologisms. This is also the case for ‘self-’ and ‘-en’ which also

have similar relative frequencies of less than 1% of all neologisms in the OED for both Milton and his contemporaries.

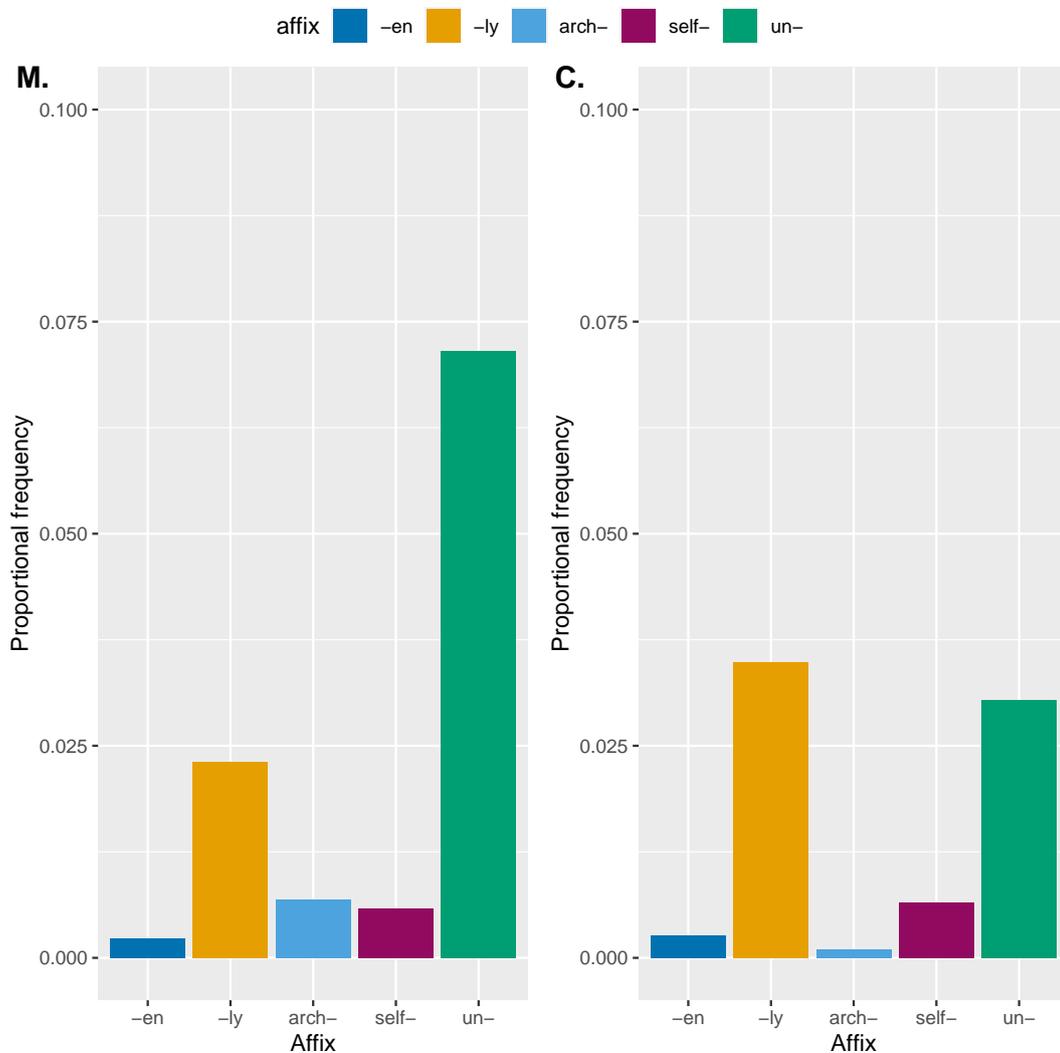


Figure 4.16: Bar chart illustrating the proportional frequencies of five different affixes amongst Milton's and his contemporaries' neologisms within the OED. Milton's frequencies are displayed in the graph labelled M on the left-hand side, and the contemporaries is labelled C on the right-hand side.

Figure 4.17 displays the proportion of each affix within the number of neologisms for that year.¹⁰ For example, six neologisms are recorded for the year

¹⁰It is important to highlight that some years have very few derivative neologisms formed with one of these five affixes, so the proportions should be taken as suggestive. To improve this, a larger sample would be required, but this is not possible given the nature of the data.

1650 and two are formed by with the ‘un-’ affix: the verb ‘unmagistrate’ and the adjective ‘unprudential’. This graph shows how these affixes are spread across Milton’s career, by considering the total number of neologisms coined for each year, so they can be compared directly. Again, ‘un-’ is a productive affix across most of Milton’s career and features more heavily towards the first half of his career (in particular, before 1650). In relation to the global averages presented in the proportional graph in figure 4.15, Milton’s trends seem to reflect the secondary peak around 1640, suggesting that Milton may have been producing words using the same affixes as those around him. ‘Un-’ is still present in the latter stages of Milton’s career, but not as prolifically as the earlier stages. Instead, what becomes more productive in this second half of Milton’s career is the suffix ‘-ly’. Examples of these later ‘-ly’ suffixes include the adverbs ‘judgingly’, ‘protestantly’, and ‘besottedly’. Again, figure 4.15 may explain why this is higher in the second part of Milton’s career. In the proportional graph in figure 4.15, the proportional frequency of ‘-ly’ peaks later (around 1650) showing that Milton’s word formation may reflect that of his contemporaries and the linguistic climate of his time. As shown in both the Miltonic graph in figure 4.16, and in the global averages in figure 4.15, the other affixes (‘-en’, ‘arch-’, and ‘self-’) are less productive than ‘-ly’ and ‘un-’. These averages reflect the trends not only in Milton’s career, but also in the wider sixteenth and seventeenth centuries. The low productivity of these affixes is also seen in figure 4.17, and given the distribution of these remaining affixes across Milton’s career, there may not be a diachronic effect on their productivity for Milton. Instead a consideration of

other features such as word class and genre may aid in revealing more about these, alongside the more productive ‘-ly’ and ‘un-’ forms. These graphs are presented in figures 4.18 and 4.19.

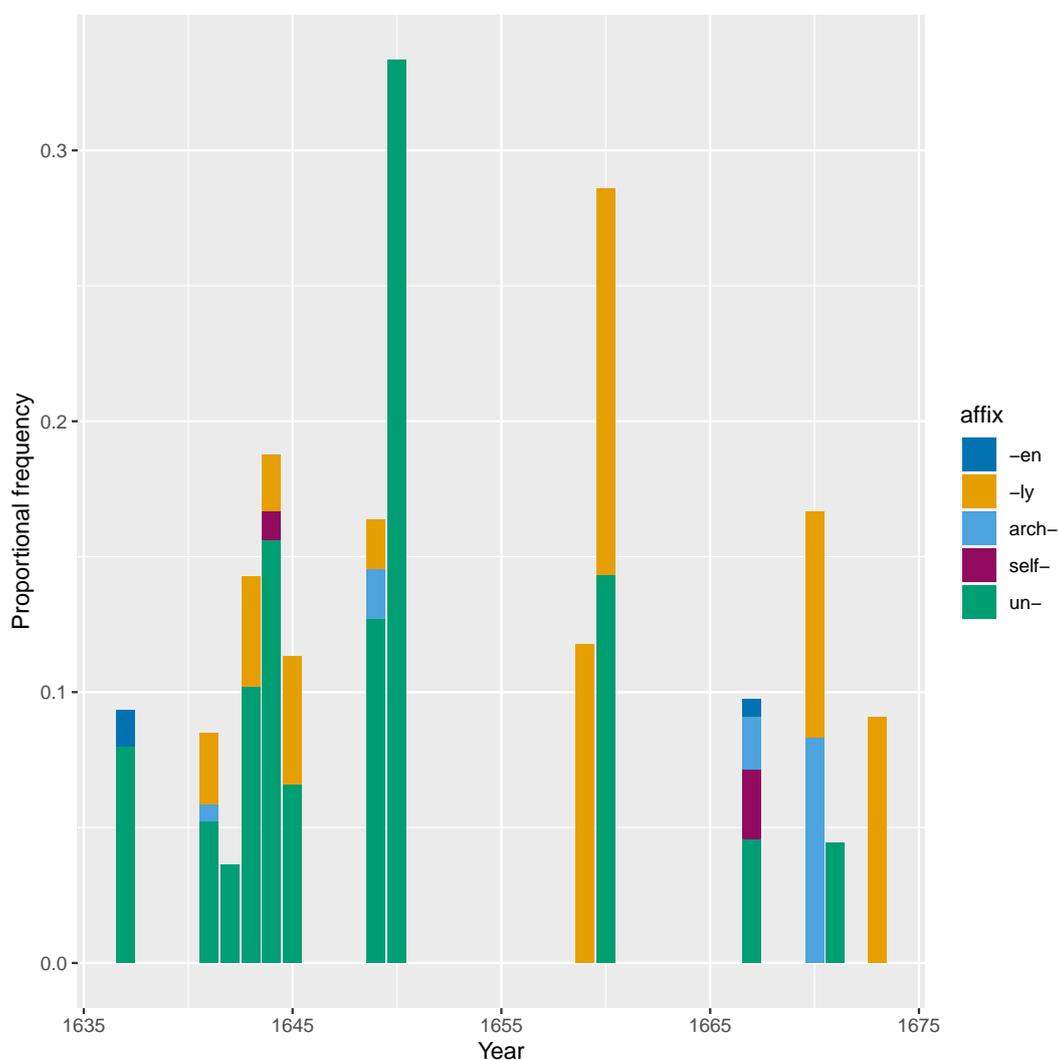


Figure 4.17: Stacked bar chart displaying the frequency of five different affixes as a proportion of the number of Miltonic neologisms each year in his career.

Across Milton’s two genres, the prefix ‘un-’ features heavily (figure 4.18). Neologisms formed by affixing ‘un-’ occur more in the prosaic texts than the poems by just under half: 8.70% of prosaic neologisms and 4.76% of poetry neologisms are formed using this prefix. However, it is the proportion of the

suffix ‘-ly’ in the prose texts that differs greatest from the poetry. 3.40% of the prose neologisms are produced by adding the ‘-ly’ adverbial form, in contrast to 0.595% of neologisms in poetry, which is almost six times as many. This supports the findings in figure 4.11, that Milton tends to produce adverbs more within prose than in poetry. Another generic difference is the number of affixes used to derive words within prose and poetry. The overall proportion of neologisms formed by these affixes is greater in prose than poetry. When total proportions are considered, this type of word formation is higher in prose, with 12.9% of the prose neologisms formed via derivation, whereas only 8.04% of poetry neologisms are formed this way. These results also reflect the findings presented in figure 4.12: that derivation is generally higher in prose than in poetry. Also, not all the affixes occur in both genres; ‘-en’ only appears in poetry and is absent from Milton’s prose. There are only two examples of ‘-en’ derivation within Milton’s works: the adjectives ‘inwoven’ and ‘paven’ from *Paradise Lost* and *Comus*, respectively. Although there are only two instances of this affixation, it would potentially be interesting to see if this is the case across the contemporary data too, is ‘-en’ a unique feature of poetic style, possibly used for archaic affect as suggested by Corns (1990: 52)? Unfortunately, the contemporary dataset is not tagged for genre, like the Milton one. But after reviewing the 37 texts in which this affix features, it would be suggestive that this is not the case. Instead, prose texts such as *The Anatomy of Melancholy*, *The History of the University of Cambridge*, and *Pseudodoxia Epidemica* all have neologisms formed by affixing ‘-en’ (a full list of texts and neologisms is included in the appendix table A9).

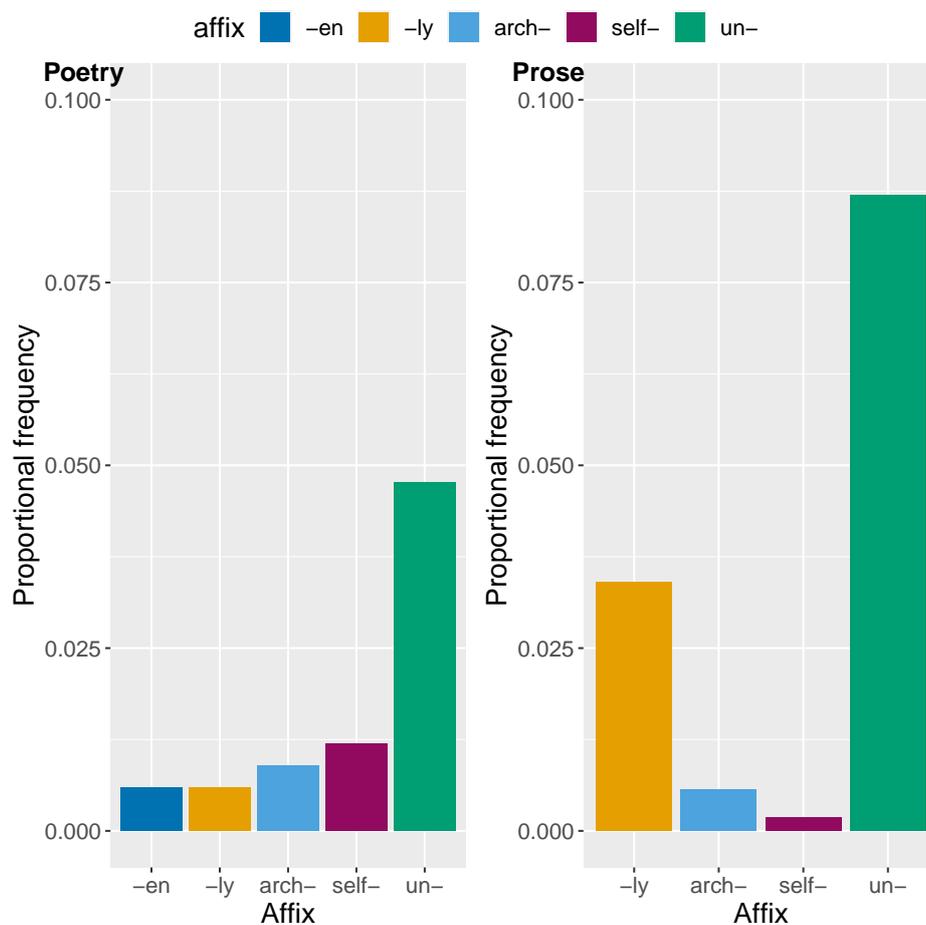


Figure 4.18: Stacked bar chart displaying the frequency of five different affixes as a proportion of the number of Miltonic neologisms from each genre of his work.

Finally, when the word class of neologisms with the extracted affixes is considered for Milton and his contemporaries, more patterns can be seen. Figure 4.19, presents the word classes for Milton and his contemporaries, and how the neologisms are distributed across the different affixes. Graph 4.19a represents Milton's neologisms, and graph 4.19b represents those of the contemporaries. Again, the results in graph 4.19a demonstrate Milton's preference for coining with the prefix 'un-' across all of the parts of speech, in comparison to the contemporaries in figure 4.19b. Milton has a much higher proportion with adjectives formed with 'un-' than his contemporaries. The adverbial suffix '-ly' is similar

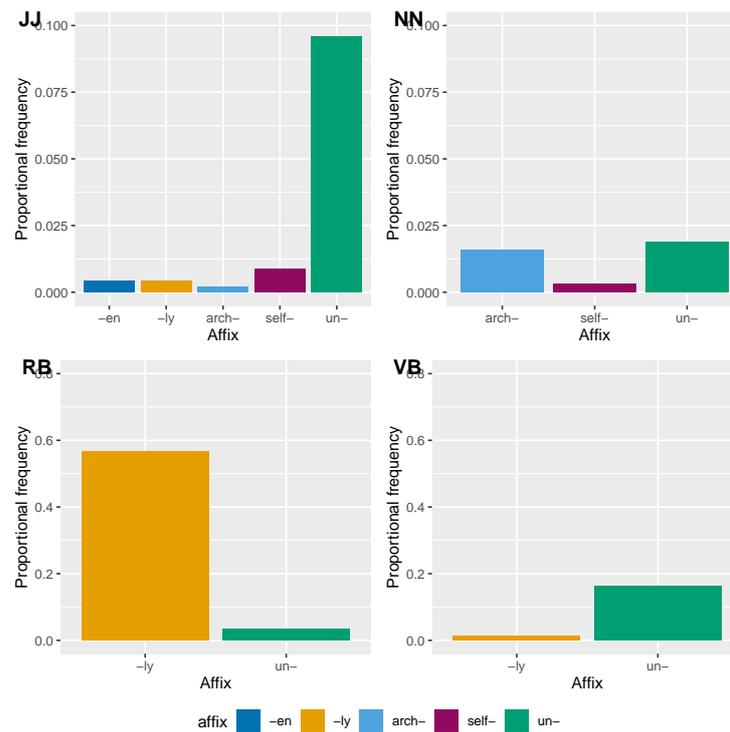
for Milton and his contemporaries, and is most frequent for adverbs (over half of both Milton's and contemporary adverbs are formed through adding this suffix). Consequently, '-ly' seems to be a productive suffix for producing adverbs in this period. '-en' is a unique feature of Milton's derivation in comparison to his contemporaries. For Milton, '-en' is solely found in adjective neologisms, in contrast to the contemporaries where it is found across adjectives, nouns, and verbs. Although '-en' is a low frequency affix, this is an interesting observation. A similar behaviour can be found within other affixes: Milton tends to produce neologisms within each word class (except adjectives) from fewer types of affixes. For example, Milton uses three affixes to form his nouns, whereas the contemporaries use all five explored in this section. This suggests that Milton may have reserved certain affixes for certain types of words. The prefix 'self-', for example, is most frequent in Milton's adjectives and does feature in some nouns. Milton may have therefore reserved 'self-' to form words such as 'selfbalanced', 'selfleft', and 'selfopened'. The contemporaries also use 'self-' for both adjectives and nouns, but also for adverbs and verbs; with some authors coining words with 'self-' across three word classes. For example, Richard Baxter forms the adjective 'selfbinding', the noun 'selfexcusing', and the verb 'selfdetermine' with this prefix. Milton could perhaps be described as more conservative with his use of affixes, and may have deliberately (or not), used certain affixes only within certain word classes.

The exploration into Milton's and his contemporaries' use of certain affixes has yielded some insightful conclusions. The main observation is the productivity

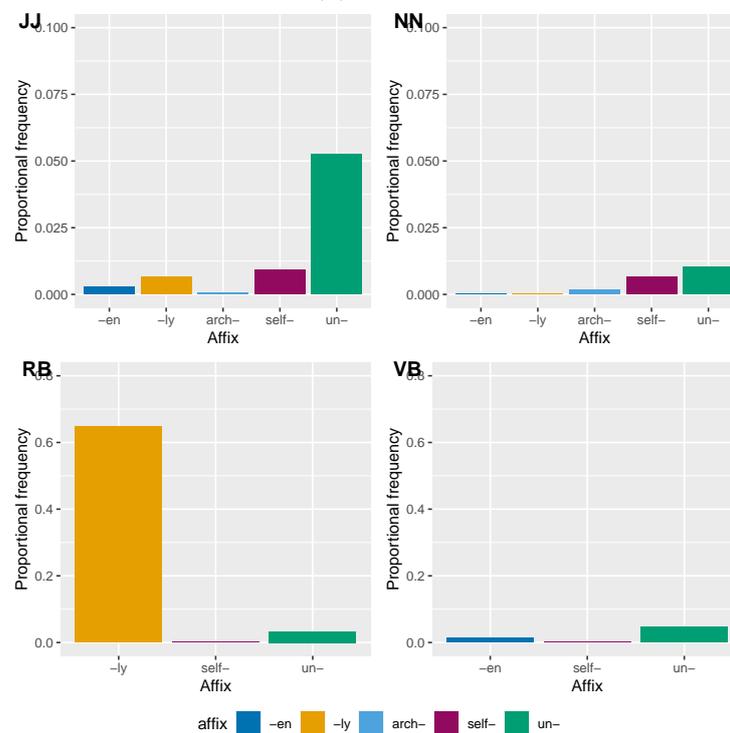
of the affix ‘un-’ and Milton’s preference for this prefix across genre, time, and word class in comparison to his contemporaries. The dominance of the ‘un-’ derivative affix over the others suggests that this affix is characteristic of Milton. This aligns with earlier literary criticism, which highlighted Milton’s preference for this negative form within his poetry (Corns 1990: 85). However, what this thesis has done beyond these literary observations, is quantify this characteristic of Milton in comparison to his contemporaries. This has proven that ‘un-’ is a Miltonic feature and not merely a feature of word coining in the period. Given the low frequency of the other affixes in this chapter, the results and conclusions from these should be taken as suggestive of Milton and his contemporaries.

4.5.2 Compounding

In contrast to derivation, Milton and his contemporaries display similar levels of compounding in their neologisms (figures 4.13 and 4.14). For both groups, compounding is the second most frequent type of word formation, following derivation, with a proportion of around 0.25. To consider how neologisms formed by compounding compare, compounded neologisms of each word class are plotted as proportions of compounded neologisms (figure 4.20). As figure 4.20 shows Milton’s compounded neologisms vary from his contemporaries. Within his compounds, Milton has a higher proportion of adjectives and a lower proportion of nouns. In contrast, the contemporaries reverse this, and have a lower proportion of adjectives and a higher proportion of nouns. For the other parts of speech, the proportions are similar between Milton and his contemporaries, although



(a) Milton



(b) Contemporaries

Figure 4.19: Graphs showing the proportion of selected affixes within word classes for both Milton and his contemporaries. **JJ** is adjectives, **NN** is nouns, **RB** is adverbs, and **VB** is verbs.

only the contemporaries have compounded interjections (UH) and prepositions (PRP). When compared to individual contemporary authors (figure 4.21), the differences perceived in figure 4.20 become more complex. For both nouns (NN) and adjectives (JJ), the contemporary proportional frequencies vary greatly, illustrating that some authors coin more adjectives or nouns this way whilst others do not. The higher average of nouns observed in figure 4.20 reflects a greater number of authors coining more nouns than Milton. However, there are also 10 authors who coin much fewer compounded nouns than Milton (out of 58 total). For example, F. Quarles and T. May feature as outliers with proportions of 0.127 and 0.189. Yet, Milton's frequency is still lower than most of his contemporaries. This is like the trends for compounded adjectives, with most contemporaries coining fewer compounded adjectives than Milton. Again, outliers in the data display that some authors coin more compounded adjectives than the rest of the contemporaries and Milton. In this case, nine authors have greater proportional frequencies for compounded adjectives than Milton. However, apart from these outliers, Milton falls towards the top of this distribution suggesting that his compounding behaviour is different to most contemporaries in general. This result supports the initial observations in figure 4.20, that Milton's neologisms do display different compounded characteristics in comparison to most of his contemporaries.

Across the compounded neologisms, there are a variety of types. As discussed in the literature review (section 2.1.2), there are four different types of compounds: endocentric, exocentric, appositional, and copulative (figure 2.2).

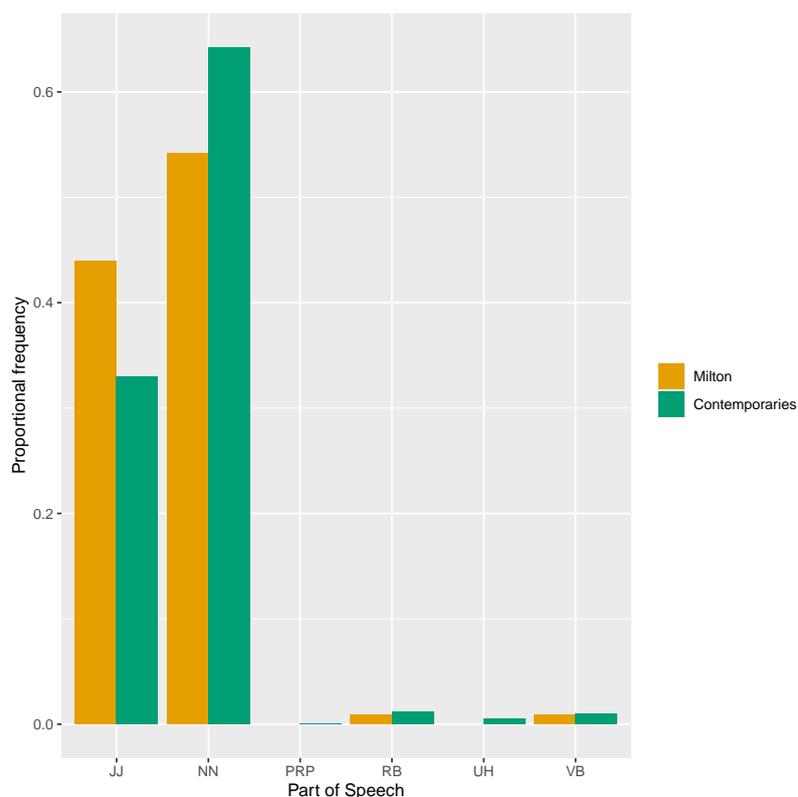


Figure 4.20: Graphs illustrating the proportional frequency of compounded neologisms across part of speech categories, within all compounded neologisms for Milton and his contemporaries.

Within Milton's compounds, both appositional and copulative compounds seem to be absent, so only endocentric and exocentric types will be discussed below.¹¹

An example of an exocentric compounded neologism is 'dough-kneaded' from *Apol. Smectymnuus*:

'...demeans himself in the dull expression so like a **dough-kneaded** thing, that he has not spirit enough left him so far to look to his syntax...' Milton (1953: 910).

'Dough-kneaded' here does not refer to the semantic head of dough, but rather

¹¹A simple exploration of the compounds was conducted, and it is from this alone that the absence of apposition and copulative compounds was noted. A more thorough check, involving looking at each individual quotation and definition would be required to ensure this is the certainly the case.

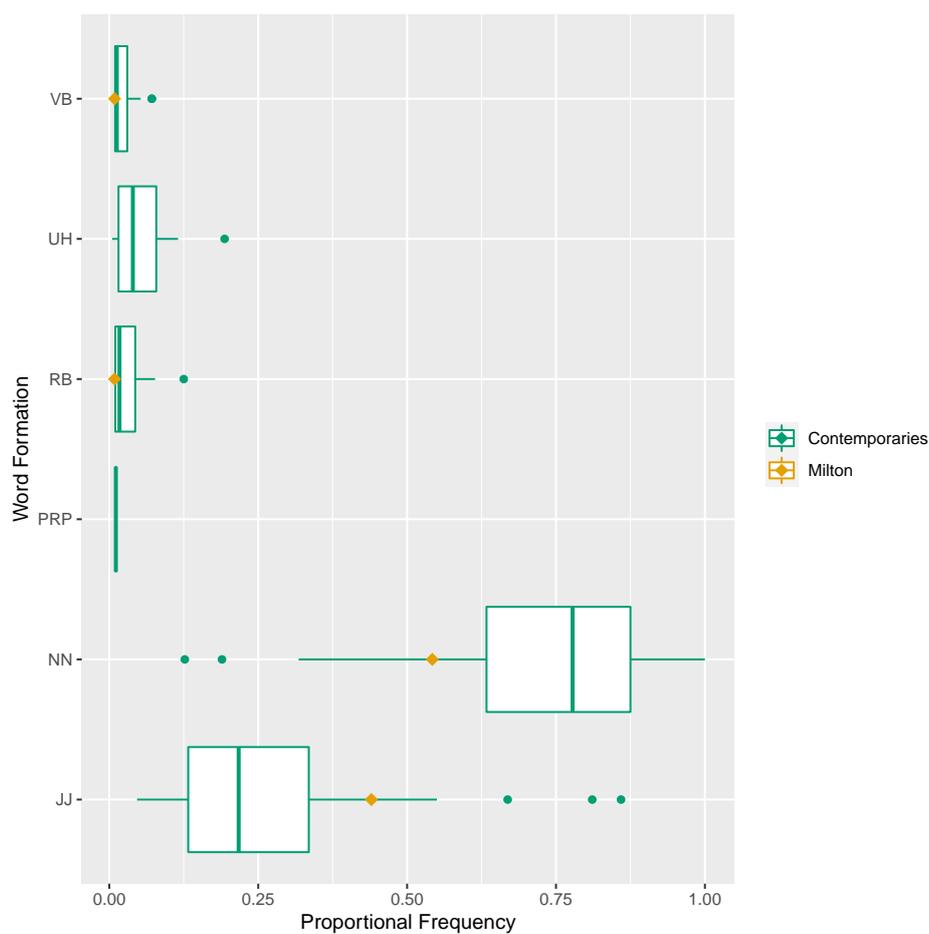


Figure 4.21: Boxplot illustrating the distribution of compounded neologisms across part of speech categories for contemporary authors. Milton's averages marked with coloured diamonds for comparison.

to the description of man. Here, it carries the semantic meaning 'overworked', and relates to an unexpressed semantic head (man) making this an example of an exocentric compound. In contrast, Milton also produces many endocentric compounds that refer to the semantic head within the compound. An example of this is the compounded noun, 'country dancer' from *Comus*.

*'...then come in **Countrie** dancers, after them the attendant Spirit
with the two Brothers and the Ladie...' Milton (1997: 229).*

Here, 'country dancer' refers directly to the type of dancer - a dancer that per-

forms country dances. There is no external semantic head. Endocentric compounds such as ‘country dancer’ seem to be a common type within Milton’s compounded neologisms. However, care must be taken with this, as there may be external semantics associated with the compound, especially to a contemporary audience. A possible route of future enquiry would be to inspect each definition or example of Milton’s compounds, and tag them accordingly to assess whether Milton favours endocentric or exocentric compounds in his works. Unfortunately, this line of enquiry goes beyond the scope of this thesis.

Some of the literary commentary surrounding Milton’s compounding is in relation to his adjectival compounds specifically (Hunter 1989; Corns 1990). Therefore, this next section considers examples of these and how they are distributed amongst Milton’s works. As shown in figure 4.22, Milton’s adjectival compounding is secondary to his nominal compounding, in terms of frequency. However, the adjectival compounds do reveal some characteristics of Milton’s neologisms in the OED. Figure 4.23 displays the adjectival compounds as a proportion of all neologisms found within each Miltonic work. In figure 4.23, there are four instances where compounded adjectives account for 100% of the neologisms in a text, and these are *Arcades*, *At Vacation Exercise*, *On Shakespear*, and *On Time*. All of these are examples of early Miltonic poetry, suggesting that genre may influence the proportion of adjectival compounds found within a text. In comparison, prose texts such as *Doctr. Divorce*, *Tetrachordon*, and *Areopagitica* all have the lowest proportional frequency of adjectival compounds, with the highest of these constituting 4% of the neologisms in the text. The

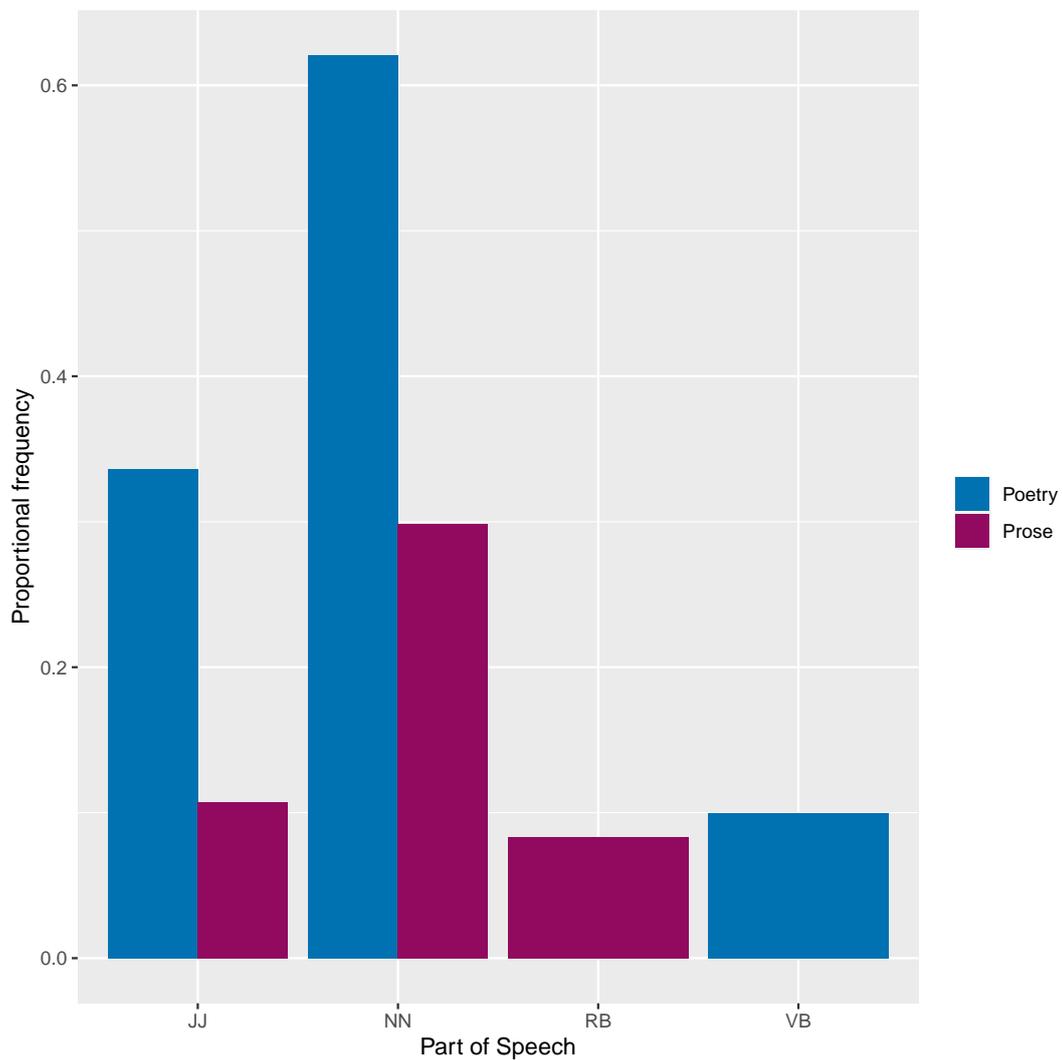


Figure 4.22: Bar chart displaying the proportional frequency of compounded neologisms across part of speech categories, within Milton's prose and poetry.

differences in figure 4.23 thereby confirm that there is a generic divide between those texts with a high frequency of adjectival compounds and those with a low frequency. This is also supported by the results in figure 4.22, which demonstrate that adjectival compounding is more frequent in the poetry than prose. In particular, the early poetry of Milton such as the four mentioned above, and poems such as *L'Allegro* and *Il Penseroso* have higher proportions; whereas later poems such as *Paradise Lost*, *Paradise Regained*, and *Samson Agonistes* have

lower proportions of this type of compound.

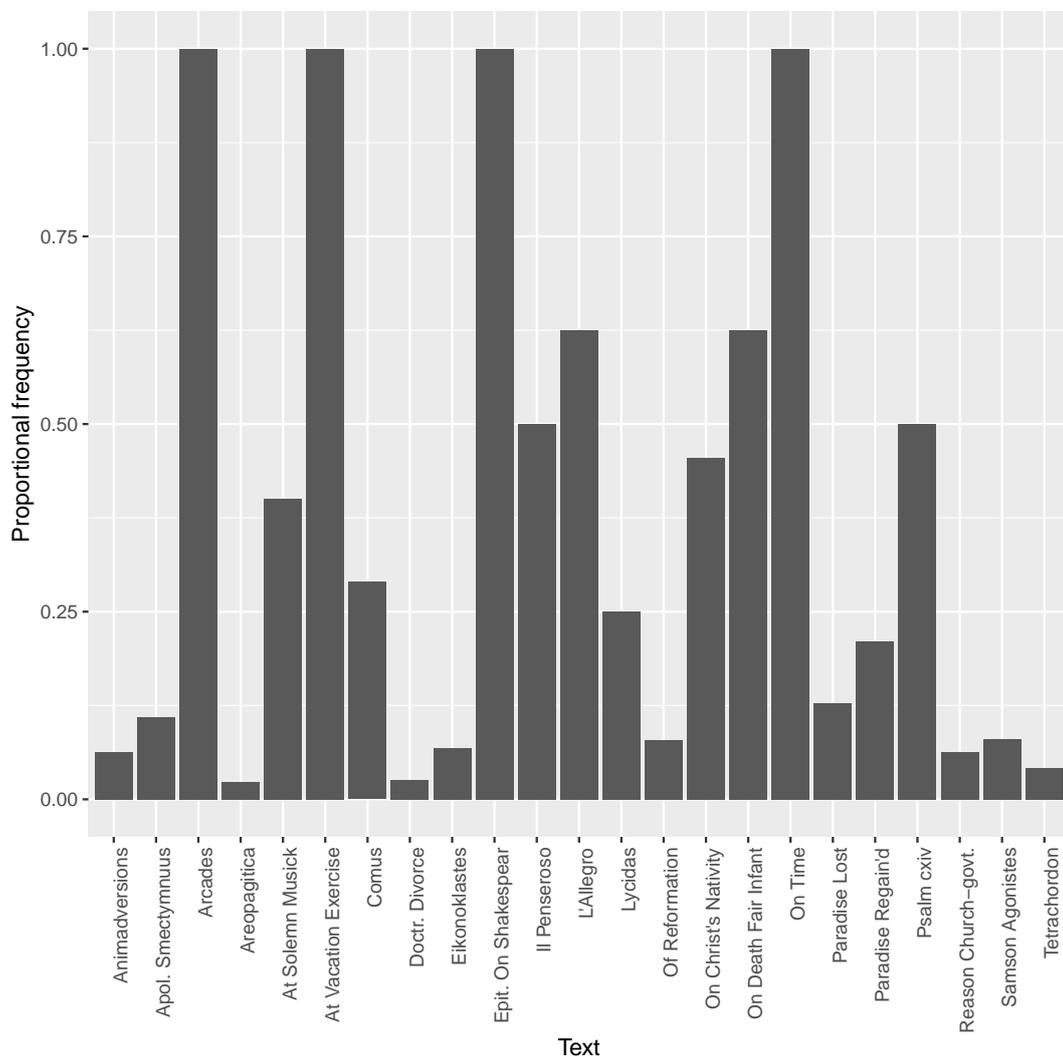


Figure 4.23: Chart illustrating the proportional frequency of Milton's compounded adjectives with his texts.

In his comments on adjectival compounds, Corns (1990: 60) discusses Milton's two later poetic works, *Paradise Regained* and *Samson Agonistes*. He notes that 'compound adjectives predominate' in *Paradise Regained*. This is shown in figure 4.23, with *Paradise Regained* having just over two and half times as many compounded adjectives than *Samson Agonistes*. Corns (1990: 61) gives the examples of 'long-threatened', 'rich-clad', and 'self-deceived'. All of these do not feature

in the compounds extracted from the OED API. However, use of OED Online shows that these entries have been updated since 2010 (20 years after Corns' volume). The older OED versions available online show that, 'self-deceived' is a Miltonic neologism in OED2, which has since been antedated by 43 years to Struther's *Christian Observ. & Resol.*, and 'Rich-clad' is a quotation attributed to Milton and listed as examples in the compounds under 'rich'. Finally, 'long-threatened' was previously listed as an example of a compound in OED2, but has now been replaced with an earlier example from Speed's *Theatre of Empire of Great Brit.*. Both replacements come from non-literary sources - in these cases, a religious guide and an atlas.¹² Although Corns discusses the later poems as examples of adjectival compounding, this thesis has found that the early poems have a greater proportion of compounded adjectives within them.

4.5.2.1 Combining Forms

As mentioned in section 2.1.2, there is a specialist type of compounding which involves the combination of Greek or classical roots. These are known as combining forms and include forms such as 'bio-', 'theo-', and '-logy'. To assess the productivity of these forms within the neologisms of Milton and his contemporaries, the neologisms were searched for these forms via string-matching.¹³ The combining forms extracted were based on the examples given by Plag (2003: 156) and Durkin (2014: 346). The combining forms in Plag (2003: 156), broadly

¹²The compound sections of OED2 and earlier entries are not recorded in OED3 like they are in the 'previous versions' of the entry on OED Online. Therefore, these examples may well have been Miltonic neologisms in OED2, but it is impossible to check using the Online version.

¹³A process where the characters of the combining form were searched for, and any matching characters can then be manually checked for the presence of these forms.

speaking, are taken from modern English, and those from Durkin (2014: 346) are based on early modern English specifically. The results of the string-matching across both Milton and his contemporaries are presented in table A10 in the appendix. Overall, both Milton and the contemporaries use combining forms infrequently as a means of producing new words. Some forms are unsurprisingly absent from the neologisms such as ‘electro-’, given its modern association with electricity. Others are perhaps surprisingly absent, such as ‘poly-’ which is listed in the OED as a form present in the seventeenth century. The most frequent combining form is ‘-logy’, which features in 0.115% of Milton’s neologisms and 0.101% of the contemporaries’ neologisms. This is still a strikingly small proportion of neologisms for both Milton and the contemporaries, suggesting that this type of word formation seems to be unproductive for both Milton and his contemporaries alike.

4.6 Etymons and Borrowing

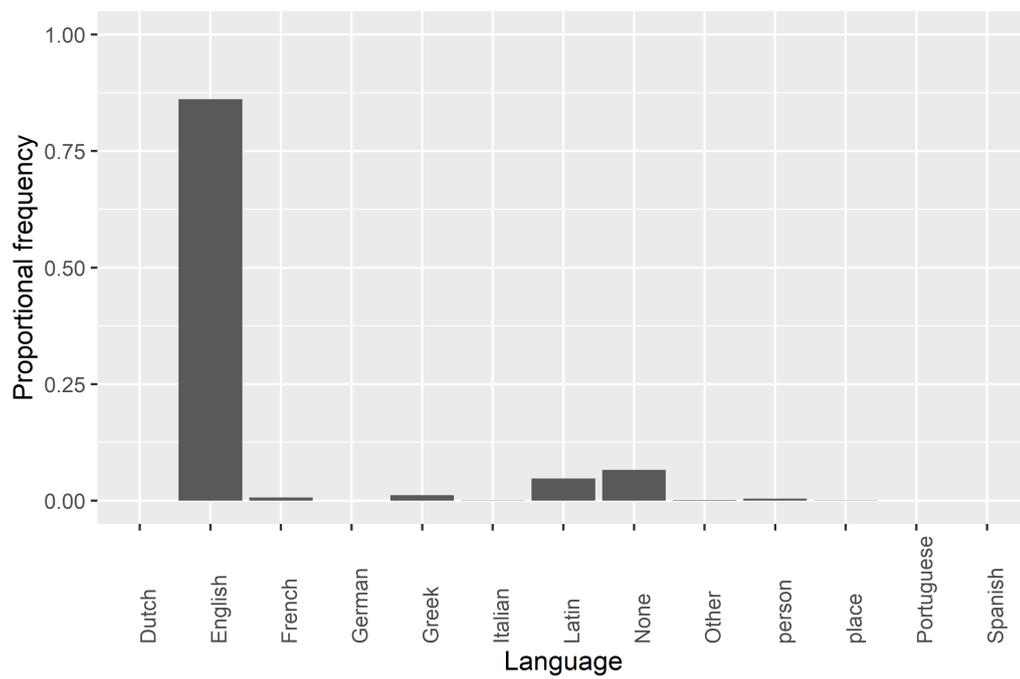
Given the amount of literature surrounding Milton’s use of Latinate resources in his works, this section seeks to address these claims directly.

To do this, the source language for etymons (roots or bases) for each neologism was extracted from the OED data, and the presence or absence of at least one etymon for English or Latin in each was calculated. For example, the word ‘pandemonium’ is made up of three etymons in the OED, of these, two are English and one is Latin. In my analyses, the word ‘pandemonium’ would be

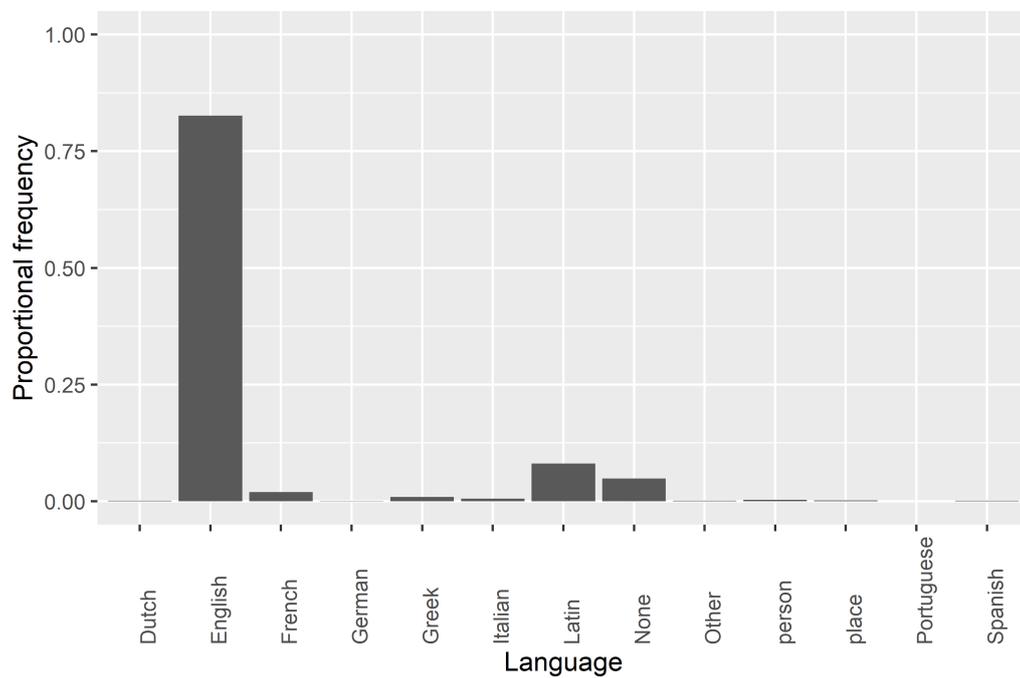
marked for the presence of Latin and the presence of English. However, if a word contains more than one etymon from a single language like ‘pandemonium’, it is not counted twice, but only once for presence of that source language. The use of a presence or absence measure for etymons meant that the results were able to be meaningfully interpreted.¹⁴

To begin, the graphs in figure 4.24 present an overview of how the presence of different source languages are distributed amongst Milton’s neologisms and those of his contemporaries. For both Milton (graph 4.24a) and the contemporaries (graph 4.24b), English is the most frequent language to feature. The proportion of neologisms containing English is slightly higher for Milton, with a frequency of 0.861, in contrast to the 0.826 for the contemporaries. Consequently, Milton appears to be drawing on native English resources (etymons) more than his contemporaries on average. The next most present language in neologisms for the contemporaries is Latin with a much smaller proportion than English (approximately 10 times less). Unlike his contemporaries, Milton uses resources in his neologisms from this classical language less, with a frequency of 0.0473. In the case of Milton, unlabelled OED data (‘None’), features more than Latin etymons in his neologisms. Amongst the other languages in figure 4.24, French is used more by the contemporaries than Milton, and Milton has more Greek etymons present in his neologisms than the contemporaries. However, the dominance of English in figure 4.24 obscures the presence of other languages within neologisms for both Milton and the contemporaries.

¹⁴When an average per etymon was calculated, the graphs fluctuated between solely between zero and one as averages, arguably marking presence and absence as a result.



(a) Milton



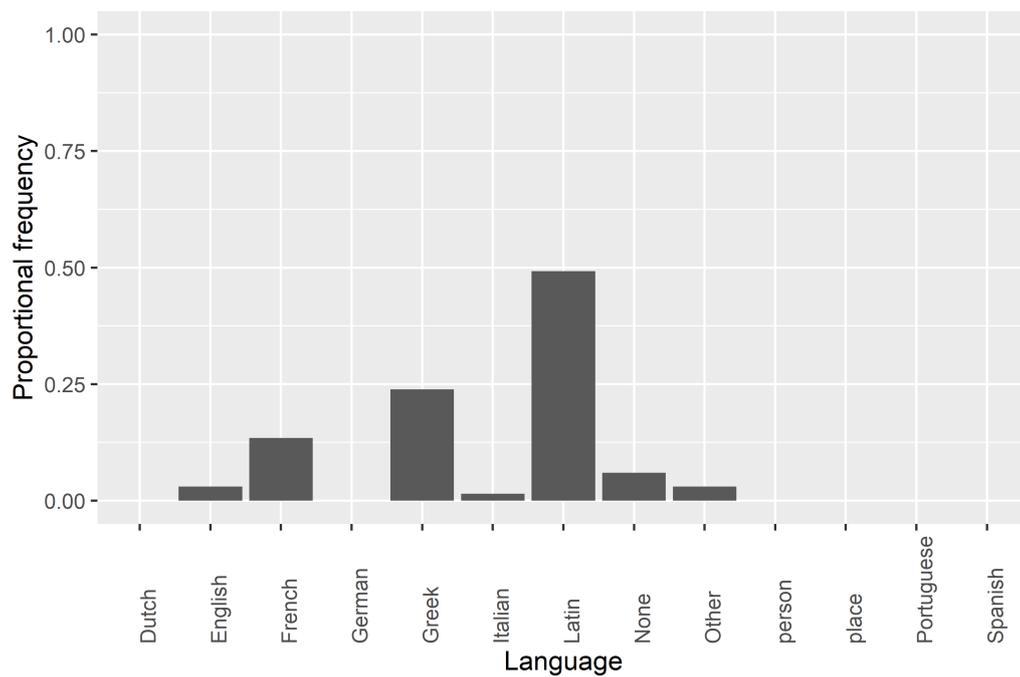
(b) Contemporaries

Figure 4.24: Graphs displaying the proportion of etymon source language across Milton and contemporary neologisms in the OED. Graph 4.24a shows Milton's proportional frequencies, and 4.24b shows the contemporaries.

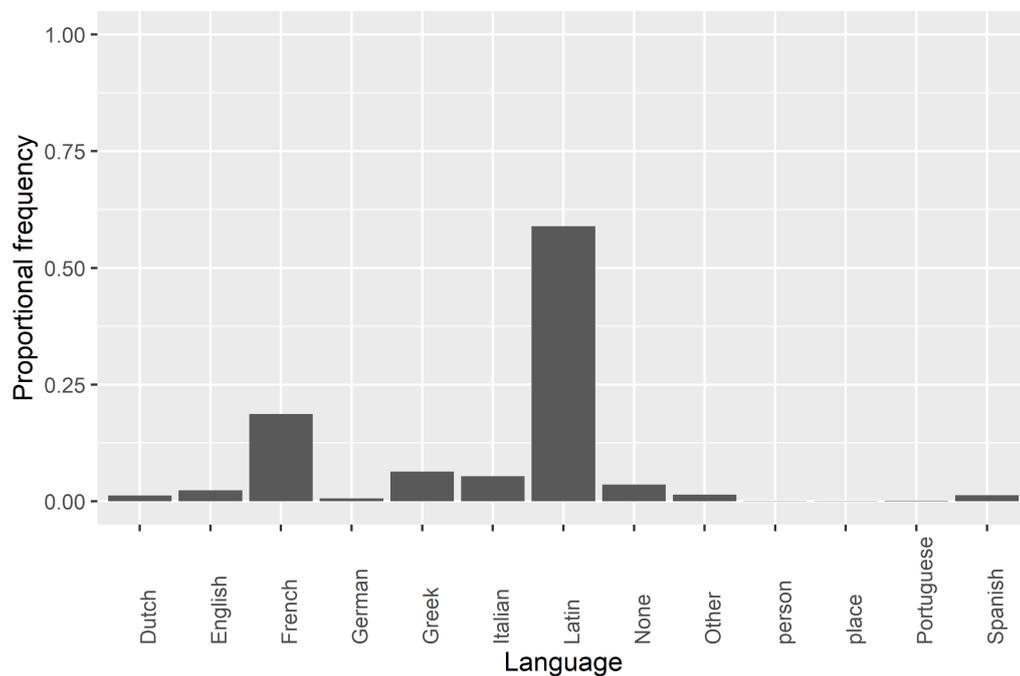
Therefore, when the influence of English is removed and only borrowed sources are considered, we get a clearer view on foreign language sources used by Milton and the contemporaries (see figure 4.25). Again, Latin is the language most present in the neologisms formed by borrowing for Milton and the contemporaries. Like the results observed in figure 4.24, the contemporaries have a higher proportion of this language present in their neologisms than Milton, with a proportion of 0.589 and 0.493 respectively. Again, the presence of French etymons in Milton's neologisms formed by borrowing is less than the contemporaries; with proportions of 0.134 for Milton and 0.186 for the contemporaries. However, something that was not apparent in the previous figure was the frequency of Greek within Milton's neologisms. Greek is the second most present language in Milton's neologisms with a proportion of 0.239; a frequency almost four times that of the contemporaries (0.0632), which was less pronounced in figure 4.24. This is suggestive that the contemporaries may introduce Greek etymons through a different word formation process, other than borrowing, in comparison to Milton.

To test this, the five most frequent language etymons present in both Milton's and his contemporaries' neologisms are plotted with their corresponding word formation processes. Figure 4.26 illustrates the proportion of each type of word formation within the total of each language source. Across both Milton (4.26a) and the contemporaries (4.26b), the presence of English etymons originate from different word formation processes to French, Greek, Italian, and Latin. This is unsurprising given that English is the native language, and native word form-

ation processes are found with the English etymons. For example, derivation, conversion and compounding are typically reserved for the creation of words from native resources, through adding combinations of native affixes, roots, and bases together to create new words. Milton does display slightly different preferences within his English etymons, in comparison to his contemporaries with a higher proportion of derivation (0.591 and 0.547 respectively). However, these differences are only slight between Milton and his contemporaries. Instead, it is between the foreign languages that more pronounced differences are found. Overall, most foreign language etymons are introduced via borrowing for Milton and his contemporaries across all of four languages. Yet, the OED has two distinct types of borrowing: ‘borrowing’ and ‘borrowingHybrid’. As discussed in section 4.5, ‘borrowing’ is a direct borrowing from the source language, whereas ‘borrowingHybrid’ is a type of borrowing which involves combining borrowed features with English affixes or otherwise changing the borrowed form in the process.



(a) Milton



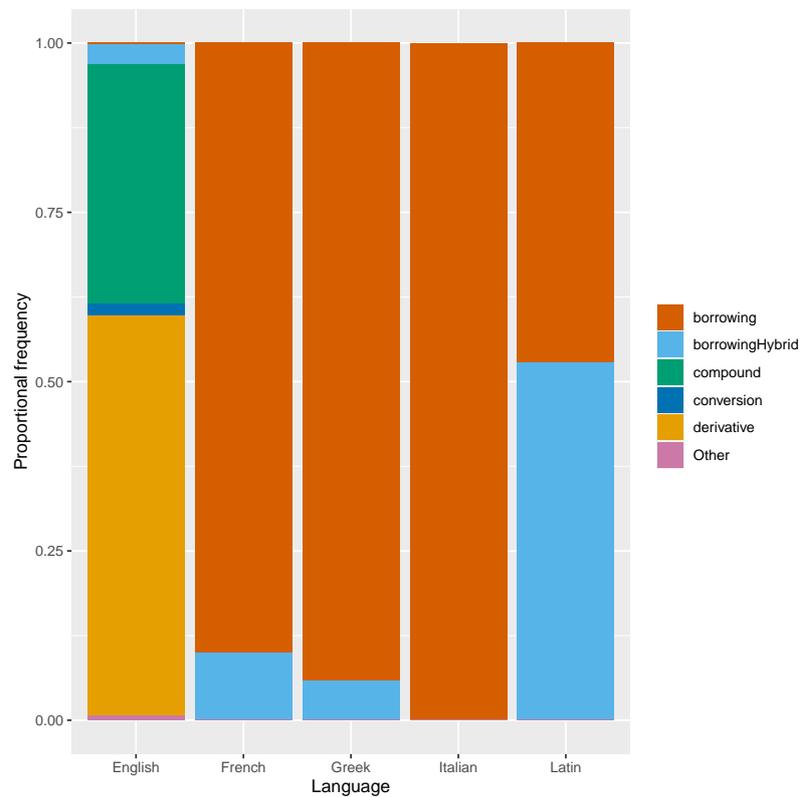
(b) Contemporaries

Figure 4.25: Graphs displaying the proportion of etymon source language across Milton and contemporary neologisms formed by borrowing within the OED. Graph 4.25a shows Milton's proportional frequencies, and 4.25b shows the contemporaries.

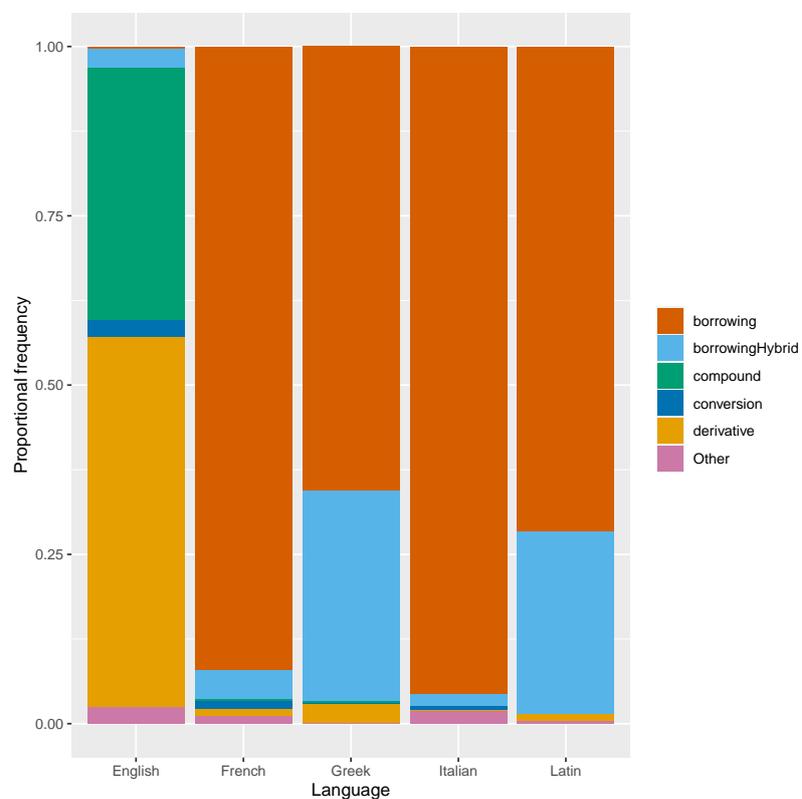
Therefore, how Latin enters Milton's neologisms is of note when compared to his contemporaries. Milton's Latinate neologisms are formed from a combination of these two types of borrowing, but the 'borrowingHybrid' accounts for just over half (0.529) of his Latin neologisms. In contrast, the proportion of contemporary neologisms containing Latinate etymons from the 'borrowingHybrid' formation is 0.269, which is close to half of that of Milton. This is a significant finding, because it means that Milton draws on native resources to combine with his Latinate forms in his neologisms. This result also suggests that Milton does not borrow from Latin directly as frequently, but rather creates English-Latin hybrids in his borrowing. In contrast, his contemporaries tend to borrow directly from Latin more. However, this is reversed for Greek etymons. The contemporaries introduce more Greek etymons through the borrowingHybrid formation than Milton. The contemporary proportion is 0.311, in contrast to a proportion of 0.0588 for Milton which is over five times as much. For Greek, Milton tends to borrow directly from the language itself without introducing elements of English. This suggests that Milton's Greek formations may be closer to the original Greek, which cannot be said for his Latin formations.

4.6.1 English and Latin Etymons

This next section seeks to address the literary criticism surrounding Milton's use of Latinate and English forms in the formation of his neologisms. For comparison, Milton is compared to his contemporaries like the previous sections, but is also compared to William Shakespeare and Sir Thomas Browne specific-



(a) Milton



(b) Contemporaries

Figure 4.26: Stacked proportional frequency graphs of the types of word formation within five etymon source languages. Graph 4.26a shows Milton's proportional frequencies, and 4.26b shows the contemporaries.

ally. Both authors were extracted from the larger OED 1500-1700 dataset and feature within the smaller author subset (see chapter 3.4.1). Shakespeare has become associated with having ‘small Latine and lesse Greeke’ by his contemporary Ben Jonson (Baldwin 1944: 1). This impression was consolidated in the eighteenth century, and has led to Shakespeare being associated with using less Latin resources than other literary authors of the period (Baldwin 1944: 53-74). For example, Leavis (1947: 55), a critic of Milton’s use of English, associates Shakespeare with ‘proper’ English usage: ‘This is the Shakespearian use of English; one might say that it is the English use’. However, since Baldwin’s (1944) landmark study, most scholars agree that Shakespeare did have grammar school Latin and a basic familiarity with Latin literature (Claffin 1921; Enck 1961; Wolfe 2012). The debate has now moved into the digital and the extent of Shakespeare’s ‘small Latin’ continues to be explored (Culpeper 2018). In contrast, Browne has become associated with being influenced by Latin in his writings - with his ‘unusual’ style consisting of a ‘slow Latinity’ (Pater 1910: 126 ,134). Noah Webster (1953: 286), the lexicographer, took exception to Browne’s style and excluded Browne’s texts from his dictionary, insisting that ‘Browne, in attempting to write Latin-English, exceeded all his contemporaries, and actually rendered himself unintelligible’. Although Webster’s comment is highly critical of Browne, it highlights a difference between Browne’s use of Latinate resources compared to his contemporaries - albeit negatively. Therefore, given Milton’s own style being heavily linked to the use of Latinate resources, a comparison with these recognised literary contemporaries with opposing styles may reveal

more about Milton's use of Latinate and English resources in the creation of his neologisms.

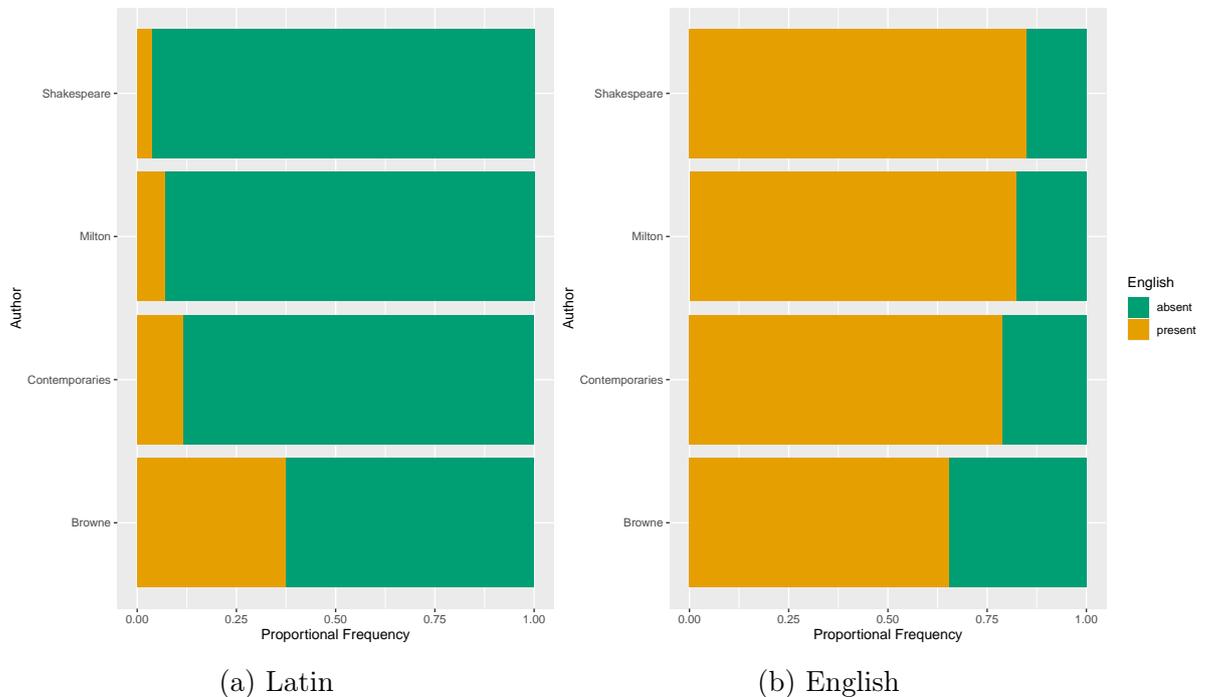


Figure 4.27: Stacked proportional frequency graphs of the presence and absence of English and Latin etymons across the neologisms of Milton, his contemporaries, Shakespeare, and Browne. Graph 4.27a shows the Latin etymon proportional frequencies, and 4.27b shows the English etymons.

Figure 4.27 illustrates the presence and absence of Latin and English etymons in the neologisms of Milton, his contemporaries, Shakespeare, and Browne: graph 4.27a displays the Latin proportions and graph 4.27b displays the English proportions. Beginning with the Latin etymons, Browne has the most Latin etymons present within his neologisms (0.373) and Shakespeare has the least (0.0378). Browne has almost 10 times as many Latin etymons present than Shakespeare. Milton and his contemporaries fall between Browne and Shakespeare, with frequencies of 0.0704 and 0.115, respectively.¹⁵ This shows that Milton tends to

¹⁵The contemporary group plotted here includes both Browne and Shakespeare.

use less Latin etymons than his contemporaries, on average; and when English etymons are considered (figure 4.27b) the trends are reversed: Browne has the least English etymons present (0.655) and Shakespeare has the most (0.850).

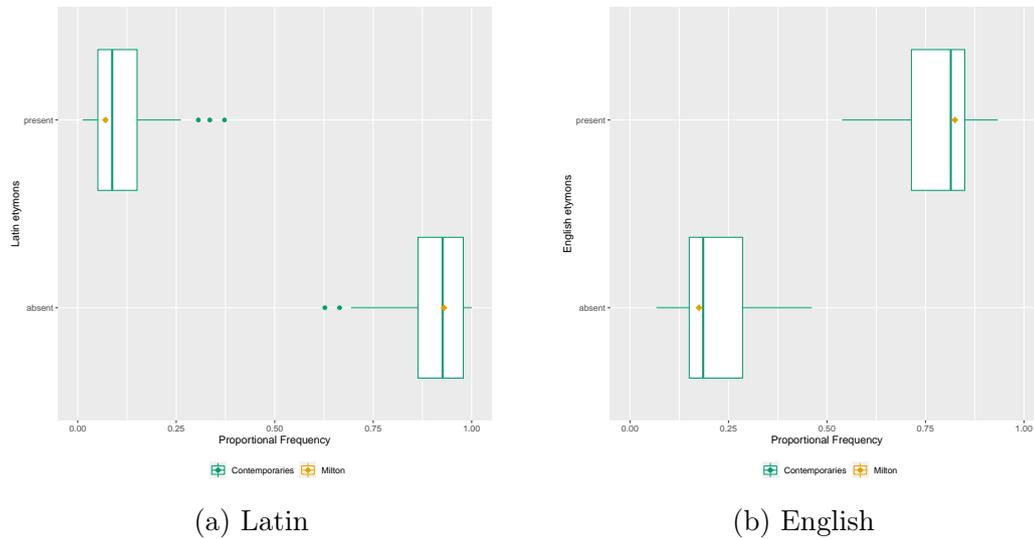


Figure 4.28: Boxplot illustrating the distribution of proportional frequencies of the presence and absence of English and Latin etymons across the neologisms of contemporary authors. Milton’s averages are marked with a coloured diamond for comparison. Graph 4.28a shows the Latin etymon proportional frequencies, and 4.28b shows the English etymons.

When Milton is compared to the individual authors within the contemporary group (see figure 4.28), the global trends in figure 4.27 have some differences. Milton has a slightly lower proportion of Latin present in his neologisms than the contemporary median, and a proportion only marginally higher than the median for Latin absence. Although these differences are less pronounced than the global averages, the presence of some outliers in figure 4.28a seems to affect the global averages. The outliers in the absence of Latin, probably reduced the proportion of Latin absence for the contemporaries; and the same can be said of the outliers in the presence of Latin, which brings the overall proportion up. In

contrast, figure 4.28b does not feature any outliers.

Mathematically, since these two languages are the most frequent across this period, one may assume as one increases as a proportional frequency, the other will have to decrease; due to proportional frequencies having to total one. However, given that these graphs are calculated using the presence or absence calculation described in section 4.6, there is a chance that a word could contain multiple types of etymon (i.e. a Latin and an English one). Therefore, the presence of one type of etymon does not necessarily mean the absence of another, given the way it is calculated. For example, the Miltonic adjective ‘demonian’ has two etymons, one Latin and one English, adding to **both** the Miltonic counts for Latin and English as **both** languages are present within this neologism. That said, there does seem to be some level of correlation between these two languages, as seen in figure 4.27. To assess the possibility of a correlation between these two etymon languages, the presence and absence graphs were plotted chronologically across each author’s career, to assess the relationship between them (figure 4.29).

The eight graphs within figure 4.29 present the chronological distribution of Latin and English etymon presence over the authors’ careers. The graphs labelled ‘L’ represent the Latin etymons and the graphs labelled ‘E’ represent the English etymons. Based on the observations above, in figure 4.27, if there is a correlation between Latin presence and English absence, or vice versa, then this could be observed by tracking the respective parts across the ‘L’ and ‘E’ for each author. The clearest example of this is in the contemporary graph (graph 4.29b): the presence of Latin and absence of English are almost reflected in the

x-axis of the 'L' graph. The bars are not exact mirror images but reflect some similar fluctuations in frequency. For example, in 1646, the frequency for the presence of Latin etymons in contemporary neologisms is 0.362, which is similar to the 0.328 absence of English neologisms. However, there is still a level of underlying difference between the absence of English and presence of Latin in the contemporary neologisms. The minimum amount for English is in 1658, with a frequency of 0.107; whereas the presence of Latin drops entirely to zero in 1671. There is a greater range of values for the presence of Latin and a smaller range for the absence of English. This suggests that there may be a slight correlation, but no direct effect between the languages.

Of all the graphs, the contemporary graph presents the most correlation between the presence and absence of the two languages. In contrast, the other graphs show a greater level of variation. Milton's graph (graph 4.29a) shows that Latin etymons are present from 1640 onwards towards the end of his career. However, the levels present are fairly low and fluctuate across the years: some years have no presence of Latin whereas others peak at 0.167 (maximum). Compared to the presence of Latin in the contemporary graph (graph 4.29b), Milton's frequencies are lower on average. In contrast, Milton's graph for the presence of English etymons shows similar peaks to that of the contemporaries, with Milton having higher frequencies for some years. This again supports the conclusion that Milton may be using more native English resources in his neologisms compared to his contemporaries.

The graphs for Browne (graph 4.29c) and Shakespeare (graph 4.29d) present

an interesting comparison to Milton's. Beginning with Browne, what is apparent in both the Latin and English graphs is a steep fluctuation between presence and absence of these languages. For Latin, the average across the years is a lot higher than any of the other author groups with a frequency of approximately 0.375. The fluctuation does reach 100% in 1669, which is markedly different from all the other authors. Upon checking the number of neologisms for this year, there is only one recorded: the noun 'recurvity'. 'Recurvity' contains both a Latin and an English etymon which is why both languages have a frequency of one for this year. A single count does greatly sway the picture, but the other years do show that Browne has a higher frequency of Latin etymons in his neologisms, both as an overall average and on a chronological level. The presence of English in Browne's neologisms also fluctuates over his career with his frequencies being less than other author groups within figure 4.29. In 1668, there is a large decrease in the presence of English etymons within Browne's neologisms, but this does not seem to be a significant finding when the original data is consulted. Again, this is due to a lack of neologisms, which causes irregularities like this to come to the forefront. Nevertheless, both figure 4.29c and 4.27 aid in illustrating that Browne's neologisms typically have more Latin etymons present within them and fewer English etymons in comparison to the other authors. This presents Browne as being more Latinate and less likely to rely on native English resources than Milton.

Shakespeare's graphs in figure 4.29d have some similar characteristics to Browne's - a combination of a regular proportion of both Latin and English

across his career with a couple of steep peaks. Overall, the presence of Latin etymons in Shakespeare's neologisms is less than all the other authors and is fairly constant at approximately 0.05. However, there is a single spike in the presence of Latin etymons in 1601 with a proportion of 0.600. Upon a closer inspection of this year in the data, these neologisms come from one text: *The Phoenix and the Turtle*. This poem is known for its 'uniqueness within the Shakespearean canon', and it has been remarked that finding stylistic similarities between the poem and Shakespeare's other works has been hard to achieve (Shakespeare 2006: 48). Some have even suggested that only sections of this poem can be confidently attributed to Shakespeare, with the rest remaining unsure (extended discussions surrounding the authority of this poem can be found in Shakespeare (2007), Bednarz (2012) and Connor (2017)). The marked difference of this text can also be seen through the types of neologisms coined within it. Although there are not many neologisms from this text, they do demonstrate a difference to the other Shakespearean works, supporting the literary commentary surrounding this poem. Like the steadiness of Shakespeare's Latin presence within his neologisms, the presence of English within his neologisms is also fairly regular across his career. This is excluding the year 1632, which has no English etymons feature which is due to a single neologism being the entirety of the count. In 1632, the neologism 'flyslow' is actually unlabelled within the OED for etymology.¹⁶ Again, the dependence on small (or single) numbers of neologisms can obscure some of the trends seen, but this can be rectified by inspecting the

¹⁶This may be because this entry originates from OED1, in 1897 and is yet to be updated by the OED.

original data. Like Browne, if figure 4.27 and figure 4.29d are used in combination, it can be concluded that Shakespeare tends to have a lower presence of Latin and a higher presence of English etymons in his neologisms than his contemporaries. This demonstrates an interesting comparison to Milton: Milton uses Latin etymons more than Shakespeare, and English etymons less. However, Milton does fit between his two contemporaries, Browne and Shakespeare, as a middle ground of English and Latin use. This conclusion directly challenges some of the existing literary claims relating to the notoriety of Milton's Latinate style.

The final part of this section seeks to address how these different etymons are distributed in Milton's genres, to test the claims made in the literary criticism. Figure 4.30 presents the proportional frequency of the presence and absence of Latin and English etymons across Milton's genres. In graph 'L', which presents the proportions for Latin, there is a 2:1 split of the present Latin etymons across the Milton genres. Prose has a frequency of 0.0586 and poetry has a frequency of 0.0278. Prose, therefore, has just over double the frequency of Latin etymons present compared to poetry. What is striking about the Latin etymons is the extent of their absence from both genres overall - Latin etymons only make up a small proportion of each genre. This result is perhaps surprising, given the previous research and criticism surrounding Milton's Latinisms. In contrast, graph 'E' shows that English etymons are present in many of the neologisms in both genres. Prose has fewer English etymons (0.830) than poetry (0.889) but still over 80% of the neologisms contain at least one English etymon. Again, this

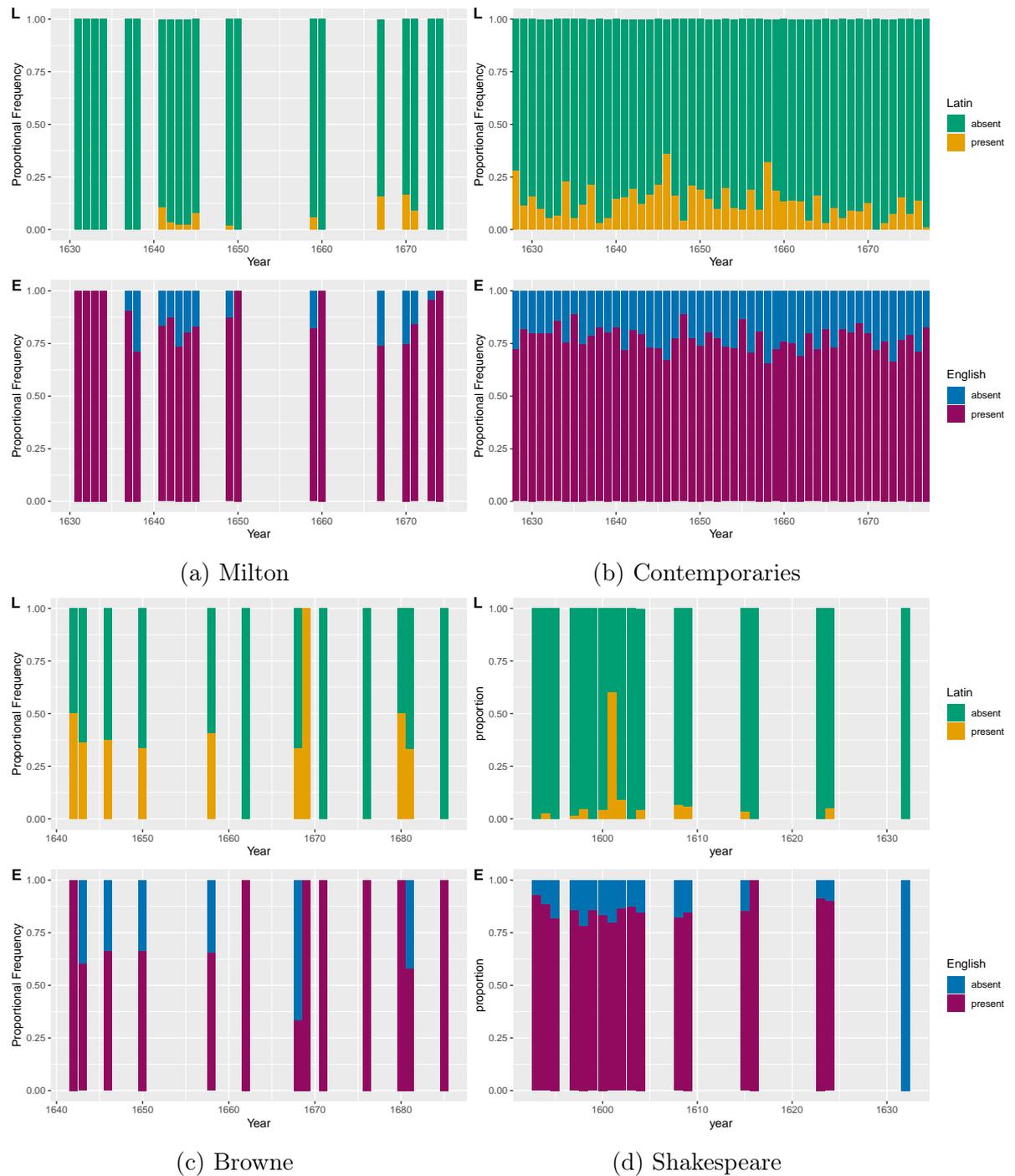


Figure 4.29: Stacked proportional frequency graphs of the presence and absence of English and Latin etymons across the neologisms per year of Milton, his contemporaries, Shakespeare, and Browne. For each author, two graphs, ‘L’ and ‘E’ are presented. ‘L’ represents the proportion of Latin etymons present, and ‘E’ the proportion of English etymons present. Graphs 4.29a illustrate Milton’s neologisms, graphs 4.29b illustrate contemporary neologisms (including Shakespeare and Browne), graphs 4.29c illustrate Browne’s neologisms, and graphs 4.29d illustrate Shakespeare’s neologisms.

is perhaps surprising given that Milton's poem *Paradise Lost* been criticised for being 'UnEnglish', but the neologisms in the OED would suggest this may not be the case, in regards to its neologisms (Haynes 2000: 97).

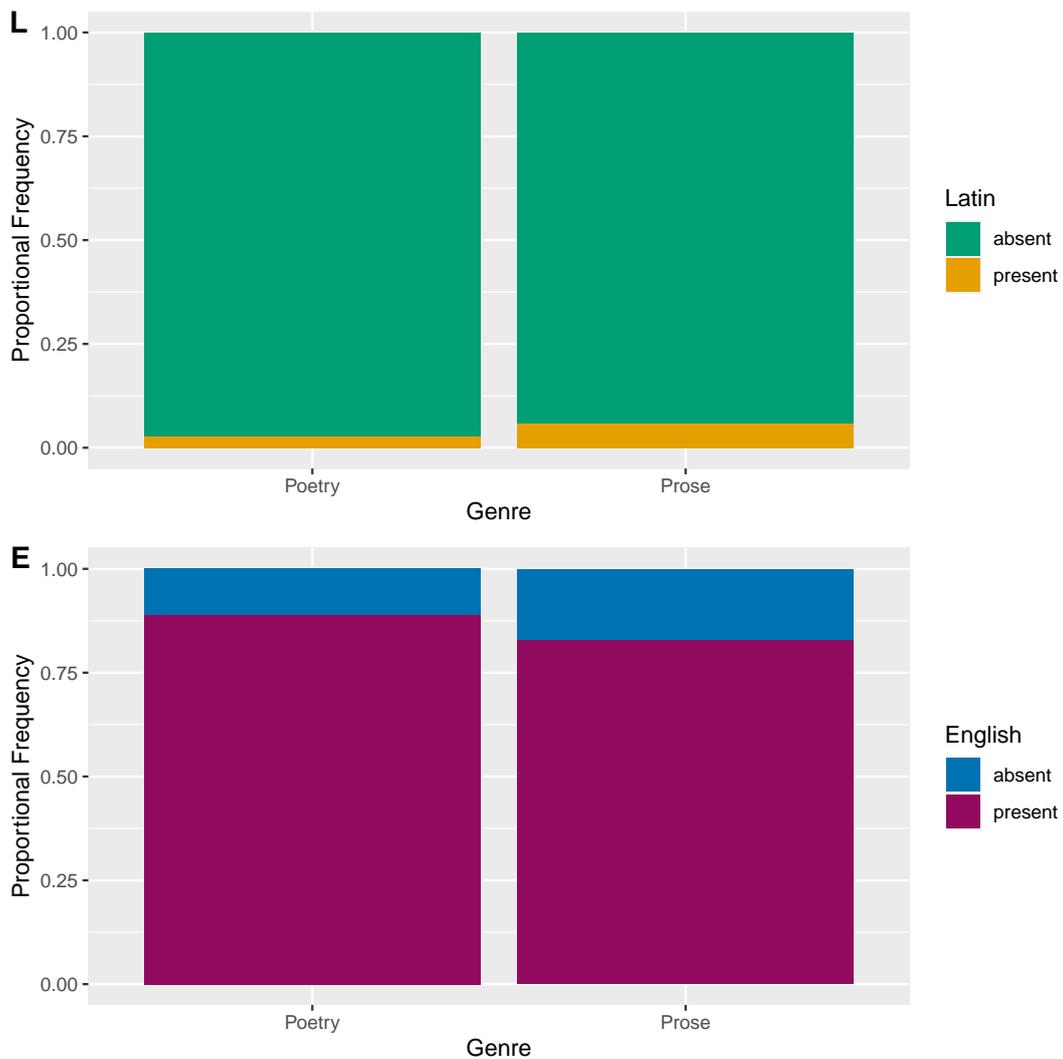


Figure 4.30: Stacked proportional frequency graphs of the presence and absence of English and Latin etymons in Milton's poetry and prose neologisms. Graph 'L' represents the Latin etymon frequencies, and graph 'E' represents the English etymon frequencies.

This chapter has presented results and analysis regarding Milton's neologisms in the OED. Given that this thesis is exploratory in nature, and the results have covered several different linguistic aspects surrounding neologisms, the next

section provides a detailed discussion of these results and some of the wider implications of this study.

CHAPTER 5

DISCUSSION

This chapter presents a general discussion of the results presented above in response to the research questions outlined in section 2.4. These research questions can be summarised as follows:

1. **Milton's Neologisms:** What are the linguistic properties of Milton's neologisms and how do they vary across his works and career?
2. **Milton and his Contemporaries:** Linguistically, are Milton's neologisms different to his contemporaries?
3. **Testing Literary Critical Claims:** How do the results from this thesis compare to existing claims in literary criticism? Especially in relation to comments made about Milton's Latinate lexis.

Alongside responses to these three areas, an evaluation of the method and suggestions for future research are also presented in this chapter.

5.1 Milton's Neologisms

This thesis aimed to assess the linguistic properties of the neologisms credited to Milton in the OED, in order to discover more about the types of neologisms associated with Milton. 867 neologisms were found to be coined by Milton in the OED, but it is the analysis of their linguistic properties that sheds much needed light on Milton's word coining. Through use of the OED API, several different neologism features could be extracted and considered. These included: word class, word formation process, neologism density, and etymon sources. It was found that Milton coins many adjectives in comparison to his contemporaries on average; and within the adjectival neologisms, most are formed via compounding. This result supports the observations of Corns (1990) in his study of Milton's language and neologisms. It was also found that Milton prefers to use native word formation processes, like derivation and borrowing hybrids, in his word creation. On average, Milton uses these formation processes more than his contemporaries. Milton is behind the global contemporary averages for borrowing. This demonstrates that Milton may have been influenced by classical sources less than previously observed, supporting the view of Tillyard (1947: 122) that 'too much has been made of the supposed Latinization of Milton's style'. Another characteristic feature of Milton's neologisms found in the OED is the prefix 'un-'. 'Un-' is a particularly productive formation process for Milton and is used markedly more in his neologisms than his contemporaries. This supports the observations of earlier critics such as Corns (1990) and Patterson (2009c) that

Milton uses this affix often in his neologising. Milton's neologisms do seem to be distinctive from his contemporaries based on several different factors and have characteristics that seem to be Miltonic in nature.

Differences across Milton's neologisms have also been found in the analysis presented in the results section. Some texts from Milton's canon contain a large number of neologisms within the OED, whereas many contain very few. However, the method employed by this thesis uses the entire population of Milton's neologisms rather than a sample, so these differences occur within the real data, and could not be removed through a larger sample size. *Paradise Lost* contains the most neologisms within a single Milton text; yet the prose of the 1640s contributes a similar amount when considered as a whole. That said, when considered as a whole, the 1640s prose contains approximately 4.5 times more tokens (words) than *Paradise Lost* according to EMMA; this results in the prose having a lower rate of neologizing compared to the epic poem, when the word count is acknowledged. When the totals from each genre are considered, more neologisms come from prose than poetry, with each prose text contributing more neologisms on average than the poetry. Within the genres, there is a level of variation, with poetry having more adjectival neologisms on average, and prose more nominal neologisms. Word formation processes also differ overall between genres, with derivation occurring more in prose than poetry, and compounding occurring more in poetry than prose. These results indicate that the neologisms do vary across Milton's career and types of works.

5.1.1 Importance of context: Milton's development

The comparative technique used by this thesis enables observations to be made across Milton's career and works, answering the concerns of the first research question. Corns (1990) also makes comparisons related to Milton's language across Milton's works on a text-by-text basis in his volume, but does not consider Milton's neologisms to the empirical extent presented in this thesis. This thesis aims to further some of the findings from Corns (1990) through empirical observation.

Firstly, there is some variation between the neologisms across Milton's works and career. As discussed in section 4.2, many of Milton's neologisms in the OED come from *Paradise Lost*, and many Milton texts only contribute one neologism. Milton's prose tracts from the 1640s seem to be particularly productive for neologisms, with many neologisms found within these texts in the OED. However, it is the poetic text *Comus* that appears to be the most unusual in its neologism density, with a great number of neologisms found within it. As a result, an extended discussion concerning the neologisms from *Comus* is presented below.

Comus presents a very different picture of neologising than any other Milton text considered. Although *Comus* does reflect some of the characteristics of early poetry, such as high levels of compounding, adjectives, and compounded adjectives like *On Christ's Nativity*, the rate at which these neologisms occur in *Comus* makes it stand out amongst Milton's wider canon. Regardless of its length, *Comus* is very dense with neologisms. Corns (1990: 50) also observes

the ‘lexical inventiveness’ of *Comus* using a token-type calculation, but he does not account for variation in text length, which is problematic. To overcome the issues of differing text lengths across Milton’s canon, this thesis proposes a type density measure, which seems to successfully account for variation in text length based on preliminary tests (see section 4.3). The measure used in this thesis found the same results as Corns (1990), but with a sensitivity to text length. This measure found that 8% of *Comus*’ vocabulary are neologisms: a very high proportion and over double the density of the next highest. When considered amongst Milton’s works, *Comus* presents a significant difference in neologism density from the other texts, including other earlier poetry; so why might this be the case?

Although this thesis does not find any particular linguistic properties of the neologisms within *Comus* to explain this difference, a number of suggestions can be made. Firstly, the genre of this text is different from most of Milton’s other works. Although *Comus* is an example of Milton’s poetry, it is specifically a masque. Across his career, Milton did not write many masques like *Comus*, the only other similar text is the pastoral entertainment *Arcades* (Corns 2012: 235). However, when the neologism density is considered for *Arcades*, *Comus* becomes even more distinctive: *Arcades* has a density of less than 0.01, in comparison to over 0.08 for *Comus* (using the type-density measure proposed). Therefore, given that *Comus* differs in its neologising from *Arcades*, which was written around a similar time (1632 and 1634 respectively (Corns 2012: 17, 234-235)), it suggests that something unique is occurring within *Comus*. This observation

supports previous literary criticism, which presents *Comus* as different to other contemporary masques, with its focus on ‘verbal display’ rather than the visual (Corns 2012: 235). The focus on the verbal is also reflected in the particularly high proportion of neologisms within *Comus*, suggesting that Milton may have been more experimental in this work. For example, two neologisms feature within the two lines: ‘Such are those thick and gloomy shadows **damp** | Oft seen in **charnel-vaults** and sepulchres’ (476-7). Here, the adjective ‘damp’ adds to the visual description of the shadows, and the now obsolete, ‘charnel-vaults’ adds to the archaic style of the piece (Munro 2013: 170). *Comus* is therefore perplexing and interesting in the extremity of its difference from other Miltonic texts considered within this thesis. A possible future study could consider all the lexis within this masque, to uncover why this text appears to be so distinctive from others within Milton’s canon.

Another difference found in Milton’s neologisms is between literary genres. Even across Milton’s literary career, the results from this thesis show that poetry and prose texts tend to cluster together with similar neologism properties. For example, the prose texts demonstrate a preference towards a higher presence of Latin etymons, a greater proportion of words created with the affix ‘un-’, and more neologisms formed via derivation, in comparison to poetry. This may be due to the different communicative purposes of prose: that is, to persuade or argue. Milton may depend on different formation processes to illustrate his arguments. The high proportion of compounding found within the poetry may also be typical of the style that this type of literary text demands. Milton may

be more likely to be descriptive in his epic, than in his polemical tracts, so will produce more compounded neologisms to achieve this type of style. Examples of this compounded style include: ‘and reck’nst thou thy self with Spirits of Heav’n, **Hell-doomd**’ (Book II, 696-7), and ‘Beside him hung his Bow And Quiver with **three-bolted** Thunder stor’d’ (Book VI, 764). Again, these preliminary findings from this exploratory thesis would benefit from further research. It would be interesting to compare the features of Milton’s genres with others from across the period. This data was added manually to the Milton texts in this thesis, so the results were limited to a comparison between the Miltonic genres. However, if these labels were added to contemporaries, it would shed light on how word creation may vary between genres across authors, rather than just for Milton.

Analysis of Milton’s individual neologisms in the OED demonstrates that Milton does have some distinctive preferences related to word coining across his career. These preferences vary between genres and fluctuate within certain texts, with the prose of the 1640s marked as a particularly prolific period of Milton’s neologising, and different word formation processes used for poetry and prose. Similarly, *Comus* illustrates that variation is also found between individual Miltonic texts, with some seeming more innovative than others for word creation.

5.2 Milton and his Contemporaries

This thesis set out to assess Milton's neologisms and compare the trends to his contemporaries, as stated in the research questions presented in section 2.4. In approaching these questions, an important methodological and conceptual realisation was found: contextualisation. Contextualisation is crucial to distinguish between what is characteristic of Milton, and what may be a feature of the wider sixteenth and seventeenth centuries. Some previous studies have called for contextualisation of the linguistic climate to aid in the identification of unique features (Corns 1990: 9, 50); however, these studies were limited to the 'accumulation of close readings of pertinent examples' to reach conclusions regarding Milton's lexis, because computer technology and the availability of early modern texts were limited at the time. Yet, over the past thirty years these limits have been overcome, so Milton can now be compared to his contemporaries comprehensively, and this thesis is one of the first to do this on a large empirical scale.

Given that the most meaningful conclusions about Milton can be drawn when he is compared to his contemporaries, a comparative approach became a fundamental part of the method adopted by this thesis. Unlike other studies that may only sample a few authors for the sake of comparison (Emma 1967; Schäfer 1980; Corns 1990), this study places Milton amongst 57 of his close contemporaries to assess Milton's unique characteristics. This contextualisation contributes to the assessment of whether a linguistic feature can be truly classed

as ‘Miltonic’ or not, within both the larger contemporary averages and amongst individual contemporary authors. The larger groups and averages illustrate the global trends of the period. However, if an author contributes a large number of neologisms to the overall total of this group, this could greatly alter the results. For example, Shakespeare has 2,381 neologisms within the dataset of 17,751 neologisms (13.4%), so his personal coining behaviours could affect the impression captured within the averages. Therefore, the boxplots presented throughout the results section aid in contextualising these contemporary results further, by acknowledging the neologisms of individual authors. This enables comparisons to be made across literary figures: who coins words similarly to someone else? Do authors that write on the same topics/genres cluster together in their word formation processes? Who are the most innovative writers in this period? All these questions are possible to answer through global and individual comparison across this dataset. A future study could consider these questions more comprehensively than could be done within the space of this thesis. For example, comparison between famous literary figures could demonstrate similarities and differences between their word coining, and aid in improving our understanding of how authors may innovate the English language.

Returning to the author at the heart of this thesis, John Milton, the methodological consideration above has enabled some particularly distinctive features of Milton’s lexical innovation to be found. For example, 51.7% of Milton’s neologisms are found to be adjectives: this is a large proportion. However, it is not enough to say Milton coins a large number of adjectives. It could be that this

proportion is low scoring in comparison to other authors within the period; for example, Marlowe has a higher proportion than Milton (53.6%). Without the contextualisation, we cannot draw a meaningful conclusion as to whether this is a feature of Milton's word coining or merely a feature of the period. When contextualised, this finding is found to be a distinctive feature of Milton's neologisms - on average the contemporaries have a smaller proportion of adjectival neologisms (35%). Even when individual authors are considered, Milton still ranks fifth of the 58 authors sampled. This demonstrates that Milton is unusual in coining this many adjectives. In contrast, when word formation processes are considered, combining forms seem to be an unproductive process for Milton. At only 0.115% for the most common combining form, this is a very small proportion. One could therefore claim that Milton does not use combining forms in his neologisms, and that this is a feature of his coining. However, when compared to the contemporaries, this low frequency is also found. Therefore, the unproductivity of combining forms is not a feature of Milton but rather of the wider period. The extent to which Milton's neologising is different can be assessed through the comparative method employed by this thesis - advancing our understanding of Milton's word formation in comparison to his contemporaries.

Beyond Milton, the results from this empirical study may suggest that other authors could also vary their word formation between genres and across their careers. Through a sensitivity to both of these potential influences on Milton's word coining, it has been shown that an author's neologising is more complex than counting the number of neologisms within a lexicographic resource, which

previous studies have presented (Alexander in Crace (2008)). Instead through exploring the types of neologisms for an individual author, and comparing to others, this thesis can suggest that an author's innovation is linked to the linguistic climate around them. The clearest example of this is the 'un-' affix in the global 1500-1700 data in comparison to Milton. The peak in the 1640s-1650s are reflected in Milton's own use of 'un-' in his neologising. This could suggest two possible things: Milton was sensitive to the language being produced around him and used this to influence his own coinings, or Milton was an influencer of this change, with his own use of 'un-' encouraging the uptake of this affix to those around him. The productivity of this particular affix works as an indicator of this link; although the cause and effect is unknown without further research, this finding does demonstrate a similarity in the use of this affix between Milton and the contemporaries recorded in the OED. This example supports the idea that literary neologising is a complex issue, with authors being sensitive to the language within the communities around them. A possible area of future research could be to explore the relationship between the contemporary trends and individual authors to identify influential word coiners.

5.3 Testing Literary Critical Claims

Throughout this thesis, the established literary criticism surrounding Milton's language use and neologisms has been presented. The results from this thesis aim to extend, support or challenge these views from a digital and quantitative

standpoint. In most cases, the results from this thesis have supported existing criticism.

5.3.1 Latinisms

One aim of this thesis was to assess the literary critical claims surrounding Milton's Latinate lexis and neologisms. As outlined in the literature review, Milton's Latinisms have been assessed and criticised over the centuries, with some questioning the extent of this impression found by the likes of Pound (1917), Leavis (1947) and Eliot (1948). This thesis has found supporting empirical evidence for the perception that Milton's Latinate lexis has been overestimated by early critics (Tillyard 1947; Boone 1953). It has been shown in the results that Milton favours the use of native English resources slightly more on average than the contemporary group, and is also behind his contemporaries on average in borrowing lexemes and morphemes directly from Latin. Instead, Milton has a higher proportion of borrowing hybrids - those words that are formed by combining a borrowed Latinate element with a native element in the OED. An example of this is the Miltonic coining 'contradictive', which is formed from the Latin borrowing 'contradict' and the native suffix '-ive'. The difference between these two types of borrowing is an important finding in relation to literary criticism surrounding the Latinity of Milton's lexis. Differing sides of the debate have proposed that Milton uses either Latinate elements or native elements in his creation of Latinisms, with few critics suggesting that both languages may actually combine in a single neologism. The closest result to those presented in

this thesis is from Bradley (1904) and his analysis of the OED, 100 years prior to this study. Bradley found ‘potentially English words’ in Milton’s neologisms and explains that these words are produced by ‘anglicising’ Latin words, which is similar to the borrowing hybrids found in this thesis. The quantitative nature of this study aids in providing supportive evidence for the observations made by Bradley (1904). Other empirical investigations have also found that the number of Milton’s Latinisms are less than proposed by the Anti-Miltonists (Boone 1953), and this empirical study is no exception to those before. The quantitative findings challenge the criticism from Pound (1917: 154) who argued that Milton tried ‘to turn English into Latin... distorting its fibrous manner’. The results from this thesis have actually found the opposite: Milton turns Latin into English through combining it with native English elements in his borrowing hybrid neologism types, rather than drawing on direct borrowings from Latin. In a way, both sides of the Latinity debate are correct: Milton is using Latinate **and** native resources in his word formation. So, the results in this thesis suggest that ‘Milton’s English is fully English but also more than English’ with Milton’s blending of English elements with Latinate borrowings to create new words.

From a linguistic perspective, the combining and mixing of elements from two different languages is of interest - it reveals important details surrounding the author’s potential proficiency of both languages. When Milton’s Greek borrowings are also considered, this adds a further level of complexity. In the case of Greek, Milton borrows directly from the language and rarely combines Greek morphemes with native English resources: a markedly different approach

to his Latin borrowings. This could suggest contrasting levels of proficiency in these languages, or that Milton used these two languages differently. Several individual or social factors could have caused this difference to arise. Gallagher (2019: 102) argues that linguistic competence of foreign languages in early modern England is not a 'simple binary between fluent and not', but rather depends on the needs and experience of the individual. Larger social reasons for this difference could include the prestige of each language, or the familiarity of each language within the speech community (Haspelmath 2009: 35). Although most of the literature surrounding historical borrowing relates to larger systemic language change, rather than the effect of borrowing on the writings of individuals, principles from this could aid in explaining the difference between Milton's Latin and Greek borrowings. For example, Thomason and Kaufman (1991: 50) present a borrowing scale for contact-induced language change, which ranges from casual contact where only lexical items are borrowed, to intense contact where whole subsystems or grammatical structures may be borrowed alongside lexis. With these principles in mind, it could be said that Milton's contact or engagement with Latin is more intense than his Greek. He borrows lexical items from Greek but combines Latin with native grammatical elements in his borrowing hybrids. Individual preferences and experiences or larger societal language contact may offer possible explanations for this difference: Milton's experience of the Greek language may have been different to that of Latin. Either way, the empirical data in this thesis has shown a difference between the borrowing of these languages by Milton. A future study could consider this implied result in

more detail, to assess and suggest why this difference may be present. Further work could also consider the grammatical aspects of this debate, and whether Greek or Latin syntax has also been adopted by Milton (see Quamen (2018) for a grammatical comparison between Milton and Bunyan).

One of the limitations (or potential benefits) of the OED is its presentation of lexemes on a historical basis. Consequentially, if a word has been found to already exist in English, its etymon source is labelled as English. This is regardless of whether the word may have originally come from a different source language. For example, the neologism ‘pulpited’ is labelled as a derivative within the OED (as formed within English with existing English lexemes). However, the noun ‘pulpit’ is partially borrowed from both Latin and French, according to the OED. Milton may have been aware of the origins of the noun before adding the ‘-ed’ affix to convert it into an adjective; but this information is removed for the ‘pulpited’ entry in the OED, as the noun ‘pulpit’ already existed within English by this point. The historical properties of the OED can be helpful in uncovering whether lexemes Milton may have already been institutionalised into English. It would show whether Milton was drawing on accepted English words in his word formation. However, this is also a possible limitation, as Milton would have known the etymologies of these words and may have favoured existing English words that originally came from Latin, Greek, or French. The tracing of these etymon sources adds a level of complexity to digital research, as the etymology of each base and root, would have to be retrieved alongside the Miltonic word in question. If this could be achieved, it may enlighten some of the results found

in this thesis beyond the label of 'English'. For example, was Milton drawing on specific types of English words? Did Milton prefer using words which originated from a certain source language? All these questions would be interesting areas of future research and would aid in expanding on the results presented in this thesis.

In the literature, Bradley (1904: 235) argues that 'if Milton had not used these ['potentially English'] words some one writer of the period would almost certainly have done so... without any consciousness of innovation'. This quotation suggests that Milton was not extraordinary in his innovation, but rather a product of his time. The results in this thesis directly challenge this view. Although it has been found that some coining tendencies are shared between authors of the period, the extent to which these are similar can be inferred from the trends observed in this thesis. For example, we can profile Milton based on the quantitative observations related to his Latin borrowings: Milton has a low score for direct borrowings and a high proportion of borrowing hybrids. Are there many other contemporaries that share these features in their Latinate borrowings too, and if so, who are they, and why might this be the case? When the data collected by this thesis is consulted for the co-occurrence of both features, a small number of authors were found to have a similar borrowing profile to Milton. These are: Davenant, Marvell, Dryden, and Pepys. Only these authors (of the 57 sampled) directly borrow from Latin less than Milton, and create more Latin borrowing hybrids than Milton. To a literary scholar, the clustering of these authors together in relation to their Latin borrowings may not be surprising. All

these writers, including Milton, share a similar education (they attended either Oxford or Cambridge University), which would have enabled them to be trained extensively in the Latin language (Hager 2004). The educational similarities between these men may explain the borrowing profiles found by this thesis. Although this result is suggestive and would benefit from further research; it does show that similarities can be seen certain groups of authors when more than one linguistic feature is considered together. That said, very few authors share a similar borrowing profile with Milton, so Bradley's (1904: 235) comments about Milton's lack of individual innovation is disproven by this thesis. Instead, words like these 'potentially English words' may have been coined, but not in the same manner as Milton may have done. Instead, they may have been more directly borrowed from Latin. Therefore, Milton's use of Latinate lexis is unique in comparison to others within the period investigated as shown through his borrowing profile presented above.

5.4 The OED

In addition to extending understanding surrounding Milton and his neologisms, this thesis has introduced a new approach for collecting data for literary research. Use of new API technology facilitated large-scale and detailed analysis of the OED, in order to answer the research concerns of this project. This is one of the first studies to access and use the OED data in this way - illustrating how this type of API technology, and how modern data-driven methods more generally,

can be used to shed new light on long standing questions in English literature and the humanities.

5.4.1 The OED API: a new methodology

The OED API offers a new way to access the data behind the OED Online, and this thesis is one of the first to use it as part of a methodology. Although the API was in its prototype stages when used for data collection in this thesis, it enables new searches to be conducted on the OED data. For example, the API enables the 1500-1700 date range and first in entry inputs to be selected, which places focus on early modern neologisms specifically. This sort of specialised search is limited on the OED Online, and would require the data in each entry to be extracted manually. The API enables this to be automated and done in a systematic fashion - encouraging research across entries and lexicographic data fields. To do this previously was time-consuming and labour-intensive.

However, the API does have some challenges. The first of these is accessibility: researchers must apply for and be granted access from the OED directly. The API is not available for research use without this. Also, the API is currently only accessible via writing scripts to retrieve the required data. For researchers without scripting skills this could be problematic. However, in future versions, the OED may release a front-end or user interface to enable the API to be used by those without coding experience.

Another challenge when using the OED API is data transparency: the data belongs to the OUP and is not able to be distributed or shared. This causes the

replicability of my study to suffer. This is multiplied with the ongoing revisions to the OED data, which affects the consequential outputs of the API - another researcher is not able to retrieve the exact same data as I did. The data used in this thesis was retrieved from the API on February 14th 2019. When I retrieved my data, there was no ability to timestamp or backdate the data with the date of retrieval, which is problematic.

That said, the OED API represents a new landmark in OED-based research - lexicographic data is now able to be retrieved from the OED database in real time (i.e. as up to date as the website). The data retrieved is formatted into a standard response, that can be extracted using computer scripts to create databases, which can then be used for large-scale quantitative research. Previously, the OED has been criticised for its lack of accessibility for researchers, with some writing scripts to extract information off the CD-ROM, and others using the limited search options online. The API changes this. Researchers' scopes are no longer limited by the search formats of the OED Online, but researchers can expand their research concerns based on the new data available in the API (such as author gender and OED revision dates). The API may encourage new tools to be developed for researching the OED: for example, the OED has released a OED Text Visualizer (in Beta stages) based on the API. This tool enables researchers to explore the origins of words in texts inputted into the system (Oxford University Press 2020). As the OED API evolves over time the issues discussed above may be rectified, and other research tools may be developed, making the API an exciting prospect for the future of OED-based research.

5.4.2 Peculiarities of the OED

The OED is an invaluable resource for historical linguistic research, as the dictionary contains a wealth of data within each entry. However, the OED does have some issues, which were discussed in section 2.2. Some of these issues were also found in this study and are discussed below.

With the criticism surrounding the age of some of the data within the current OED, which version of the dictionary to use was considered greatly at the start of this project. Following discussions with the OED, the edition data and revision information was added to the API, before data was retrieved for use in this thesis. Unfortunately, this information only labels entries as updated or not - it does not provide any further details about the revision. This is particularly frustrating, given that OED3 revision process is overwriting previous editions of the dictionary. Sole use of OED3 was considered to overcome the issue of contrasting scholarship; however, this greatly limited the data available for analysis. The OED revision process has focused on the letter range M-R, which investigation of the API data suggests is around 90% revised as of February 2019. In contrast, the rest of the alphabet remains fairly unrevised. This is particularly problematic for the types of features this study sought to investigate, such as specific affixes. The prefixes researched in this thesis, like ‘un-’, ‘self-’, and ‘arch-’ are yet to be updated in OED3, so use of OED3 would meant investigations into affixes could not have been done. Therefore, a decision was made to continue with all OED data, embracing a large-scale quantitative approach. The inclusion of all

of the OED, as it stands, meant more questions could be asked of the data, as limits on the types of words updated were not imposed.

The results in this thesis are therefore potentially unstable and may change as the OED continues to be revised. However, as it stands there is no other dataset to investigate the questions posed by this thesis. The OED contains a wealth of lexicographic information, and the contrasting ages of scholarship have been acknowledged as a possible issue. Once the OED3 revision is complete, this study could be replicated to observe changes between revisions, and also to ensure the results hold up to the scrutiny of modern lexicography.

Secondly, the OED presents the publication date for literary works rather than the composition date. This would explain why Milton's poetry groups at either end of his life. This causes some texts to cluster in certain years, due to the publication of collected works; for example, the 44 poetry neologisms in 1671 are from *Paradise Regained* and *Samson Agonistes* which were published together in one volume. In 1645, Milton published a volume of his Latin and English poetry. Some of these poems Milton wrote at university between 1625 and 1632, such as *On Christ's Nativity* and *On Shakespear*, but they did not appear in print until this volume was released in 1645 (Corns 2012: 64, 261, 287). Similarly, *On the Death of a Fair Infant* was probably written around 1627 but did not appear in print until 1673, so is listed in the OED 46 years after its probable composition (Corns 2012: 261). However, this dating issue does not arise with the prose works which tended to be published shortly after composition.

Therefore, it is important to be aware of this when looking at dates within the OED, as some observations may not be accurate when considered diachronically. Given the uncertainty surrounding some of the composition dates of Milton's works, to compare the texts by publication date offers a satisfactory compromise. Texts can be considered individually if composition dates are known, such as in the results section above (section 4.3). Fortunately, this editing practice means that Milton's publication dates are compared to his contemporaries' publication dates too, ensuring a level of consistency is kept in the analysis. Yet, it is an important factor for those using the OED for historical linguistic work to be aware of.

5.5 Future Research

This study provides an example of how the OED and quantitative historical linguistics can uncover some of the characteristic word formation processes for a specific author. Although the current research focuses predominantly on John Milton, any author found in the OED could be explored using the methods employed in this thesis. This thesis presents a rudimentary blueprint for exploratory and comparative research of literary neologisms. There is scope for the methods and principles used within this thesis to be expanded to the wider canon, either the larger seventeenth century or even across the whole of the English literary canon. Like the example in section 5.3.1, comparisons across lexicographic fields could confirm some of the theories and findings of literary criticism on an em-

pirical footing. The lexicographic data within the OED could also be used to profile large literary figures and enable comparisons to be made between English literary figures within the OED.

CHAPTER 6

CONCLUSION

This thesis shows that use of the OED can enlighten literary discussion surrounding literary neologisms. Through an exploratory and experimental approach, employing a new methodology, observations could be made about the neologisms of John Milton and his contemporaries. The results show that the neologisms of John Milton are distinctive, which supports previous claims made in the literature. However, this thesis extends previous work by displaying **how** the neologisms differ from other authors. This is done by contextualising the neologisms of Milton amongst 57 of his contemporary authors. The number of authors sampled in this thesis is greater than previous studies, providing a greater overview of the literary neologisms of influential authors in the sixteenth and seventeenth centuries. For example, Milton is found to favour the use of native English resources, rather than foreign sources, in the production of his neologisms. Whereas, his contemporaries make use of these foreign sources more, on average. Milton is also found to use a higher proportion of ‘borrowing hybrids’

within his Latin borrowing, thereby forming English-Latin hybrids, rather than directly borrowing from Latin. This again contrasts with the average practice of the time.

More broadly, it has been found that literary neologisms are complex - they can vary throughout an author's career, reflecting trends in the wider period. The neologisms can also vary in their characteristics depending on the works from which they are taken. Through a holistic, yet detailed, study of these neologisms, observations can be made across periods of an author's career or on a text-by-text basis. Although ideas about neologisms have been approached in literary study, they had not been quantified or contextualised to the extent presented within this thesis. This thesis marks a new approach in the study of literary neologisms and how they can be studied for canonical authors such as John Milton.

This thesis also demonstrates the value of applying principles from the digital humanities in this particular area of literary study. To bring literary neologisms into the digital, through conducting a large-scale, computational and quantitative, study benefits this field. Previous studies, such as Corns (1990) were limited to close reading examples due to limited computing power at the time. These close-reading approaches have their benefits in focusing on certain features in detail but are limited to the ability of human recognition and cognition. Larger-scale digital methods remove this limitation and enable new observations to be made at a wider level. When paired together, like in this study (i.e. begin with the wider digital method and use this to guide the analysis of specific

features/examples), this becomes a powerful combination of computing power and human sensitivity. The approach employed by this thesis has expanded on existing research and presented new ways of perceiving the complexity of literary neologisms. This thesis has also provided supporting empirical evidence for previous literary research. Large-scale quantitative analysis is therefore valuable in not only adding to research, in areas such as literary neologisms, but also in confirming and challenging existing research.

APPENDIX I

Neologism	Part of Speech	Milton neo?	Notes
Didactic	n	No	Yes in OED2
Irksome	adj	No	Earliest 1513 with Milton in 1667
Odoriferous	adj	No	Not in OED2
Outer Space	n	No	No mention of Milton
Rumoured	adj	No	Yes in OED2
Satan	n	No	No mention of Milton
Self-delusion	n	No	Yes in OED2
Self-esteem	n	No	Not in OED2
Vacant Possession	adj	No	No mention of Milton
Arch-fiend	n	Yes	
Complacency	n	Yes	
Debauchery	n	Yes	
Disgospel	v	Yes	Marked as an adjective in OED3
Dismissive	adj	Yes	
Fragrance	n	Yes	
Impassive	adj	Yes	
Intervolve	v	Yes	
Jubilant	adj	Yes	
Liturgical	adj	Yes	
Loquacious	adj	Yes	
Love-lorn	adj	Yes	
Opiniasthous	adj	Yes	*Opiniastrous
Pandemonium	n	Yes	
Sensuous	adj	Yes	
Terrific	adj	Yes	
Unconvincing	adj	Yes	
Unhealthily	adv	Yes	
Benighted	adj	Yes*	New sense
Besotted	adj	Yes*	New sense
Incidental	adj	Yes*	New sense
Obstructs	v	Yes*	New sense
Damp	adj	Yes**	Conversion
Echoing	adj	Yes**	Conversion
Embellishing	n	Yes**	Conversion
Exhilarating	adj	Yes**	Conversion
Gloom	n	Yes**	Conversion
Padlock	v	Yes**	Conversion

Table A1: List of claimed Miltonic neologisms from Milton's Cottage, based on the research of Alexander in (Crace (2008)). Each has been cross-referenced with the OED online (both OED3 and OED2). Note, ** mark conversion and * mark example of first in a new sense for an existing word.

```
1 import requests
2 main_api = 'https://oed-api.oxforddictionaries.com/oed/api/v0.1/'
3 app_id = 'abcd1234'
4 app_key = 'abcdefgh12345678'
5 word_url = main_api + 'word/' + 'accommodating_jj01'
6 json_data = requests.get(word_url,
7     headers = {'app_id': app_id, 'app_key': app_key}).json()
```

Figure A1: Python script to retrieve JSON data about the adjective ‘accommodating’ from OED API. Note, the use of credentials for access.

In Python, there are a variety of data structures. The OED API returns a JSON response in the form of dictionaries (key/value pairs marked with {}) and embedded lists (ordered comma separated values enclosed in []). Below is the extract of the OED API response (from figure 3.3):

```
1 {
2   'meta':
3     {'provider': 'Oxford University Press'
4     },
5   'links':
6     {'self': '/oed/api/v0.1/word/accommodating_jj01'
7     },
8   'data':
9     {
10      'id': 'accommodating_jj01',
11      ...
12      'meta':
13        {'created': 1884,
14         'updated': 2011
15        },
16      ...
17    }
18 }
```

Through ‘indexing’ the response we can extract the desired value for the entry above - for example, the ‘updated’ field. Indexing navigates these hierarchical structures and presents the computer with the steps to follow to reach the desired value. To reach the ‘updated’ field, we need to first select the ‘data’ value from those on the first level (i.e. ‘meta’, ‘links’, or ‘data’), followed by the ‘meta’, and then finally selecting the ‘created’ value. The Python code for this is below.

```
1 created_val = json_data['data']['meta']['created']
2 output: 1884
```

Figure A2: Example of indexing in Python

API fields from Word Endpoint	API fields from Quotation Endpoint
Word ID	Word ID
Sense ID	Keyword
Lemma	Full text of quotation
Part of Speech	Title of work
Definition	Author of work
Date range	Year of work
Date of first use	
Obsolete?	
Etymology type	
Etymology summary	
Etymons	
Main entry?	
Updated entry?	
Entry creation date	
Author of first use	

Table A2: Table containing all API fields selected to be retrieved in this project, broken down into Word and Quotation endpoints. Entries marked with a question mark denote boolean values returned.

Word formation process	raw freq.	proportional freq.
arbitrary	0	0
backformation	1	0.001079914
blend	2	0.002159827
borrowing	174	0.187905
borrowingHybrid	60	0.06479482
compound	212	0.2289417
conversion	21	0.02267819
derivative	368	0.3974082
imitative	1	0.001079914
inherited	0	0
initialism	0	0
None	59	0.0637149
properName	2	0.002159827
properNameHybrid	4	0.004319654
shortening	3	0.003239741
uncertain	1	0.001079914
unknown	2	0.002159827
variant	16	0.01727862
TOTAL	926	1

Table A3: Table demonstrating the calculation of proportional counts for word formation for the 1650 entries. The raw frequency for each category is divided by the total frequency (926) to calculate the proportion of that category for the year 1650.

Author	Date Range from ODNB	Birth	Death	Neologism Freq	No of texts
Bacon. F	1561-1626	1561	1626	552	68
Baxter. R	1615-1691	1615	1691	226	76
Behn. A	1640?-1689	1640	1689	63	22
Browne. T	1605-1682	1605	1682	918	17
Bunyan. J	bap.1628-1688	1628	1688	47	23
Burton. R	1577-1640	1577	1640	170	2
Congreve. W	1670-1729	1670	1729	56	7
Crowne. J	bap.1641-1712	1641	1712	43	13
Cudworth. R	1617-1688	1617	1688	264	14
Davenant. W	1606-1668	1606	1668	103	31
Defoe. D	1660?-1731	1660	1731	10	5
Digby. K	1603-1665	1603	1665	153	9
Donne. J	1572-1631	1572	1631	466	58
Drayton. M	1563-1631	1563	1631	377	39
Dryden. J	1631-1700	1631	1700	503	96
D'Urfey. T	1653?-1723	1653	1723	76	29
Etherege. G	1636-1691/2	1636	1691	39	4
Evelyn. J	1620-1706	1620	1706	688	40
Flavell. J	bap.1630-1691	1630	1691	30	6
Ford. J	bap.1586-1639/53	1586	1639	140	12
Fox. G	1624-1691	1624	1691	12	5
Fuller. T	1607/8-1661	1607	1661	661	42
Hall. J (Bp)	1574-1656	1574	1656	715	73
Harvey. G	1552/3-1631	1552	1631	293	19
Herrick. R	bap.1591-1674	1591	1674	132	17
Heylyn. P	1599-1662	1599	1662	112	30
Hobbes. T	1588-1679	1588	1679	134	20
James VI and I	1566-1625	1566	1625	99	26
Jonson. B	1572-1637	1572	1637	787	78
L'Estrange. R	1616-1704	1616	1704	82	33
Marlowe. C	bap.1564-1593	1564	1593	183	14
Marston. J	bap.1576-1634	1576	1634	383	14
Marvell. A	1621-1678	1621	1678	130	24
Mather. C	1663-1728	1663	1728	14	7
Mather. I	1639-1723	1639	1723	12	6
May. T	b.1596?-1650	1596	1650	62	11
Middleton. T	bap.1580-1627	1580	1627	359	37
Milton. J	1608-1674	1608	1674	867	46
More. H	1614-1687	1614	1687	977	58
Nashe. T	bap.1567-1601	1567	1601	1082	17
Otway. T	1652-1685	1652	1685	81	13
Owen. J	1616-1683	1616	1683	70	39
Penn. W	1644-1718	1644	1718	67	30
Pepys. S	1633-1703	1633	1703	179	9
Phillips. J	1631-1706?	1631	1706	42	20
Prynne. W	1600-1669	1600	1669	212	54
Quarles. F	1592-1644	1592	1644	244	32
Raleigh. W	1554-1618	1554	1618	144	27
Selden. J	1584-1654	1584	1654	107	10
Shakespeare. W	1564-1616	1564	1616	2381	46
Sidney. P	1554-1586	1554	1586	730	29
Spenser. E	1552-1599	1552	1599	711	35
Stillingfleet. E	1635-1699	1635	1699	46	20
Taylor. J (Bp)	bap.1613-1667	1613	1667	193	28
Warner. W	1558/9-1609	1558	1609	398	10
Webster. J	1578-1638?	1578	1638	48	8
Whiston. W	1667-1752	1667	1752	6	2
Wycherley. W	bap.1641-1716	1641	1716	71	5

Table A4: List of Authors featured in the subset data, complete with birth and death dates from the *Oxford Dictionary of National Biography (DNB)*, and frequency information. Where birth or death date is unrecorded, the earliest or latest date cited in the *DNB* are used.

Text	No. of neologisms
Paradise Lost	156
Doctr. Divorce	79
Comus	76
Apol. Smectymnuus	55
Of Reformation	51
Animadversions	48
Reason Church-govt.	48
Tetrachordon	48
Areopagitica	44
Eikonoklastes	44
Samson Agonistes	25
Colasterion	21
Paradise Regain'd	19
Of Educ.	13
Hist. Brit.	12
On Christ's Nativity: Hymn	11
Tenure of Kings	11
Civil Power	9
Considerations touching Hirelings	8
L'Allegro	8
Lycidas	8
On Death Fair Infant	8
Ivdgem. conc. Divorce	7
Observations	6
At Solemn Musick	5
Of Prelatical Episc.	5
Readie Way Free Commonw.	5
Brief Hist. Moscovia	4
Il Penseroso	4
Let.	3
Souveraigne Salve	3
True Relig.	3
Arcades	2
Griffith's Serm.	2
None	2
Passion	2
Psalm cxiv	2
To C. Skinner upon his Blindness	2
At Vacation Exercise	1
Corrections of Comus	1
Epit. On Shakespear	1
On New Forcers of Conscience	1
On Time	1
Psalm VIII	1
Sonnet	1
Sonnets	1

Table A5: Raw Frequency of neologisms in each Milton text in the OED API data. Names of Milton's works have been standardised for spelling, punctuation, and capitalization. 'Sonnet' and 'Sonnets' were kept separate, as marked by the OED compilers.

Part of speech	Raw frequency	Proportional frequency
NN	4703	0.564
JJ	2057	0.246
VB	1453	0.174
RB	98	0.0117
Others	35	0.0043

Table A6: Part of speech distributions in the SOED based on the counts of Wermser (1976: 82). Wermser (1976: 82) counts calculate the number of ‘Neuwörter’ (new words or neologisms) within the SOED for the following year ranges: 1510-24, 1560-74, 1610-24, 1660-74. The word class counts for these years were taken from Wermser with the original totals, and used to calculate the proportional frequencies shown.

Word Formation	Milton prop. freq.	Contemporary prop. freq.
arbitrary	0	0.0001
backformation	0.0012	0.0018
blend	0	0.0004
borrowing	0.0669	0.1321
borrowingHybrid	0.0381	0.3708
compound	0.2595	0.2584
conversion	0.0231	0.0360
derivative	0.4948	0.4323
imitative	0	0.0025
inherited	0	0.0001
initialism	0	0.0001
None	0.1061	0.0710
properName	0.0012	0.0035
properNameHybrid	0.0058	0.0035
shortening	0	0.0027
uncertain	0	0.0041
unknown	0	0.0033
variant	0.0035	0.0110

Table A7: Proportional frequencies of all word formation types for both Milton and his contemporaries.

desired affix form	excluded forms in search
self-	
arch-	
un-	uni-, under-
-en	
-ly	-ily, -ably, -ibly

Table A8: Affixes sampled from the OED API data, with the explicit forms to be excluded from string matching process.

Word-ID	Author	text	affix
bedeafen-vb01	F. Quarles	Hist. Samson	en
behappen-vb01	E. Spenser	Second Pt. Faerie Queene	en
bescreen-vb01	W. Shakespeare	Romeo and Juliet	en
besweeten-vb01	R. Herrick	Hesperides	en
buffen-jj01	F. Quarles	Argalus and Parthenia	en
chidden-jj01	W. Shakespeare	Troilus and Cressida	en
deepseen-jj01	Bp. J. Hall	Virgidemiarum: 3 Last Bks.	en
dishearten-vb01	W. Warner	Continuance Albions Eng.	en
disliken-vb01	W. Shakespeare	Winter's Tale	en
eaten-jj01	Sir P. Sidney	Apol. Poetrie	en
endenizen-vb01	G. Harvey	New Let.	en
endizen-vb01	W. Warner	Albions Eng.	en
enlengthen-vb01	Sir T. Browne	Pseudodoxia Epidemica	en
enquicken-vb01	H. More	Philos. Poems	en
enripen-vb01	J. Donne	Poems	en
enwiden-vb01	T. Nashe	Christs Teares	en
fainten-vb01	Bp. J. Hall	Contempl.	en
fitten-jj01	H. More	Psychodoia Platonica	en
flatten-vb01	J. Donne	Progresse of Soule	en
flitten-jj01	H. More	Psychodoia Platonica	en
foretaken-jj01	Sir P. Sidney	Arcadia	en
frighten-vb01	S. Pepys	Diary	en
fruiten-vb01	Bp. J. Hall	Plaine Explic. Hard Texts	en
illchosen-jj01	Sir P. Sidney	Arcadia	en
illtaken-jj01	W. Shakespeare	Winter's Tale	en
interwoven-jj01	H. More	Psychodoia Platonica	en
lifen-vb01	J. Marston	Antonios Reuenge	en
makequeen-nn01	T. Fuller	Hist. Univ. Cambr.	en
mischristen-vb01	J. Donne	Serm.	en
moreen-nn01	G. Etherege	Song of Basset	en
outhaven-nn01	H. More	Philos. Poems	en
outsweeten-vb01	W. Shakespeare	Cymbeline	en
overeaten-jj01	W. Shakespeare	Troilus and Cressida	en
overgreen-vb01	W. Shakespeare	Sonnets	en
overleaven-vb01	W. Shakespeare	Hamlet	en
overmoisten-vb01	F. Bacon	Sylua Syluarum	en
overshorten-vb01	T. Fuller	Holy State	en
sleeken-vb01	R. Burton	Anat. Melancholy	en
slicken-vb01	R. Burton	Anat. Melancholy	en
slighten-vb01	B. Jonson	Sejanus	en
spreaden-jj01	F. Quarles	Feast for Wormes	en
stretchen-jj01	H. More	Psychodoia Platonica	en
undertrodden-jj01	T. Nashe	Vnfortunate Traveller	en
wispen-jj01	G. Harvey	Pierces Supererogation	en

Table A9: Table of contemporary neologisms, with their corresponding texts and authors, formed through the affixation of ‘-en’.

Combining form	Milton Raw Freq.	Milton Percent.	Contemp. Raw Freq.	Contemp. Percent.
astro-	0	0	4	0.0237
bio-	0	0	1	0.00592
biblio-	0	0	0	0
electro-	0	0	0	0
geo-	0	0	4	0.0237
hydro-	0	0	3	0.0178
morpho-	0	0	1	0.00592
philo-	0	0	9	0.0533
retro-	0	0	4	0.0237
tele-	0	0	1	0.00592
theo-	0	0	15	0.0888
-cide	0	0	3	0.0178
-cracy	0	0	2	0.0118
-graphy	1	0.115	9	0.0533
-itis	0	0	2	0.0118
-logy	1	0.115	17	0.101
-morph	0	0	0	0
-phile	0	0	0	0
-phobe	0	0	0	0
-scope	0	0	1	0.00592
auto-	0	0	10	0.0592
poly-	0	0	14	0.0829
-latry	1	0.115	4	0.0237

Table A10: List of combining forms in the OED neologisms for Milton and contemporaries, based on Plag (2003: 156) and Durkin (2014: 346).

APPENDIX II - Milton texts and shortened titles used

Texts are listed in alphabetical order with shortened titles in the OED given in bold. The publication dates in the OED for the quotations from the text are given next, in bold and in brackets. The full title, edition information, publication date and any publication information given in the OED follows. In some cases, multiple editions are listed as source texts within the OED; for these, all editions mentioned are listed in chronological order by publication date. For consistency and comparison, all texts are italicised in the main thesis text, regardless of length.

All mentions of Milton's works in the results and discussion chapters use the abbreviations and formatting set out in the OED. Where more than one edition is used for the dictionary data, these are grouped under the text title in text-based comparisons. (The OED also do this for the OED Online.) However, for date-based comparisons, the dates for the individual neologisms are used. For example, the adjective 'moonstruck' comes from the second edition of *Paradise Lost* which was published in 1674, and the adjective 'archangelic' comes from the

first edition in 1667. For text-based comparisons, these adjectives will both be counted under *Paradise Lost*, reflecting the practice in OED Online (see quotations under *Paradise Lost* on OED Online for examples of this). In contrast, for date-based comparisons, these adjectives would be counted individually under 1674 and 1667 respectively.

Animadversions (1641) = *Animadversions upon the remonstrants defence against Smectymnuus*, first edition, 1641.

Apol. Smectymnuus (1642) = *An apology against a pamphlet call'd A modest confutation of the animadversions upon the remonstrant against Smectymnuus*, first edition, 1642.

Arcades (1645) = 'Arcades' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

Areopagitica (1644) = *Areopagitica*, first edition, 1644.

At Solemn Musick (1645) = 'At Solemn Musick' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

At Vacation Exercise (1673) = 'At Vacation Exercise' in *Poems, &c. upon several occasions*, New edition, 1673.

Brief Hist. Moscovia (1673) = *A brief history of Moscovia: and of other less-known countries lying eastward of Russia as far as Cathay*, first edition, 1673.

Civil Power (1659) = *A treatise of civil power in ecclesiastical causes, the author J.M.*, 1659; 'Civil Power' in *Works of John Milton in verse and prose*, 1851, London: William Pickering. (Note: Although the 1851 edition is used, all

neologisms are dated in the OED to 1659, e.g. see. ‘unconstrainable, adj.’.)

***Colasterion* (1645)** = *Colasterion*, first edition, 1645.

***Comus* (1634, 1637)** = *Comus*, 1634, MS Trinity College Cambridge;

Comus, first edition, 1637, London for H. Robinson.

***Considerations touching Hirelings* (1659)** = *Considerations touching the likeliest means to remove hirelings out of the church*, first edition, 1659.

***Corrections of Comus* (1637)** = ‘Corrections of Comus’ in *A complete collection of the historical, political, and miscellaneous works of John Milton: with an account of the life and writings of the author (by T. Birch)*, 1738, London.

***Doctr. Divorce* (1643, 1644, 1645)** = *The doctrine and discipline of divorce*, first edition, 1643; *The doctrine and discipline of divorce*, second edition, 1644; *The doctrine and discipline of divorce*, New edition, 1645.

***Eikonoklastes* (1649, 1650)** = *Eikonoklastes in answer to a book intitl’d Eikon Basilike, the portrature of his Sacred Majesty in his solitudes and sufferings*, 1649, London: Printed by Matthew Simmons, next dore to the gilded Lyon in Aldersgate street; *Eikonoklastes in answer to a book intitl’d Eikon Basilike, the portrature of his Sacred Majesty in his solitudes and sufferings*, second edition, 1650.

***Epit. On Shakespear* (1632)** = ‘Epitaph On Shakespear’ in Shakespeare, W., *Mr. William Shakespeares comedies, histories, & tragedies*, second edition, 1632.

***Griffith’s Serm.* (1660)** = ‘Griffith’s Sermon’ in *Works*, 1851.

Hist. Brit. (1670) = *The history of Britain, that part especially now call'd England from the first traditional beginning, continu'd to the Norman conquest*, first edition, 1670, London,: Printed by J. M[acock]. for James Allestry, at the Rose and Crown in St. Paul's Church-Yard.

Il Penseroso (1645) = 'Il Penseroso' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

Ivdgem. conc. Divorce (1644) = *The iudgement of Martin Bucer, concerning divorce (transl. John Milton)*, first edition, 1644.

L'Allegro (1645) = 'L'Allegro' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

Let. (1631, 1633) = *Complete prose works*, 1953, New Haven; *A complete collection of the historical, political, and miscellaneous works of John Milton: with an account of the life and writings of the author (by T. Birch)*, 1738.

Lycidas (1638, 1645) = 'Lycidas' in *Obsequies 23 in Justa Edouardo King*, 1638; 'Lycidas' (revised edition) in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

Observations (1649) = 'Observations' in *Articles of peace made and concluded with the Irish rebels and Papists, by James Earle of Ormond, for and in behalfe of the late king, and by vertue of his autoritie [17 Jan. 1648, i.e. 1649]*, first edition, 1649.

Of Educ. (1644) = *Of education*, first edition, 1644.

Of Prelatical Episc. (1641) = *Of prelatical episcopacy*, first edition, 1641.

Of Reformation (1641) = *Of reformation touching church-discipline in*

England, first edition, 1641.

On Christ's Nativity (1645) = 'On Christ's Nativity: Hymn xxi' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

On Death Fair Infant (1673) = 'On the Death of a Fair Infant' in *Poems, &c. upon several occasions*, new edition, 1673.

On New Forcers of Conscience (1673) = 'On New Forcers of Conscience' in *Poems, &c. upon several occasions*, new edition, 1673.

On Time (1645) = 'On Time' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

Paradise Lost (1667, 1674) = *Paradise lost: a poem in ten books*, first edition, 1667; *Paradise Lost: a poem in twelve books*, second edition, 1674.

Paradise Regain'd (1671) = *Paradise regain'd, a poem in IV books: to which is added Samson Agonistes*, first edition, 1671, London: Printed by J.M. for John Starkey.

Passion (1645) = 'The Passion' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

Psalm cxiv (1645) = 'Psalm cxiv' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

Psalm VIII (1673) = 'Psalm VIII' in *Poems, &c. upon several occasions*, new edition, 1673.

Readie Way Free Commonw. (1660) = *The readie and easie way to establish a free Commonwealth*, second edition, 1660.

Reason Church-govt. (1641) = *The reason of church-governement urg'd*

against prelaty, first edition, 1641.

***Samson Agonistes* (1671)** = *Paradise regain'd, a poem in IV books: to which is added Samson Agonistes*, first edition, 1671, London: Printed by J.M. for John Starkey.

***Sonnet* (1645)** = 'Sonnet X' in *Poems of Mr John Milton, both English and Latin*, first edition, 1645.

***Sonnets* (1673)** = 'Sonnets' in *Poems, &c. upon several occasions*, new edition, 1673.

***Souveraigne Salve* (1643)** = *A souveraigne salve to cure the blind. Or, A vindication of the power and priviledges claim'd or executed by the Lords and Commons in Parliament, from the calumny and slanders of men, whose eyes. . .*, 1643, London: Printed by T.P. and M.S.

***Tenure of Kings* (1649, 1650)** = *The tenure of kings and magistrates*, first edition, 1649; *The tenure of kings and magistrates*, second edition, 1650.

***Tetrachordon* (1645, 1673)** = *Tetrachordon*, first edition, 1645; 'Tetrachordon' in *The works of Mr. John Milton*, 1697.

***To C. Skinner upon his Blindness* (1673)** = 'To C. Skinner upon his Blindness' in *Letters State*, 1694.

***True Relig.* (1673)** = 'True Religion' in *Works of John Milton in verse and prose*, 1851, London: William Pickering.

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