Much, Appreciated: A Corpus Study of the Negative Polarity Tendency of Differential and Adnominal Much

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Abstract

Although *much* is a frequently occurring word of many uses, not much research has been done on the different types of *much* as a negative polarity item (NPI). Therefore, in this study, the NPI tendency of two different types of *much* were compared: differential and adnominal *much*. Generally, research shows that *much* tends to be an NPI, whereas differential *much* prefers non-negation over negation contexts. Thus, the hypothesis is that there would be a strong tendency towards adnominal *much* occurring as an NPI, whereas differential *much* would not be an NPI. From the British National Corpus (BNC), 500-instance samples were analysed, and later compared with BNC searches for specific instances (*that much*, *very much*, etc.) in order to confirm their validity. These results were divided into NEG – in which negation took place – and POS – in which (implicit) negation did not take place. The results showed that NEG differential *much* only occurred in 5% of the instances, whereas NEG adnominal *much* occurred in 28% of the instances. When both *much* types were combined with modifiers (i.e., *very much*, *that much*, *so much*, etc.), they mostly occurred in a POS context. The bare adnominal *much* instances – without any modifiers – are almost equally divided among NEG (100) and POS (109) instances. Overall, the NEG instances did not have a preference for a certain genre in comparison to their POS counterparts. The results imply that differential *much* is not an NPI, whereas adnominal *much* may have a tendency to occur in NPI contexts.

Keywords: NPI, *Much*, Differential, Adnominal, British National Corpus

Table of Contents

1. Introduction

Negative polarity items have been the object of in-depth research over the past forty years.[*] Despite this, the NPI properties of *much*, which is said to be an NPI, remain elusive. On the one hand, it is argued that *much* behaves like an NPI (Behre, 1967, 1969; Kytö & Smitterberg, 2006; Lee, 2015; Smitterberg, 2009). On the other, it is very easy to find exceptions to this claim. There are quite a few types of *much*, which may behave differently; not much research has been done on these different types. One is adnominal *much*, which occurs before a noun and modifies it (e.g. *much food*); another is differential *much*, which occurs before and modifies comparative adjectives (e.g. *much nicer than you*). It seems that from a native-speaker point of view, adnominal *much* prefers to occur in negative contexts, whereas differential *much* does not.

Therefore, the research question that this thesis aimed to answer, is: To what extent, if any, do differential *much* and adnominal *much* have a negative polarity tendency? The thesis statement is: *Much* as a differential does not have a negative polarity tendency, whereas *much* as an adnominal does have a negative polarity tendency.

The subquestions that will be answered are:

1. To what extent, if any, does differential *much* have a negative polarity tendency?
2. Do the instances of differential *much* that occur in sentences with negation prefer to occur in certain genres?
3. To what extent, if any, does adnominal *much* have a negative polarity tendency?
4. Do the instances of adnominal *much* that occur in sentences with negation prefer to occur in certain genres?

[*] I would like to thank my supervisor Jenny Doetjes, the thesis support group, my partner Nick, and my friend Manon for their valuable insights and support during the writing of my thesis in these chaotic times.

5. What effect, if any, does the presence of degree modifiers have on the different *much* types?

Asking these questions is relevant, because it may affect the general literature on NPIs and what constitutes as an NPI.

First, a literature review of the relevant information concerning negative polarity items and *much* will be given. Then, the methodology will be shown. After that, the results of the analysis will be given, and these results will be explained in the Discussion section.

2. Literature Review

This literature review will discuss topics such as *much* – both differential *much* as well as adnominal *much*, and if possible, research related to negative polarity that has been done on them – as well as negative polarity items, and a few salient negative polarity theories that are currently used.

2.1 *Much*

As indicated earlier, *much* is a word of many uses and word categories. Firstly, *much* is a type of determiner (Altenberg & Vago, 2010; Greenbaum, 1996; Quirk et al., 1985): the element that occurs in front of a noun, gives information about it, and gives reference to it, e.g.:

(1) She's **a** classmate.

(2) **Much** work has to be done.

(3) **The** teacher gave a presentation on semantics.

In (1), *a* indicates unfamiliarity with the element it modifies[1], i.e., *classmate*. Similarly, *much* in (2) informs us about the amount of work, and in (3), *the* shows familiarity with the element it modifies, i.e., *a*, *the*, and *much* are all different determiners.

Several sources (Altenberg & Vago, 2010; Carter & McCarthy, 2006; Greenbaum, 1996) also call these words quantifiers. Carter & McCarthy (2006, p. 919) state that a quantifier is a "word or phrase used before a noun to express a positive or negative contrast in quantity". Examples of quantifiers are *much*, *many*, *a few*, *little*, etc.

Quirk et al. (1985) and Greenbaum (1996) split determiners into three different classes: predeterminers (e.g. *half*, *all*), central determiners (e.g. *the*, *a*/*an*), and

[1] 'Modification' is an optional adding of information to the head of a phrase (Quirk et al., 1985). For example, in the phrase *blue house*, *blue* gives information about *house*. Since it is optional, it can also be left out.

postdeterminers (e.g. *many*, *few*). These classes show their position in the noun phrase (hereafter also *NP*) in relation to each other. Some examples are:

(4) **All** the people gathered in the square. (predeterminer)

(5) Could you give **the** book to your neighbour? (central determiner)

(6) She tried to collect the **many** belongings she had with her. (postdeterminer)

Much belongs to the last category, possibly because it is seen as a mass counterpart to *many*, which is a postdeterminer. However, *much* cannot be used in combination with another determiner, unlike *many* (see (6)).

Postdeterminers are yet again divided into four different types (Carter & McCarthy, 2006; Greenbaum, 1996; Smitterberg, 2009; Quirk et al., 1985): cardinal numerals (e.g. your ten friends, the four dogs), ordinal numerals and general conditionals (e.g. your first meal, his last birthday party), closed-class quantifiers (e.g. few men, many people) and open-class quantifiers (e.g. a large number of cats, a lot of birds). *Much* is part of the closed class of quantifiers. In this case, *much* only occurs with uncountable nouns (i.e., mass nouns) like ‘milk’ or ‘sand’ (Doetjes, 1997; Quirk et al., 1985):

(7) You’ve put too much milk in my tea.

(8) There’s not much sand on this beach.

Much’s counterpart, *many*, only occurs with countable nouns like ‘women’ or ‘cats’ (Greenbaum, 1996):

(9) Many people were present at the concert.

(10) Let’s take a look at the many books you own!

Much is a multal quantifier (Lee, 2015). Multal quantifiers convey a large quantity (Lee, 2015), another example being *many*. The opposite of a multal quantifier is a paucal

quantifiers, which is a much more frequently used term. Paucal quantifiers "denote a small quantity" (Lee, 2015, p. 3), with examples like *few, little,* etc. These two quantifier types are seen to be opposites because they have opposite meanings and occur in the same distribution.

2.1.1 Adnominal Much

One of the distributions of quantifier that this thesis will focus on is a quantifier that is adnominal (similar to a prenominal[2]); *adnominal* meaning "modifying a noun" (Merriam-Webster, n.d.-a). Thus, adnominal *much* is adjectival in nature (Doetjes, 1997), and occurs before a noun. 'Adnominal *much*' will be the term used to refer to this type of *much*.

On the one hand, according to Doetjes (1997), *much* is not an adnominal quantifier (since according to her, in this category, it is only quantifiers which are restricted to the noun phrase that occur), but a degree quantifier, which *can* occur in the nominal phrase but is not restricted to it.

On the other hand, according to Rijkhoff (2001, p. 526), *much* is an adnominal modifier; more specifically, a "relative non-proportional" quantitative adnominal modifier (as in *much milk*), which means that it does not give any absolute numbers like *one* or *five*, and that it is not weighed against a population or proportion, as opposed to a relative proportional modifier (e.g. *much of the milk*), in which *of the* indicates that it is part of a quantity.

2.1.2 Differential Much

Much can also modify adjectives, in which case it is not a determiner, but an adverb. In this context, it generally modifies comparative adjectives, and is thus a differential (Morzycki, 2007; Solt, 2015). Examples are:

[2] Prenominal, according to Merriam-Webster, means "preceding a noun" (Merriam-Webster, n.d.-c)

(11) The book was much easier to read than I thought.

(12) The mouse is much smaller than the dog.

(13) Now that she has a car, she is much faster.

Much is also gradable (Behre, 1967, 1969; Quirk et al., 1985) and has its own comparative and superlative forms, i.e., *more*, (*the*) *most*:

(14) There's much soup in this pan.

(15) There's more soup in that other pan.

(16) That's the most soup I've ever seen.

Because of it being gradable, adverbs can modify it (e.g. *so much*). *Much* can also precede its own comparative form:

(17) He's much more interesting than I thought.

Another example is that *much* can be used in what Quirk et al. (1985, p. 1127) calls "comparisons of equivalence", i.e. *as … as* (Greenbaum, 1996; Quirk et al., 1985), in which something is said to be equal to something else:

(18) I like my dog as much as my cat.

In sentence (21), the dog and the cat are both equally liked by the speaker.

2.1.3 Modifiers of Much

Much can also be modified by preceding adverbs *very*, *so*, etc. (Carter & McCarthy, 2006; Corver, 1997; Quirk et al., 1985):

(19) Very much faster

(20) So much work

(21) That much quicker

(22) As much milk

Solt (2015) calls these adverbs intensifiers, as they add extra emphasis *much* in (19-22). Doetjes (1997) states that elements such as *so* and *as* "cannot be combined with expressions other than adjectives (or adverbs)" (p. 95). This means that without *much*, the combination would become ungrammatical: **very faster*, **so work*. This is what Corver (1997) calls *much*-support: much is purely a grammatical item, that does not really add any meaning, and occurs so modifiers like *very*, *so*, etc. can be implemented grammatically (Solt, 2010).

2.1.4 Change of Much *Over Time*

Much did not always use to occur only in combination with mass nouns. Kytö and Smitterberg (2006; also referenced by Lee, 2015) state that *much*, over time, has been restricted to uncountable contexts. They further state that more colloquial quantifiers such as *a lot* (*of*) and *lots* (*of*) were introduced in the 19th and 20th centuries (see also Behre 1967, 1969). These more informal versions have replaced the use of *much* (and to a lesser extent, *many* as well) in assertive contexts, pushing *much* towards the more nonassertive environments (see section on negative polarity items below). Kytö and Smitterberg (2006) performed a diachronic study of seven types of multal quantifiers (which also included *much*, *many*, *a lot* (*of*) and *lots* (*of*)) in assertive sentences, for which they used the CONCE[3] and ARCHER[4] corpus. They found that the genres of the data "influence[d] the distribution of multal quantifiers" (p. 214): first drama, then fiction, showed the most multal quantifiers. Furthermore, many sources make the distinction between closed-class quantifiers (i.e., *much*

[3] CONCE stands for Corpus of Nineteenth-Century English, with data from 1800-1830, 1850-1870, and 1870-1900.
[4] ARCHER stands for A Representative Corpus of Historical English Registers, with data from 1600-1999.

and *many*), which were used much more in formal genres (like history, science, debates; see also Behre, 1967, 1969), and open-class quantifiers (i.e. multi-word quantifiers like *a lot* (*of*) and *lots* (*of*)), which do not occur in these genres at all. In short, formal (closed-class) quantifiers are preferred above informal (open-class) quantifiers in more formal texts. They also state that "uncountable contexts display a continuous increase in open-class quantification through the 19th and 20th centuries" (p. 217). In countable contexts, there is, instead, "an apparent decrease in open-class quantification between the 19th and 20th centuries" (p. 217). This was also confirmed earlier by Behre (1967, 1969).

The statement that open-class quantifiers, especially *a lot*, are used more throughout the 19th and 20th centuries is confirmed through the Google Books corpus (see Figure 1, and Appendix 1 for the original, larger view), and it also shows that it is continuing to rise throughout the 21st century. See also Figure 2[5], which shows a fall of the use of *much* (See also Appendix 2 for its original, larger view).

Figure 1

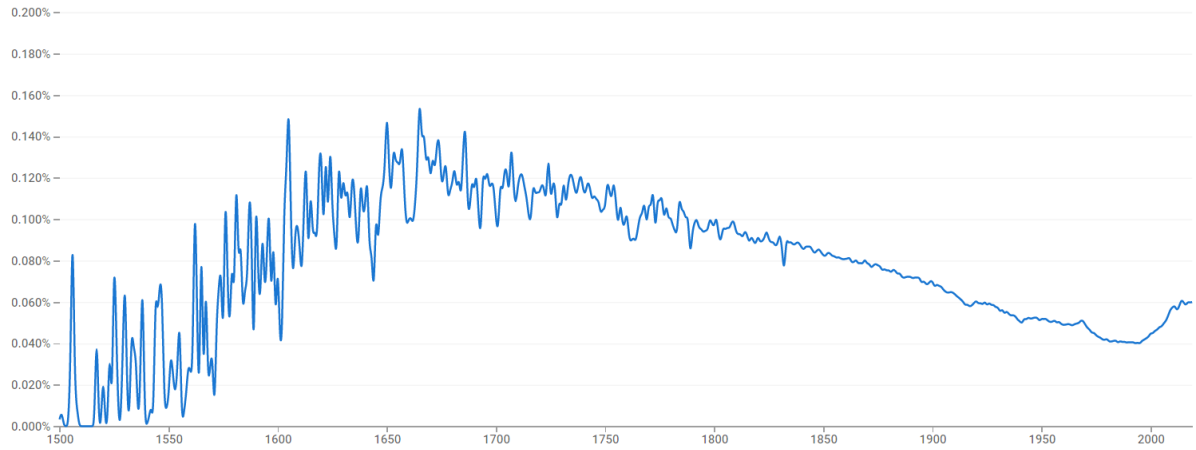
A Lot *and* a Lot of *From 1500 Until 2019, According to Google Books Ngram Viewer, in English*

[5] In Figure 2, "(All)" stands for including all different case-sensitive versions (e.g. A lot versus a lot).

Note. Data was taken from Google Books Ngram Viewer (Michel et al., 2011; Google, 2019). See Appendix 1 for the link to the original source.

Figure 2

Much From 1500 Until 2019, According to Google Books Ngram Viewer, in English



Note. Data was taken from Google Books Ngram Viewer (Michel et al., 2011; Google, 2019). See Appendix 2 for the link to the original source.

Please note that these figures come from written material. Unless transcriptions of spoken materials have been made – which, due to the large numbers of materials, is difficult to verify – these do not represent spoken word accurately[6].

Behre (1969, p. 436) states that in his corpus of fictional works from the 19th and 20th century (e.g., Agatha Christie, Elizabeth Gaskell, George Eliot, etc.), *much* is often replaced with any of the following open-class quantifiers: *a good deal of*, *a lot of*, *lots of* and *plenty of*. He also states that depending on the author, the distribution changes. This could mean that there is much variation between authors.

[6] For other limitations of using the Google Books Ngrams, see for example Zhang, 2015.

Additionally, Smitterberg (2009) studied multal adverbs from the 19th century in English. He states that Behre (1967) did not see evidence of the same propensity for open-class quantifiers concerning multal adverbs in a study of Agatha Christie's writings, which could mean that multal adverbs prefer to be closed-class. Smitterberg also decided to use the CONCE corpus. He found that between *deal* and *much*, *much* is used much more (87% of the time, on average). Furthermore, "the overall distribution of *much* and *deal* is (…) diachronically stable in CONCE" (Smitterberg, 2009, p. 126). This could, as mentioned before, be due to the preference of the authors to use *much* instead of *deal*.

When looking at subvariants of both words (e.g. *a good* or *great deal*; *much* or *very much*), *a good deal* and *much* seem to be lowering in usage over time, whereas *a great deal* and *very much* seem to be used more over time (Smitterberg, 2009); See Table 1. On occasion, the term *very*, *very much* is used, but only within the history genre. Overall, he states that "multal adverbs do not exhibit the same tendency towards increased open-class quantification as multal determiners and pronouns display in the same material" (p. 136).

Table 1

Subvariants of Deal and Much as Multal Adverbs in CONCE by Period

	DEAL					MUCH				
	a good deal		*a great deal*			*much*		*very much*		
Period	#	%	#	%	Total	#	%	#	%	Total
1	16	64	9	36	25	112	69	51	31	163
2	16	62	10	38	26	107	70	45	30	152
3	11	52	10	48	21	120	62	72	38	192
Total	43	60	29	40	72	339	67	168	33	507

Note. From Multal adverbs in nineteenth-century English, by Smitterberg, 2009, p. 126.

2.2 Negative Polarity Items

2.2.1 What Is a Negative Polarity Item?

The grammars that were consulted are relatively silent about polarity items in general. Only Carter & McCarthy (2006, p. 490) mention that "the polarity of the main clause determines the overall polarity of the sentence". Other than that, a great many works have been written about (negative) polarity (See Tovena, 2001, 2020, for an overview), which accounts for the number of different descriptions for negative polarity items (hereafter also *NPIs*). Pietarinen (2001, p. 165) says that negative polarity is "a negative or affective construction in the environment, usually a morphologically explicit negation, negative adverb, negative adjective, implicature, or some other 'abrogate' term". Israel (2011, p. 23) calls NPIs "linguistic constructions whose acceptability or interpretation depends somehow on the (…) negative status of the sentences in which they occur". Lee (2015, p. xiv) states that "NPIs are words or expressions that are grammatical in certain contexts (negation, questions, conditionals) but unacceptable in the affirmative". Some examples of NPIs:

(23) I don't have *any* money.

(24) She doesn't like your attitude *either*.

(25) I haven't gone to school *yet*.

Overall, it seems that an NPI is a word (or phrase) that occurs generally only in sentences in which negation occurs or is implied, and is ungrammatical in other contexts. Israel (1996, p. 621) mentions several other contexts where NPIs occur: "questions, comparatives, conditionals", etc.

An important concept for NPIs which will be used below is the concept of *scope*. Scope is, according to Koeneman and Zeijlstra (2017, p. 248), "the domain to which some semantic element applies". In the case of negative polarity items, it is said that they must

always occur in the scope of negation (Szabolcsi, 2004). However, it would be more accurate to say that NPIs cannot occur in declarative sentences, as other linguists (e.g. Israel, 2011; Progovac, 1993) have stated that NPIs can also occur in different contexts, like interrogative ones. Some more examples were given in the previous paragraph. These contexts differ per NPI (Cruse, 2004).

Zwarts (1981) also states that sentences are ungrammatical when the negation or negative implicature (see below) is embedded more deeply than the NPI. This is not the case the other way around – NPIs can be more deeply embedded than the negation or negative implicature.

2.2.2 Theories Concerning NPIs

There are two main theories concerning why NPIs (as opposed to, for example, PPIs[7]; Lawler, 2011; Szabolcsi, 2004) only occur in certain contexts, also called NPI licensing[8]. The first is a semantic theory, and the second a lexical theory.

One of the first works, which would later be the basis of several different perspectives on NPI licensing, is Klima's syntactic theory (1964, as referenced by Jackendoff, 1969; Ladusaw, 1979). His idea was that the original sentence construction gets the addition of an optional negative as a daughter, after which it goes through a series of transformations depending on what type of sentence it is (e.g. the passive) or what elements need to be added (e.g. affectives, indeterminates, etc.). Then, another set of rules decide where the negation is placed in the sentence (e.g. in front of the auxiliary). After this, the rules of subject-auxiliary inversion and do-support, if needed, are applied. Jackendoff (1969) goes through this process extensively. However, there are also sentences in which the 'neg' does not show sentence

[7] PPIs are positive polarity items. Ladusaw (1979) also calls these APIs: affective polarity items.
[8] Tovena (2020, p. 3) states that "NPIs are often expected to be in the scope of an operator with the right syntactic and semantic properties." An example of this is sentential negation.

negation, but, as Klima (1964, as cited by Jackendoff, 1969, p. 222) calls it, constituent negation. These, according to Jackendoff (1969, p. 223), compel us to realise that neg should be generated in "other positions than as daughter of S". He also states, among other things, that VP negation is not discussed by Klima, even though it is an important aspect. He later gives his solution:

> If we give up the assumption that transformations do not change meaning and that all semantic information is represented in deep structure, it immediately becomes apparent how to go about explaining the interpretation of VP negation. We simply need a way to relate the understood order of quantifiers and negation to their position in the derived structure (Jackendoff, 1969, p. 228)

The rest of his paper is spent building on this idea, which is the birth of semantic theories concerning NPIs. In short, as cited by Ladusaw (1979, p. 1), Jackendoff promotes the idea of an ""Interpretive Rule" which alters features of lexical items during a derivation of a "semantic representation"".

Ladusaw (1979) builds, among others, on Jackendoff's work, agreeing on its semantic nature. Ladusaw suggested *downward entailment* as one of the main footholds of his theory: "An expression is affective [=downward-entailing] iff it licenses inferences in its scope from supersets to subsets" (Ladusaw, 1982, as cited by Progovac, 1993, p. 152). First, let us go through a few examples of upward entailment (26-33 from Cruse, 2004, p. 27; Linebarger, 1980, p. 191; and von Fintel, 1999, p. 98):

	P	$\models$[9]	Q
(26)	It's a dog.		It's an animal.
(27)	A sparrow is in the tree.		A bird is in the tree.

[9] This shows (upward) entailment.

	P	⊨	Q
(28)	It rained hard.		It rained.
(29)	John ate brussels sprouts.		John ate green vegetables.

As indicated by Cruse (2004, p. 27), "to say that proposition P entails proposition Q means that the truth of Q follows logically and inescapably from the truth of P"; if something specific (a subset) is true, then the more general (a superset) is also true. For example, if there is a sparrow in the tree, it follows that a bird is in the tree.

When negation occurs in a sentence, the entailment is reversed:

	Not Q	⊭[10]	Not P
(30)	It is not an animal.		It is not a dog.
(31)	No bird is in the tree.		No sparrow is in the tree.
(32)	It is not the case that it rained.		It is not the case that it rained hard.
(33)	John didn't eat green vegetables.		John didn't eat brussels sprouts.

This means that if there is no bird in the tree, that means there is also no sparrow in the tree; if it does not rain, it is impossible that it is raining hard, and so forth. If something general is not true, then something specific is also not true. This is also called downward entailment. Thus, to come back to Ladusaw (1979; 1982, as referenced by Progovac, 1993), his statement is that semantically, NPIs only function in downward-entailing environments, and not in upward-entailing environments.

Linebarger (1980) tries to make peace between the syntactic and the semantic theory by combining them (Pietarinen, 2001). She uses the concept of scope, which Klima (1964, as cited by Jackendoff, 1969; Ladusaw, 1979) introduced in combination with NPIs, and states that NPIs should always be in the scope of negation. Furthermore, she states that Ladusaw's

[10] This shows non-entailment/downward entailment.

(1979) theory on downward entailment is too strict in some contexts, whereas too indulgent in others. Therefore, the semantic part of her theory is changed: she states that between the negation and the NPI, no other operator should intervene. Lastly, she also states that since there are sentences which include NPIs but do not have any type of explicit negation, these sentences show negation indirectly, through implicature, through the speaker (Pietarinen, 2001). Some examples (from Cruse, 2004, p. 308):

(34) He *rarely* says *anything*.

(35) *Few* people have *ever* reached the top.

Here, *anything* and *ever* are NPIs, and *rarely* and *few* introduce negative implicatures. The only problem is that she does not actually give any conditions for or definition for what negative implicature is, or when it is 'allowed to occur'.

According to Zwarts (1981), the semantic theories also do not manage to bind the class of elements – also known as *affective expressions* (Jackendoff, 1972, as cited by Zwarts, 1981) – that license NPIs accurately enough. This is why there is second set of theories, which are lexical in nature. Zwarts (1981) is one of the first linguists to come up with the idea. He states that there are different types of NPIs that occur in different contexts, and that have different characteristics. In an attempt at classifying them, he divides them up into different classes: *universals* (e.g. *all*) and *restrictives* (e.g. *only*). He further states that with certain polarity items, the context it occurs in can change the word into a non-polarity item. He later states that

> The fact that [negative polarity] expressions (…) require the presence of a negative element somewhere in the sentence, is a property which is intrinsic to the items in question and must therefore be accounted for in the lexicon (Zwarts, 1998, p. 177)

In this later work, in a further attempt to categorise different NPI types, he distinguishes between several other types of negation. The first type is called *subminimal negation*: these are weak forms of negation. Examples are (with *N* meaning *noun* (*phrase*); pp. 182-183) *at most*, *not all N*, *only a few N*, and *no more than*. The second type is called *minimal negation*, which are stronger forms of negation. Examples are *neither N*, *none of the N*, and *no one*. Lastly, there is *classical negation*: the strongest form of negation. Examples include *no N* and *none of the N*, as well as the adverb *not*.

If a sentence contains subminimal negation, then, it can also hold an NPI which is weak; if minimal negation, then the sentence can contain a strong NPI. Subminimal negation can license NPIs which are downward-entailing (as per Ladusaw, 1979; examples: *can stand*, *need*, *sleep a wink*, *hurt a fly*); minimal negation can license anti-additive NPIs (examples: *anything* (*at all*), *in the slightest*, *bat an eyelash*, *utter a sound*, *lift a finger*), and classical negation can license anti-morphic NPIs. Furthermore, Ladusaw (1998, as referenced by Pietarinen, 2001, p. 171) states that the licensing conditions also apply to the classes below them, i.e. those "with a weaker condition".

A large number of researchers follow either the semantic theory provided by Jackendoff (1969), Ladusaw (1979) and Linebarger (1980), or after Zwarts' (1981, 1998) lexical theory, or a combination of the two[11]. For example, Giannakidou developed a further theory from Ladusaw's (1979) theory of downward entailment and polarity (1997, 1998; Giannakidou & Mari, in press; Giannakidou & Yoon, 2010; Tovena, 2020), called *(non)veridicality*. Let us go through the terms first. Veridicality is "the semantic property of linguistic expressions, or more generally functions (…), that are truth-bearing" (Giannakidou & Mari, in press, p. 4). An example sentence would be:

[11] Other examples for further reading concerning NPI theories are Hoeksema (2010), Homer (2021), Orth et al. (2020), and Solt (2015). For a bibliography of polarity items up until 2008, see Richter and Trawinski (2008). Tovena (2001, 2020) has also written clear surveys on polarity sensitivity and NPIs, respectively.

(36) I am eating breakfast.

This sentence is only veridical when the speaker is actually eating breakfast at the time of the utterance. Veridical, then, is synonymous with the words 'truthful' and 'factual'/'factive' (Giannakidou & Mari, in press). When a modal is introduced, however, this changes:

(37) I may be eating breakfast.

The utterance does not entail that the speaker is eating breakfast. This, then, is a nonveridical sentence.

Speakers also make judgements about the veridicality of utterances or sentence, i.e., they make judgements about whether something is true or not. Giannakidou and Mari (in press, p. 5) give an interesting example of this:

(38) Ariadne believes that Milan is the capital of Italy.

Milan is not the capital of Italy, which means that objectively speaking, the sentence is nonveridical, but since the verb *believe* is stated, it shows that according to Ariadne, Milan *is* the capital of Italy, and in this context, the sentence is thus subjectively veridical, regardless of whether it is objectively veridical or not. This is called *relative truth* (p. 7).

Within this theory, NPIs occur only in nonveridical contexts (Giannakidou & Mari, in press), and need the future tense, modal verbs, negation, and the interrogative as operators, since they do not entail truth either objectively or subjectively. Another term is important here: "negation (…) can be understood as the logical strengthening of objective nonveridicality from *not entailing p* to *entailing not p*" (p. 8): this is *antiveridicality*, a subgroup of nonveridicality (Giannakidou & Mari, in press). NPIs are licensed by operators that are negative or are antiveridical, and thus occur in their scope.

Another aspect of this theory is *mood*: nonveridical items convey relative truth, and this often encases a speaker's attitude towards a proposition, typically shown through verbs. Examples are the subjunctive, indicative, and imperative (examples from Giannakidou & Mari, in press, p. 10):

(39) I wish you were here (subjunctive)

(40) If I were rich I would buy a boat (indicative)

(41) Eat your vegetables! (imperative)

This theory, according to Giannakidou (1998), is broader than downward entailment and negation. Polarity items have different levels of sensitivity, and depending on that level they fit in different categories. Not every sensitive item necessarily has to be dependent on a kind of negation or polarity.

2.3 *Much* as an NPI

Concerning grammars, Quirk et al. (1985) make mention of *much* as an NPI, albeit without using the term:

> There are restrictions on the use of *much* with singular and *many* with plural nouns, and the corresponding open-class postdeterminers are widely used instead (…). Thus *much* is typically used in a nonassertive sentence (…); but in an assertive sentence (…), usually *a lot of* (chiefly in informal style), or a similar colloquial postdeterminer, is used (Quirk et al., 1985, p. 262)

It is also mentioned on page 384: "*Much* and, to a lesser extent, *many* have acquired some nonassertive force (…), with the result that they are rarely used, at least in informal English, without some negative or interrogative implication." This is confirmed by the corpus study

Lee (2015) did, and other linguists, like Israel (1996, 2011), agree with the idea that *much* is an NPI.

Furthermore, Lee (2015, p. 3) states that using *much*, among other things, in a sentence, "downplays the strength of the negation"; this is called an attenuating NPI (Israel, 2011; Lee, 2015). She also says that the register of each piece heavily influences multal quantifiers' propensity for negative polarity. For example, she says that in formal writing *much* is hardly used as an NPI, whereas in informal spoken language it is. Additionally, Behre (1967, 1969), when looking at Agatha Christie's novels, says that *much* tends to only be used in declarative contexts by foreigners, to show their incompetence of informal spoken English.

Concerning modifiers of *much* (like *so* and *too*), according to Solt (2015), instances of 'bare' *much* (i.e. without a preceding modifier like *so* or *too*) are "awkward in positive sentences, to the point that some authors have considered them negative polarity items" (p. 222).

2.3.1 Change of Much *as an NPI Over Time*

Smitterberg (2009) analysed the data from the CONCE corpus on the distribution of multal adverbs over time. One of his areas of study was whether multal adverbs occurred in assertive or nonassertive contexts. He states that in the 20th century, generally open-class multal quantifiers are mostly used in declarative sentences; he also states the same for the 19th century. Out of the data found, 401 instances of *much* were found in declarative contexts, whereas only 77 instances of *much* were found in nonassertive contexts.

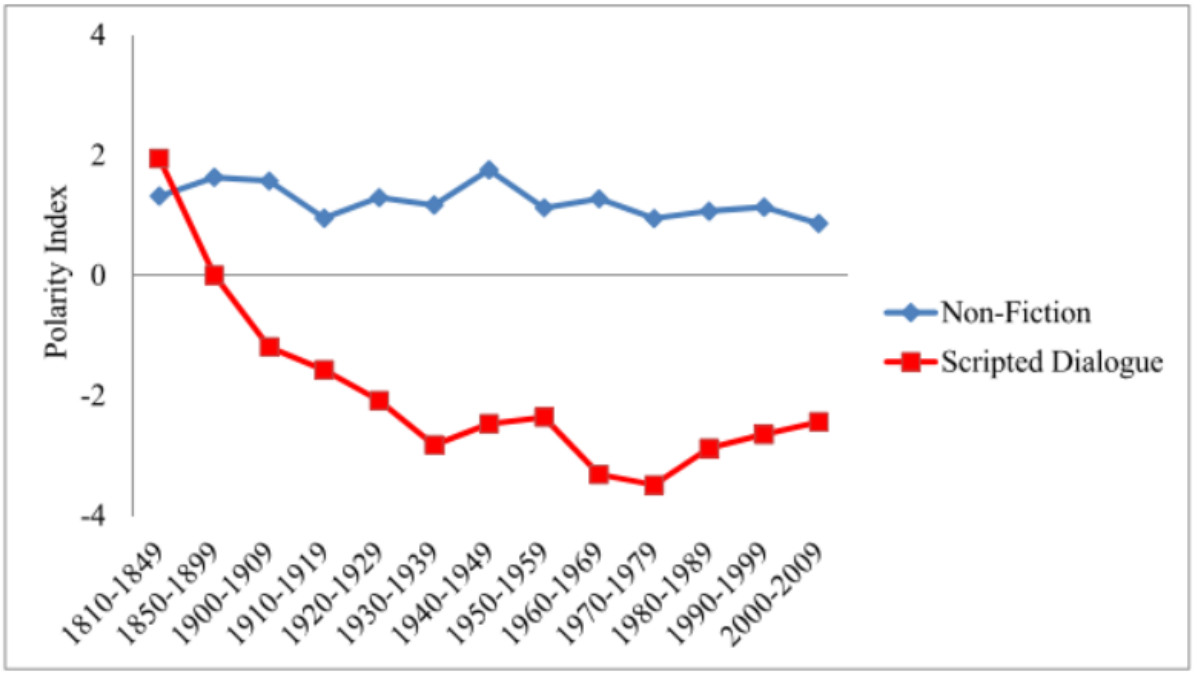
In her research, Lee (2015) made a 'polarity index'[12], where zero stands for no polarity tendency, positive numbers stand for positive polarity and negative numbers indicate

[12] See Lee (2015), pp. 61-62 (paragraph 3.5) for an explanation as to the workings of her polarity index.

negative polarity. She proceeded to analyse the results of 12 corpora of American English, as well as six different Bible translations, to research whether the polarity tendency of *much*, among other words, had changed over time. She noticed that the polarity tendency differed depending on the genre of the material, as well as between (scripted) spoken and written material. For example, take her results from the scripted conversation of the COHA[13] corpus in comparison to non-fiction (see Figure 3):

Figure 3

Polarity Tendency of Much *in COHA*



Note. From *A corpus-based study of change and variation in much, many, far and often as negative polarity items*, by Lee, 2015, p. 72.

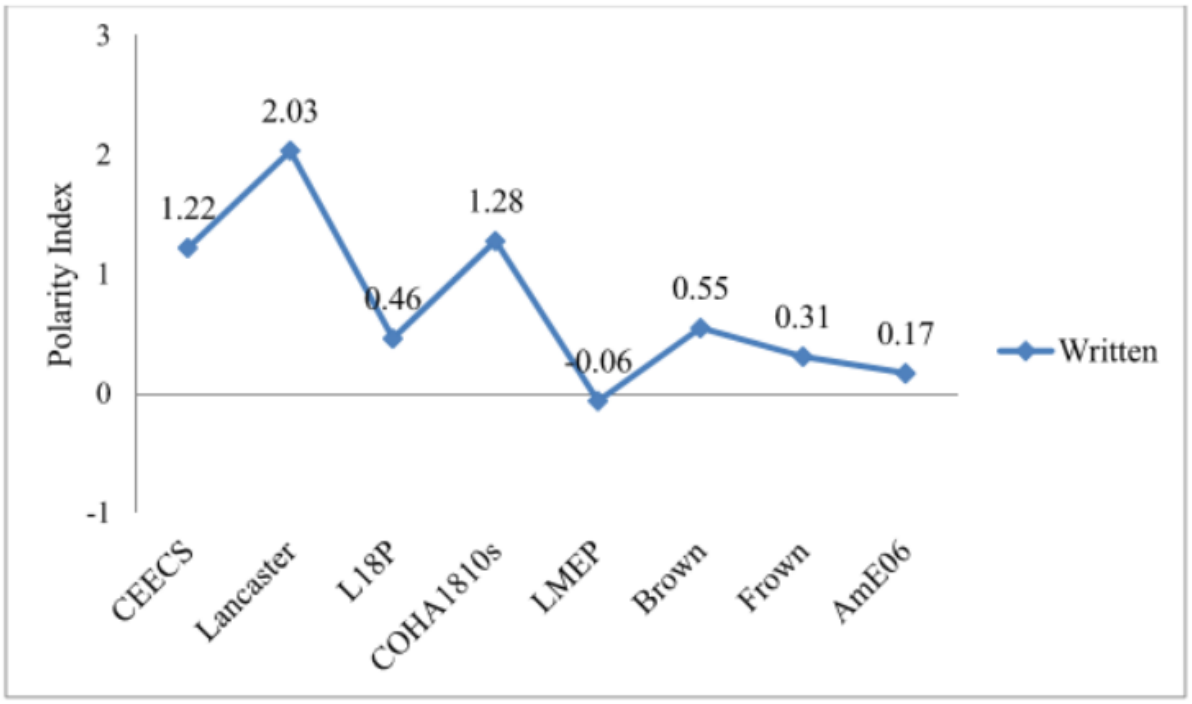
These data show that *much*, over time, was used more and more in negative contexts instead of in positive contexts in scripted dialogue, whereas in non-fiction, it was used much more in

[13] COHA stands for Corpus of Historical American English, with texts from the 1920s-2010s.

positive contexts. Figure 4 shows this as well – other written corpora tend to have the same tendency. On page 73 she says that "the written language suggests differences by genre more strongly than change over time (…)".

Figure 4

Polarity Tendency of Much *in the Written Corpora*



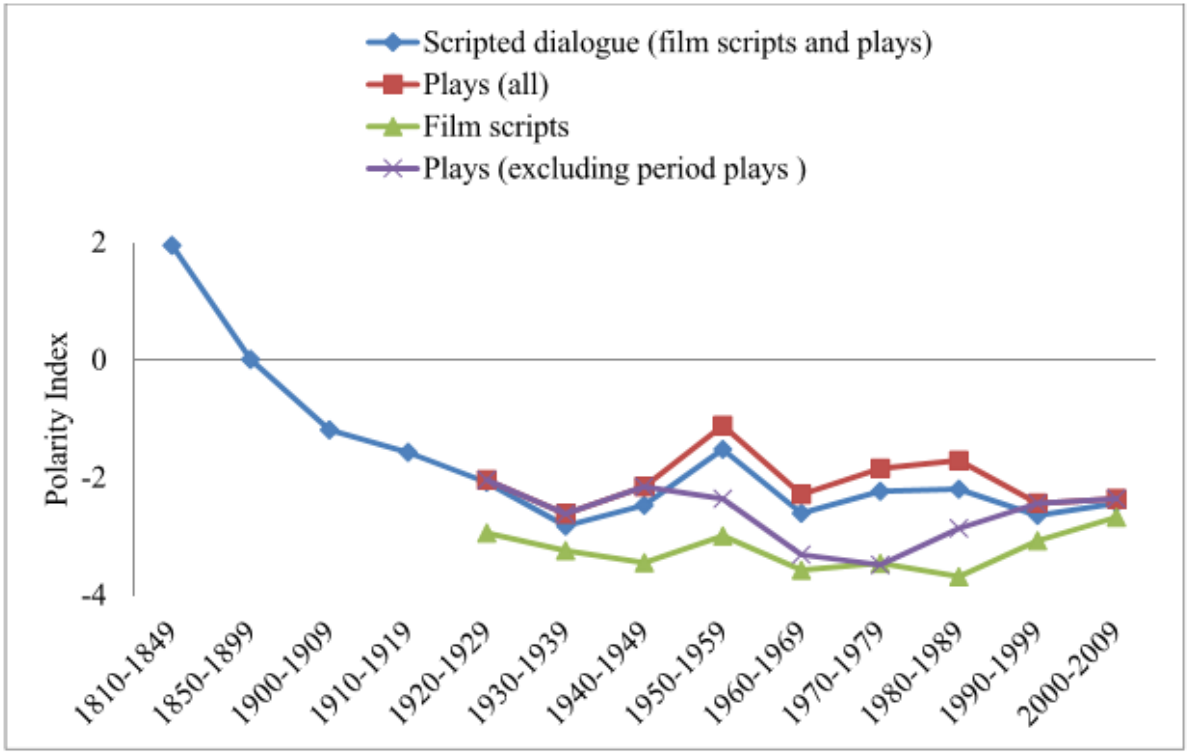
Note. From *A corpus-based study of change and variation in much, many, far and often as negative polarity items*, by Lee, 2015, p. 74.

Overall, written and formal materials include fewer instances of *much* as an NPI, whereas spoken and informal materials seem to include more instances of NPI *much*. Figure 5 shows this as well. The open-class quantifier *lot* (i.e. *a lot* (*of*) and *lots* (*of*)) seems to replace *much* in more positive contexts and grows in usage over time (see Figure 6 and 7). Other open-class quantifiers are also given but are not used remotely as much as *lot*. Lee

(2015) states that in the corpora she used, *lots* (*of*) only occurs from 1812 onwards, whereas *a lot* (*of*) occurred earlier as well.

Figure 5

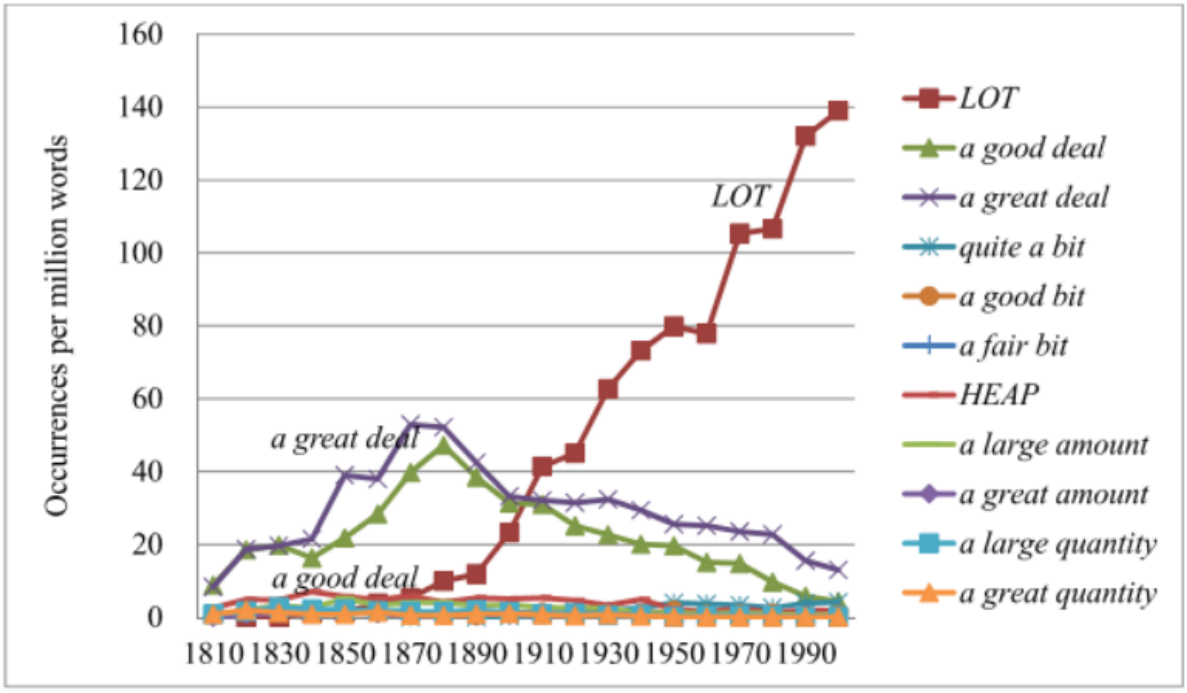
Polarity Tendency of Much *in the Scripted Dialogue of COHA*



Note. From *A corpus-based study of change and variation in much, many, far and often as negative polarity items*, by Lee, 2015, p. 80.

Figure 6

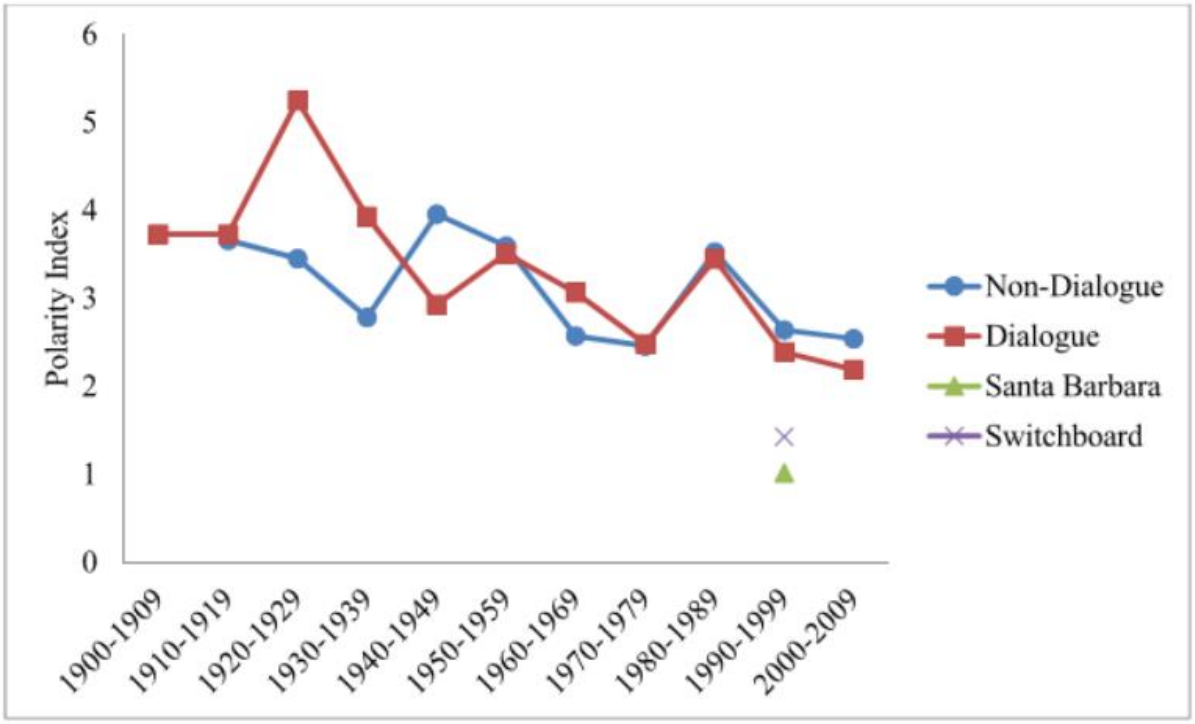
Frequency of Lot *and Other Quantifiers in COHA*



Note. From *A corpus-based study of change and variation in much, many, far and often as negative polarity items*, by Lee, 2015, p. 83.

Figure 7

Polarity Tendency of Lot *in COHA and Present-Day Spoken Corpora*



Note. From *A corpus-based study of change and variation in much, many, far and often as negative polarity items*, by Lee, 2015, p. 86.

2.3.2 Differential Much *as an NPI*

On the subject of differential *much* as an NPI, Lee (2015) firstly says that "comparatives modified by *much* and other quantifiers used as intensifiers can be either predicative (…) or attributive (…)" (p. 102). She later says that when an intensifier and a comparative occur in an attributive sense, they always occur in non-NPI contexts. She does not say anything specifically about the predicative use, but mentions that overall, their negative polarity tendency is not as strong, although the more recent the dialogue-genre data are, the more the instances occur in NPI contexts. This is not the case for non-dialogue contexts.

Lee (2015) also did some more general research on adverbial *much* (generally in combination with verbs), and found that adverbials occurred more in NPI contexts, across different genres, like COHA's scripted dialogue. However, with regard to COHA's non-fiction genre, it is only from the 1940s that a tendency towards appearing in NPI contexts occurs.

Lee (2015) lastly states that in the SOAP corpus (a corpus of American soap operas), which contains very informal language, *much* in non-NPI contexts occurs with words like *this*, *that*, *so*, *too*, or with a comparative (examples from Lee, 2015, p. 5):

(42) I hate seeing you in *this much* pain.

(43) I think he's working a *much bigger* agenda.

She later says that (adverbial) *very much*, regardless of the genre it occurs in, prefers more positive contexts than when it is unmodified (or 'bare').

2.3.3 Adnominal Much *as an NPI*

Not much has been written on adnominal *much* as an NPI. Generally, Kytö and Smitterberg (2006; as well as Israel 1996, 2011; Quirk et al., 1985) state that multal quantifier *much* (which is adnominal) occurs mostly in nonassertive contexts, whereas in positive contexts, *a lot* (*of*) and *lots* (*of*) started to replace *much*, and sound awkward in non-negative declarative sentences (Israel 1996).

However, interestingly, Lee (2015) states that with definitive noun phrase (DNP) constructions in scripted dialogue, i.e., *much of*, there is a "less negative tendency observed in the last decade (2000-2009) in particular" (p. 91), despite it occurring mostly in NPI contexts before then.

3. Methodology

3.1 Data Collection

In order to investigate the differences between *much* used in an adnominal context (also known as a determiner, an adnominal modifier, or an adnominal quantifier; Doetjes, 1997; Morzycki, 2012; Quirk et al., 1985) and *much* as a differential, and to see whether both are used in an NPI context in the same way, the British National Corpus (BNC; Davies, 2004) was used. This because it contains a wide variety of both spoken and written text types and is thus as inclusive as possible.[14] The corpus contains only British English data from the late 20th century (British National Corpus, n.d.). The corpus analysis was done through the English Corpora website (www.english-corpora.org, n.d.). For each type of *much*, a set of random instances from the corpus were taken. On a non-academic license, the website only shows a random sample of 500 instances per search term. Thus, only these 500 instances per type were analysed. In the search box, a phrase per type was written: "much NOUN" and "much ADJ". Any further specification was impossible, which meant that a number of the 500 instances had to be removed as they included *much* in combination with, for example, adjectives that were not differentials (e.g. 'You weren't much good.'; the deleted instances are listed in Appendix 3). The total number of instances that were left were 358 instances for *much* as a differential (See Appendix 5), and 418 instances for *much* as an adnominal modifier (See Appendix 7).

3.2 Analysis

As stated before, the corpus was analysed through the English Corpora website (www.english-corpora.org, n.d.). The website allows you to save the 500-word samples in

[14] One should note, however, that the corpus contains many more written than spoken materials; and that, within the written genre, the subgenre 'W_fict_prose' (i.e., short stories and novels) is again the largest.

lists, which made sure that the same words appeared every time. These lists also included the text type, as well as the sentence the instance of *much* occurred in. For an example, see Figure 8 for a screenshot of some "much NOUN" search results, which have not been sorted through yet.

Figure 8

Partial List of 'Much NOUN', Not Sorted

33	☐	BNC:J8G S_interview_oral_history	to it, there are too many er, there's, there was too **much call** for er lighting in offices, shops, schools and that sort of thing
34	☐	BNC:J8G S_interview_oral_history	erm make catalogues as often as they used to do er, it costs so **much money** in it (pause) I'd er, I, I think that probably the
35	☐	BNC:JA3 S_interview	still have to sit down and talk to them about these businesses. Get as **much information** as to why they have been put on that list. Because you'll
36	☐	BNC:D97 S_meeting	(unclear) (SP:D97PS000) Well you can always divide up. (SP:D97PSUNK) (unclear) (SP:D97PSUNK) Thanks ever so **much folks** and I'll see you (SP:D97PS
37	☐	BNC:F7V S_meeting	locations (pause) erm (pause) it's just that (pause) there's probably (pause) not so **much point** in doing it until you know that there is (pause) er (pause
38	☐	BNC:HM6 S_meeting	erm, entertainment of their, their families. They d-- don't make so **much fuss** about it (pause) they distribute it (pause) and it gets on very satisfactory
39	☐	BNC:J44 S_meeting	for you. (SP:PS3S0) Thank you Mr (-----). Mr (-----). That you very **much Mr** (-----) I've got Mr (-----) followed by Mr (-----) (SP:J44PSUNK) Thank you erm
40	☐	BNC:J44 S_meeting	it's a (unclear) bypass. I sometimes think the (-----) access road bears as **much relation** to (-----) as Paul Gascoigne does to the Queen, Queen Mother. (

Note: from https://www.english-corpora.org/bnc/.

The instances of both *much* types were analysed by hand, and those instances that were not applicable were deleted (See Appendix 3, which shows which instances were deleted). Per type, the samples were then divided into instances in sentences with (implied) negation (i.e. the context for NPIs; referred to as NEG), and instances in sentences where (implied) negation did not occur (referred to as POS). These were then analysed for shared characteristics and for their preference for occurring in NPI contexts.

A tally was made of the genres in which, for differential *much* and adnominal *much*, the NEG and POS instances occurred. They were divided into written and spoken genres, as well as into subcategories of the written and spoken genres. The system that the BNC adheres to was used for this. An example is "W_fict_prose"; 'W' stands for writing, and the subcategory then follows this genre. In this case, "fict_prose" stands for "novels and short

stories" (Lee, 2002). An example of a spoken genre is "S_conv"; here, 'S' stands for spoken, and the subcategory follows the genre. 'conv' stands for "face-to-face spontaneous conversations" (Lee, 2002). A list of the genre labels used in this thesis, and their meanings, can be found in Appendix 4.

For adnominal *much*, an analysis was also done on the different types of noun. I.e., mass nouns, gerunds, and '*much* idioms' (also referenced to as 'idioms'). These idioms were analysed separately because they showed characteristics that they behaved differently from occurrences with mass nouns, through distribution, for example (as explained below). To ascertain whether these analyses were valid, a short BNC search was done in the Discussion section, in which the first 30 instances of a random sample (See Appendix 9) were analysed and compared to the results from the Results section.

Furthermore, both differential and adnominal *much* were analysed based on the word combinations they occurred in (e.g. *as much*, *very much*, *that much*, etc.), and these were analysed on their POS-versus-NEG distribution as well. Like with the *much* idioms, a quick BNC search was done (See Appendix 8 for the differential *much* combinations, and Appendix 10 for the adnominal *much* combinations) in the Discussion section, to ascertain whether they corresponded to the results in the Results section.

Lastly, an explanation of the *much* idioms will be given. The phrases that fall under this category are *much chance*, *much point*, *much notice*, *of much use*, and *much call*. These have been categorised as such because they behave differently from 'normal' mass nouns. For example, they cannot be combined with *a bit of*, since this is ungrammatical:

(44) A bit of work

(45) A bit of milk

(46) * A bit of chance

(47) * A bit of point

(48) * A bit of notice

(49) * A bit of much use

(50) * A bit of call

(51) A bit of love

(52) A bit of happiness

This shows that they differ from the distribution of ‘normal’ mass nouns. As such, they have been put into a separate category in order to study their combination with *much*, so as not to affect the results of *much* in combination with a ‘normal’ mass noun.

4. Results

In this chapter, the results of the study will be discussed. First, differential *much* will be discussed, including the *much* combinations and the genres it occurs in. Then, adnominal *much* will be discussed, including the different noun types, the *much* idioms, the *much* combinations, and the genres it occurs in. Three notes should be given about the results section: those instances in which (implicit) negation occurs have been labelled 'NEG'. Sentences in which this negation does not occur, then, have been labelled 'POS'. Secondly, the legends of the figures should be read from left to right, and not from top to bottom. Lastly, it should be noted that the number of written materials far outweigh the number of spoken materials, and that within the written section, W_fict_prose again outweighs the rest of the written subgenres in number.

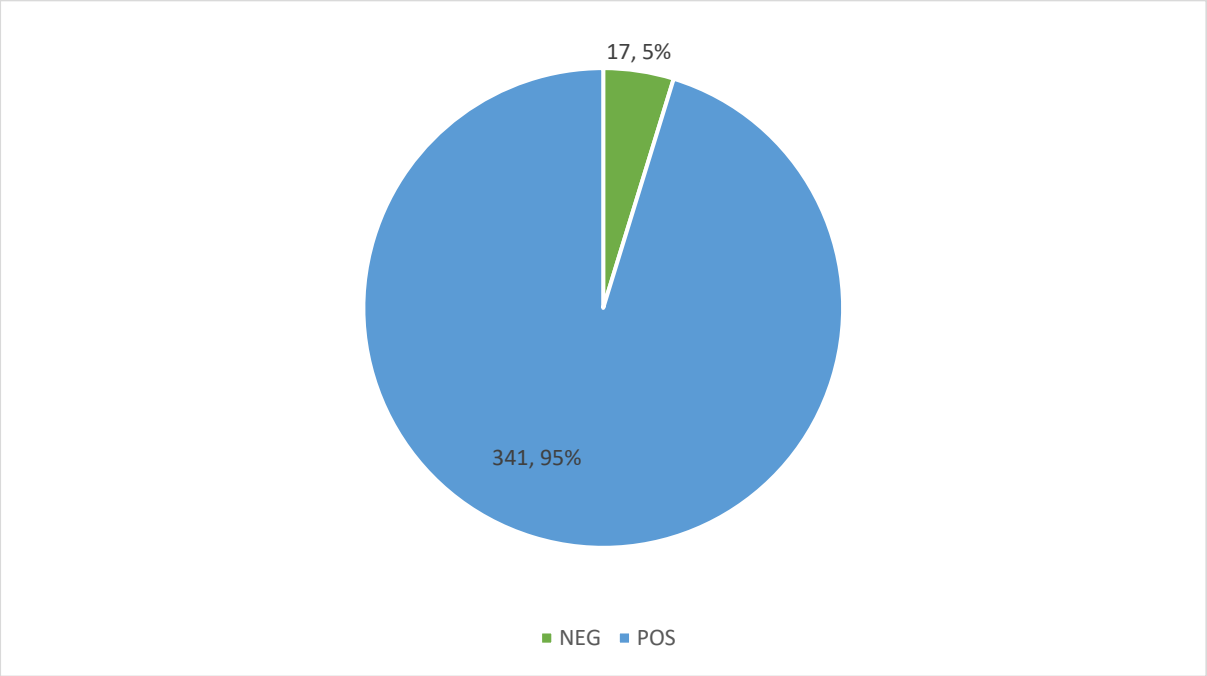
4.1 Differential *Much*

4.1.1 POS versus NEG Instances

In total, 358 instances of *much* as a differential were left after removing all unusable instances. See Appendix 5 for the complete list of instances. It is clear to see that differential *much* is almost always used in POS sentences (see Figure 9): Only 17 instances are NEG, with the other 341 instances being labelled POS.

Figure 9

Negative Versus Positive Instances of Differential Much



Some of these differential-*much* NEG sentences are:

(53) no it isn't a brilliant idea but the thing is we didn't have **much further** to walk can we? (Instance 11)

(54) Er well he's not **much older** than you (Instance 30)

(55) Colin McRae says it won't make the car **much quicker** but … (Instance 119)

(56) The first of these points does not require **much further** emphasis at this stage. (Instance 272)

(57) Children not **much younger** than Rich arriving to be his nephews, nieces, playmates. (Instance 384)

Some example POS sentences are:

(58) Erm (pause) they're being **much stricter** about what you can do to them. (Instance 5)

(59) they're just as good as I am, some can sing so **much nicer**, … (Instance 15)

(60) Market demand for it has been **much higher** than expected … (Instance 154)

(61) Their bewilderments, infatuations, sense of being lost and abandoned, are **much stronger** than those of Aragorn or Gimli or anyone else … (Instance 291)

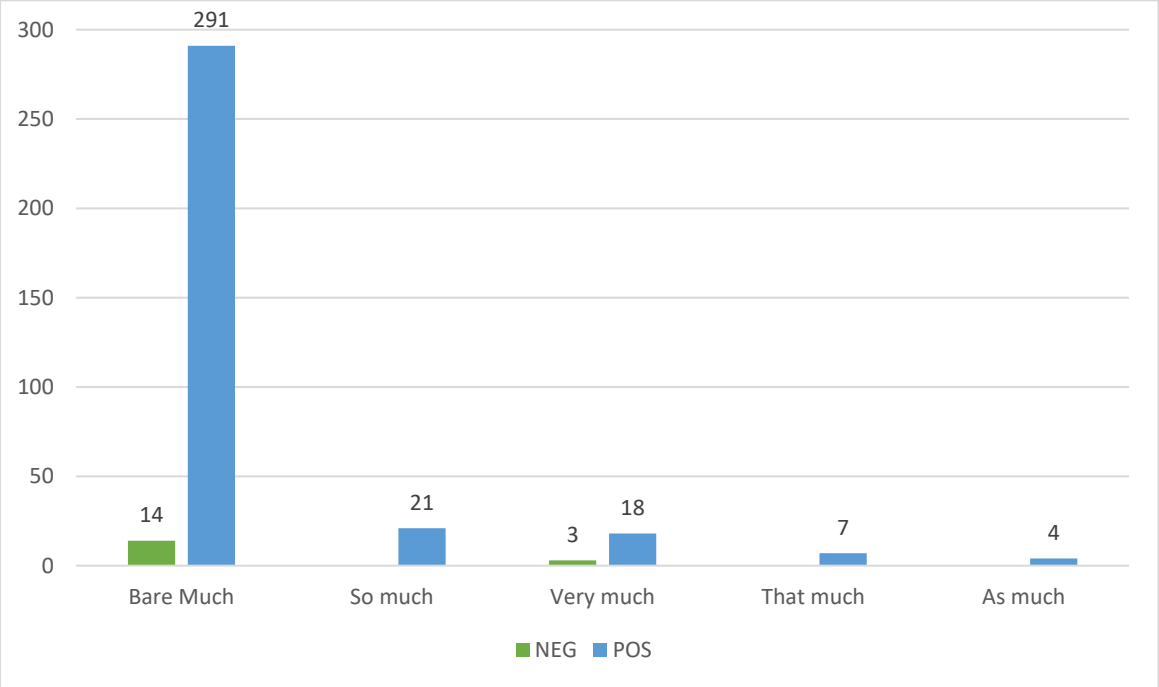
(62) Italian communism appears economically **much harder-headed** than British Socialism. (Instance 419)

4.1.2 Much *Combinations*

Differential *much* could be subdivided into five categories (see Figure 10): combinations of *so much*, *very much*, *that much*, and *as much* (*as*). 'Bare' *much* is not combined with any other word. The most-used category overall, and the one that includes almost all the NEG instances, is bare *much*, with 291 POS instances and 14 NEG instances. *So much* accounts for 21 POS instances, *very much* for three NEG instances and 18 POS instances, *that much* for seven POS instances, and *as much* for four POS instances.

Figure 10

Negative Versus Positive Instances Among Differential Much *Combinations*

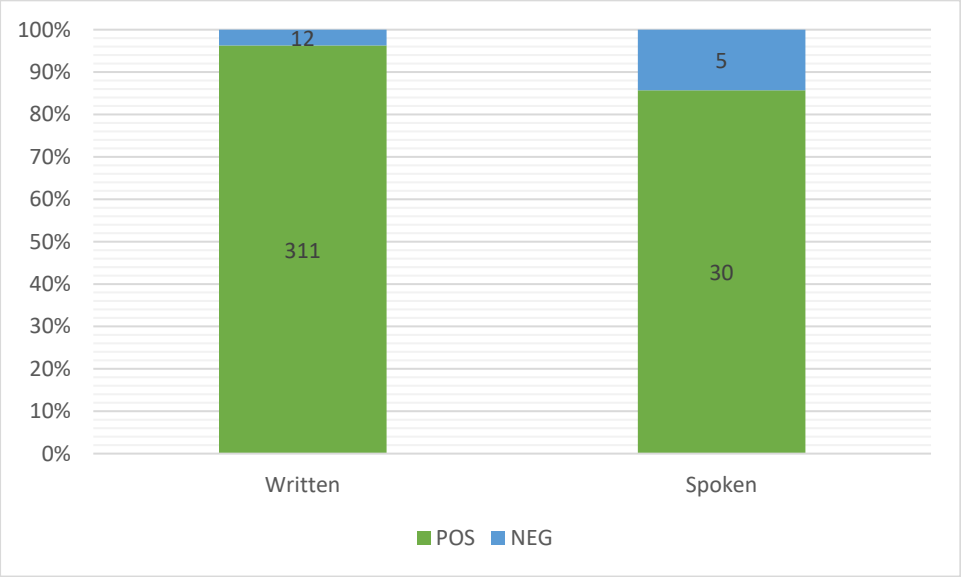


4.1.3 Much *Genres*

The instances were analysed for genre preference (see Figure 11). Of the 358 instances, 323 were written, and 35 were spoken. Of the spoken instances, five were NEG, and 30 were POS. Of the written instances, 12 were NEG, and 311 were POS. Proportionally, more NEG instances occurred in spoken contexts, whereas more POS instances occurred in written contexts.

Figure 11

Written and Spoken Instances for POS and NEG Differential Much



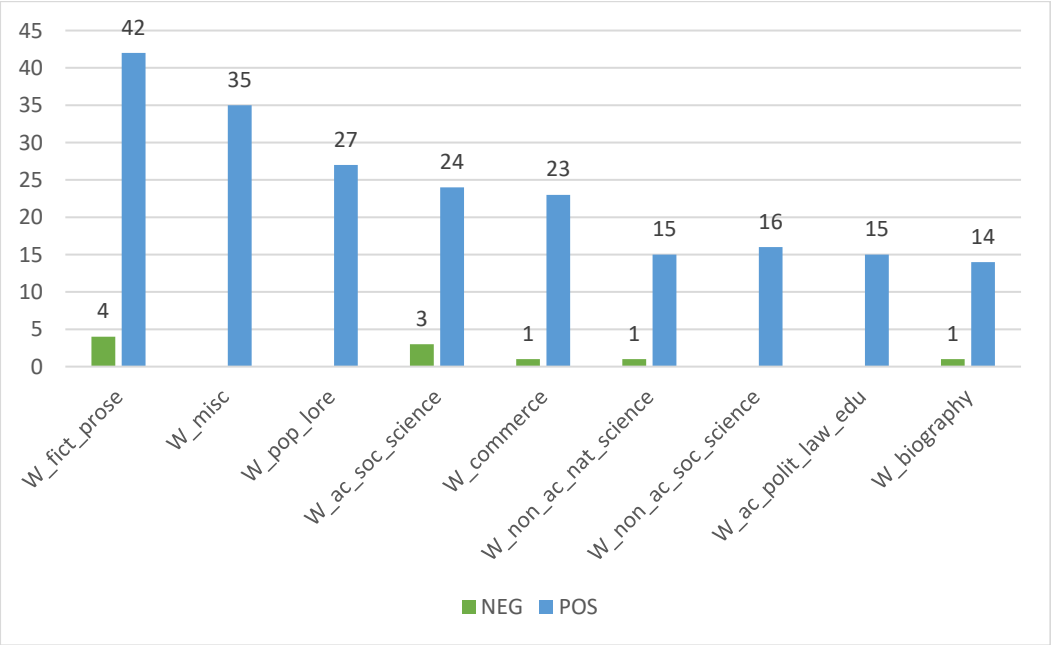
A comparison was made of POS and NEG instances across the most-used subgenres[15] (see Figure 12; see Appendix 4 for a list of genre tags and their meanings). For a complete list of POS versus NEG instances per subgenre, including percentages, see Appendix 6.1. The most-used subgenre for both categories is 'W_fict_prose' (i.e., novels and short stories), with 42 POS and four NEG instances. Some of these subgenres only occur in POS contexts, like 'W_misc' (i.e., miscellaneous texts; 35 instances), 'W_pop_lore' (i.e., popular magazines; 27 instances), 'W_non_ac_soc_science' (i.e., non-academic: social and behavioural sciences, Lee, 2002; 16 instances), and 'W_ac_polit_law_edu' (i.e., academic prose: politics, law, education; 15 instances). With the exception of 'W_ac_soc_science' (3 NEG and 24 POS instances), the other three subgenres only have one NEG instance: 'W_commerce' (i.e., commerce and finance, economics; 23 POS instances), 'W_non_ac_nat_science' (i.e., non-

[15] For clarity, this Figure only shows the subgenres with 10 or more instances. The rest can be founded in Appendix 6.1.

academic: natural sciences; 15 POS instances), and ‘W_biography’ (i.e., biographies/autobiographies, Lee, 2002; 14 POS instances).

Figure 12

Most-Used NEG Versus POS Instances of Subgenres With Differential Much



4.2 Adnominal *Much*

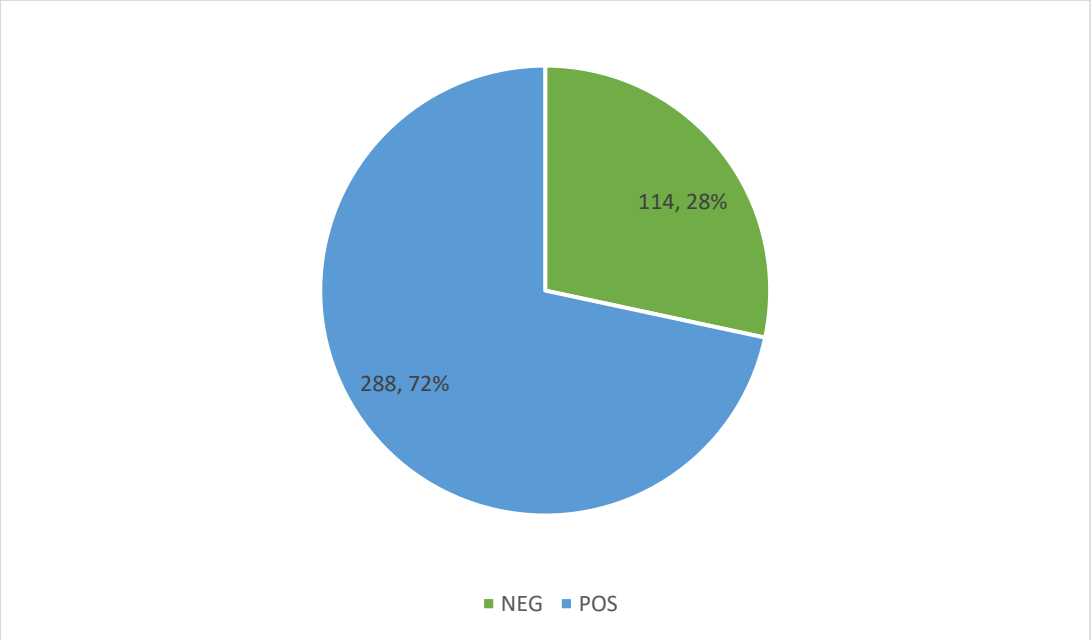
4.2.1 POS Versus NEG Instances

The 418 instances of adnominal *much*, taken from the British National Corpus, were analysed. A complete list of the instances, with context, can be found in Appendix 7. Of these 418 instances, a select few have been kept separate since they are part of idioms, and will be discussed separately. This set is called the ‘*much* idiom’ set, and it consists of 16 instances. The resulting 402 instances are shown below.

Of the 402 instances given by the BNC, 114 instances occurred in sentences in which (implicit) negation took place. The other 288 instances occurred in sentences in which (implicit) negation did not occur. See Figure 13.

Figure 13

NEG Versus POS Instances of Adnominal Much



Some example adnominal-*much* NEG sentences are:

(63) Right (pause) well there's (laughing) not **much space** left is there! (Instance 22)

(64) She hadn't expected to get **much sleep**, but exhaustion finally overcame her … (Instance 129)

(65) Christian preachers attempted, without **much success**, to persuade their congregations to fast … (Instance 298)

(66) Life, as John recalls it, was happy if hard, with not **much time** left over for fun after the daily toil was complete … (Instance 400)

(67) For similar reasons, not **much weight** can be given to the argument that … (Instance 476)

Some example POS sentences are:

(68) You just waste so **much time**. (Instance 27)

(69) Another lorry had too **much weight** on the front axle. (Instance 161)

(70) Adults, too, spend **much time** distracted and on routine activities … (Instance 260)

(71) There is, of course, **much argument** about what is ‘normal’, but in general … (Instance 371)

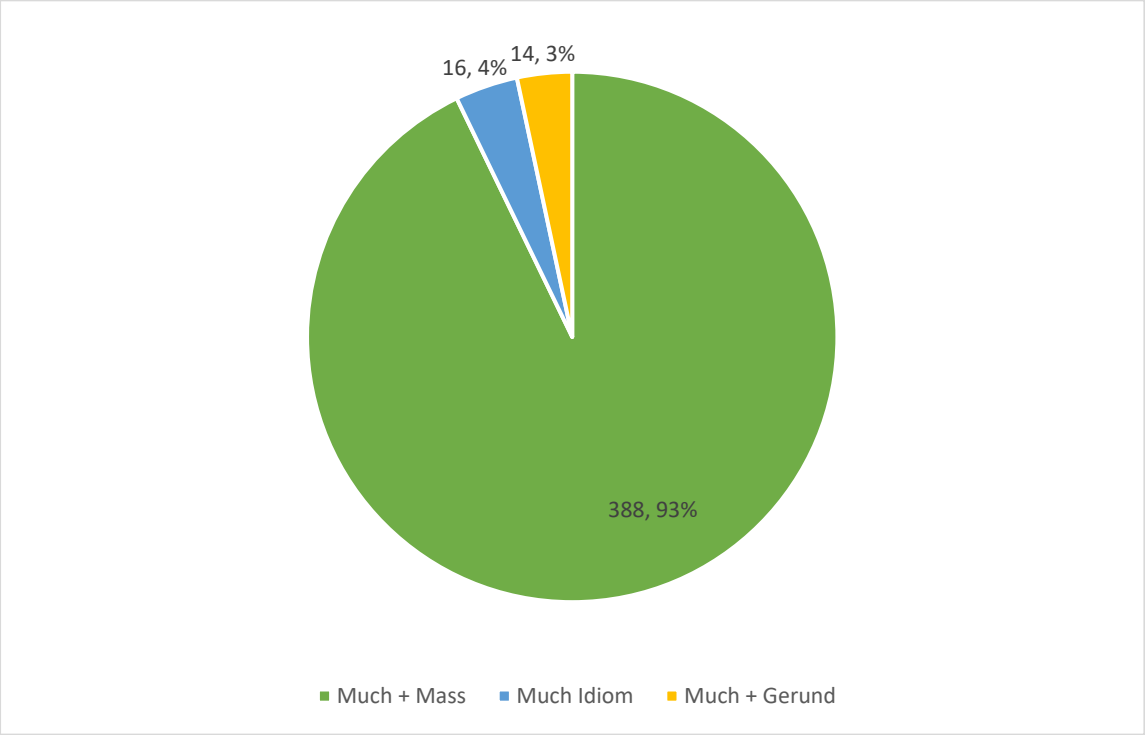
(72) During the 20th century the average person in Western society has been eating too **much fat** and too little fibre. (Instance 470)

4.2.2 Much *Noun Types*

Adnominal *much* occurred in several different contexts (see Figure 14). Firstly, and most commonly, it was used in combination with a mass noun (‘*Much* + Mass’; 388 instances). It also occurred as part of an idiom (labelled ‘*much* idiom’; 16 instances). Lastly, it was used in combination with a gerund (i.e., ‘*Much* + Gerund’; 14 instances).

Figure 14

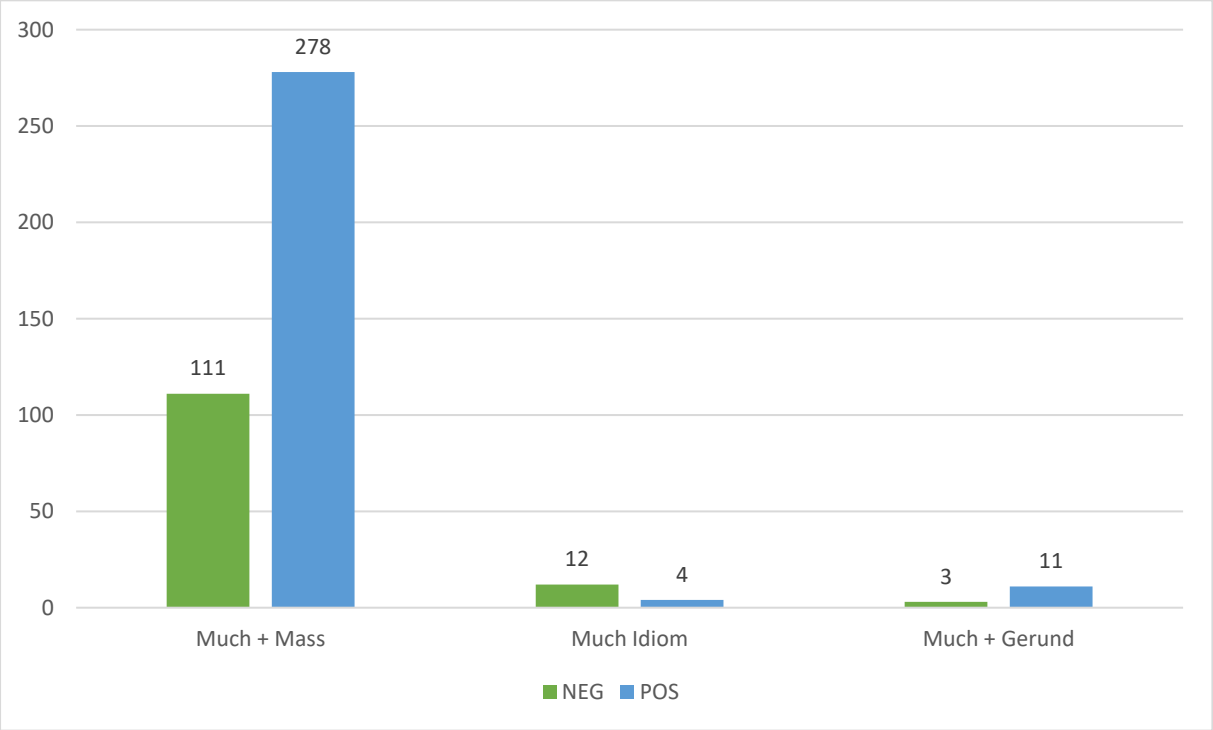
Types of Nouns in Combination with Adnominal Much



When looking at these subcategories and their division between NEG and POS (see Figure 15), one can see that by far most of the NEG and POS instances are part of the '*much* + mass' label (111 and 278 instances, respectively). With '*much* idiom', more NEG than POS instances occurred, with 12 instances for NEG and four instances for POS. Lastly, with '*much* + gerund', three instances were NEG, whereas 11 instances were POS.

Figure 15

Instances of Types of Nouns, Divided Into POS and NEG

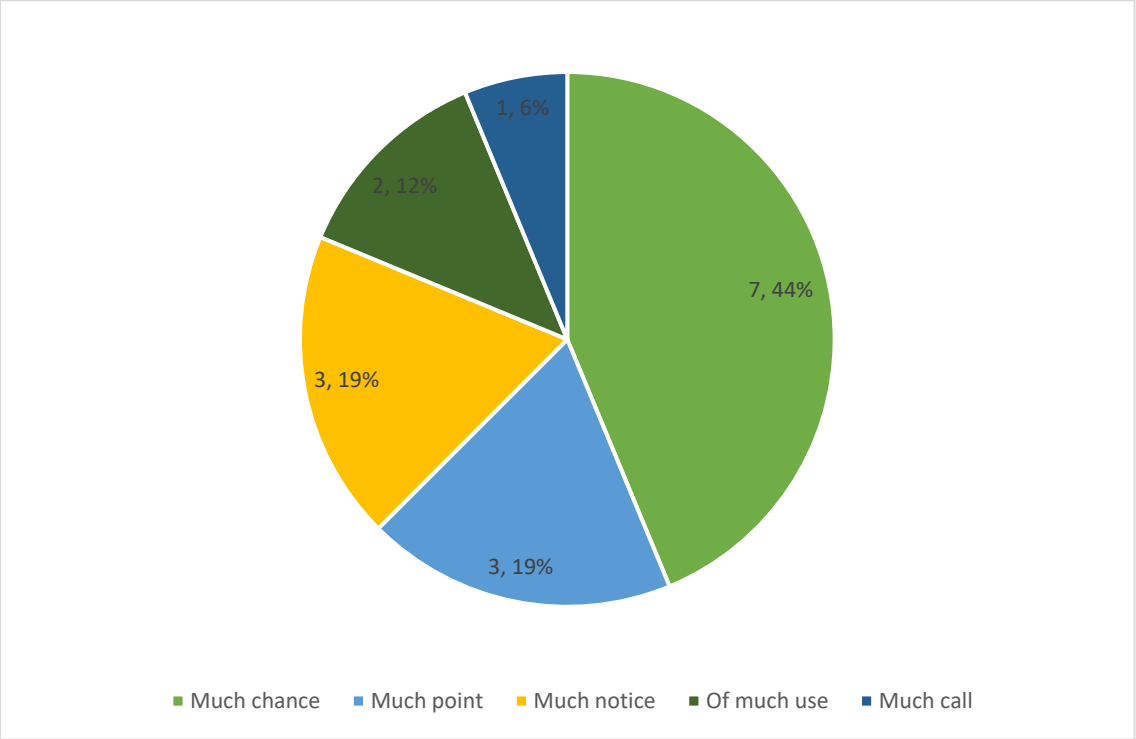


4.2.3 Much *Idioms*

Concerning the *much* idiom category, certain types of idiom occur more frequently than others (see Figure 16); *much chance* occurs the most with seven instances, and *much point* and *much notice* both occur three times. The least-used ones are *of much use* with two instances, and *much call* with one instance.

Figure 16

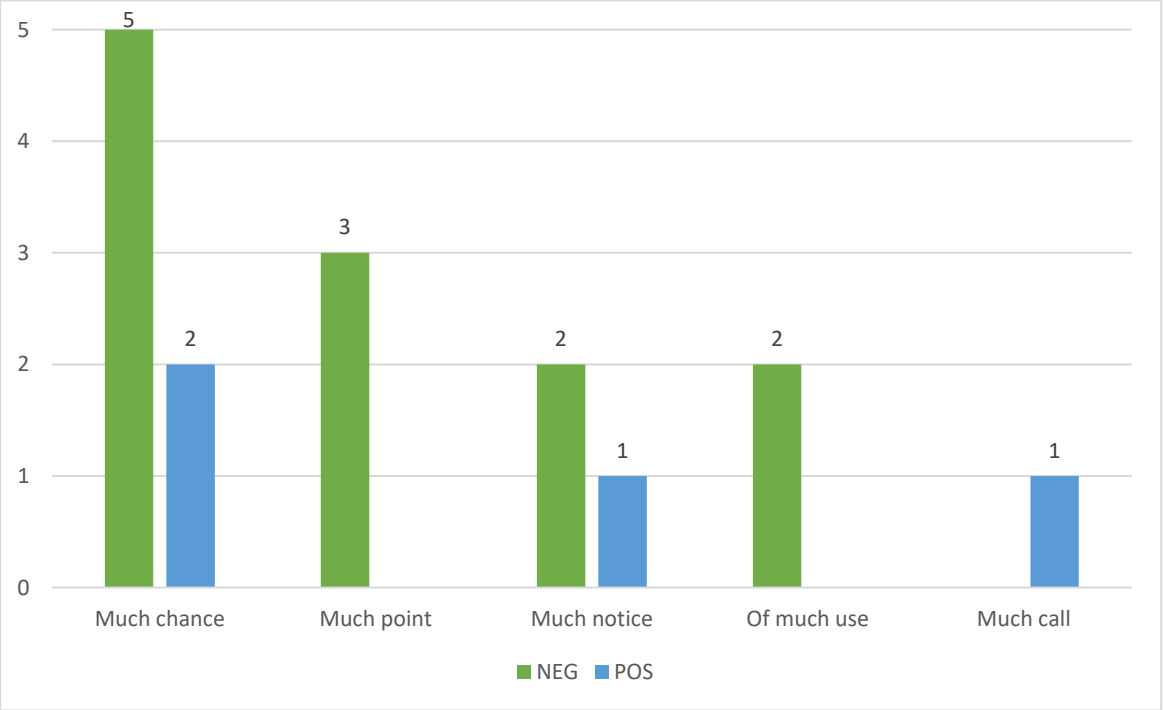
Instances of Much *Idioms*



Once they are divided into NEG and POS instances (see Figure 17), it can be seen that *much chance* and *much notice* occur more often in NEG contexts, with five (versus two POS) and two instances (versus one POS instance), respectively. *Much point* (three instances) and *of much use* (two instances) only occur in NEG contexts. Furthermore, *much call* (one instance) and *much talk* (one instance) only occur in POS contexts.

Figure 17

NEG Versus POS Instances in Much *Idioms*



Some examples of *much* idioms in POS and NEG sentences are:

(73) not giving me **much chance** to get done what I was gon na do though (laugh) (Instance 2)

(74) … there was too **much call** for er lighting in offices, shops schools and that sort of thing (Instance 33)

(75) … started to call them the Lost Boy Murders, but I didn't take too **much notice** of it all. (Instance 247)

(76) … words may be quite useful for various p arts of grammatical analysis but are not of **much use** in phonology. (Instance 291)

(77) The cup, which was valued at 30, attracted **much notice** and was sent to London to be presented to William IV. (Instance 303)

4.2.4 Much *Combinations*

Adnominal *much* (including *much* idioms) can also be divided into different combinations: *too much*, *so much*, *as much*, *that much*, and *very much*. Of course, bare *much* does not combine with anything. Bare *much* has by far the highest number of instances (209; see Figure 18). *Too much* has 76 instances, *so much* has 64 instances, *as much* has 60 instances, *that much* has five, and *very much* has four.

The distinction between NEG and POS sentences among these combinations shows that *too much* (67 POS versus nine NEG instances), *so much* (67 POS versus four NEG), *as much* (50 POS versus 10 NEG), *that much* (four POS versus one NEG), and *very much* (three POS versus one NEG) occur almost exclusively in POS contexts, whereas bare *much* occurs only a little more often in POS contexts (109 POS instances versus 100 NEG instances; see Figure 19).

Figure 18

Combinations of Adnominal Much

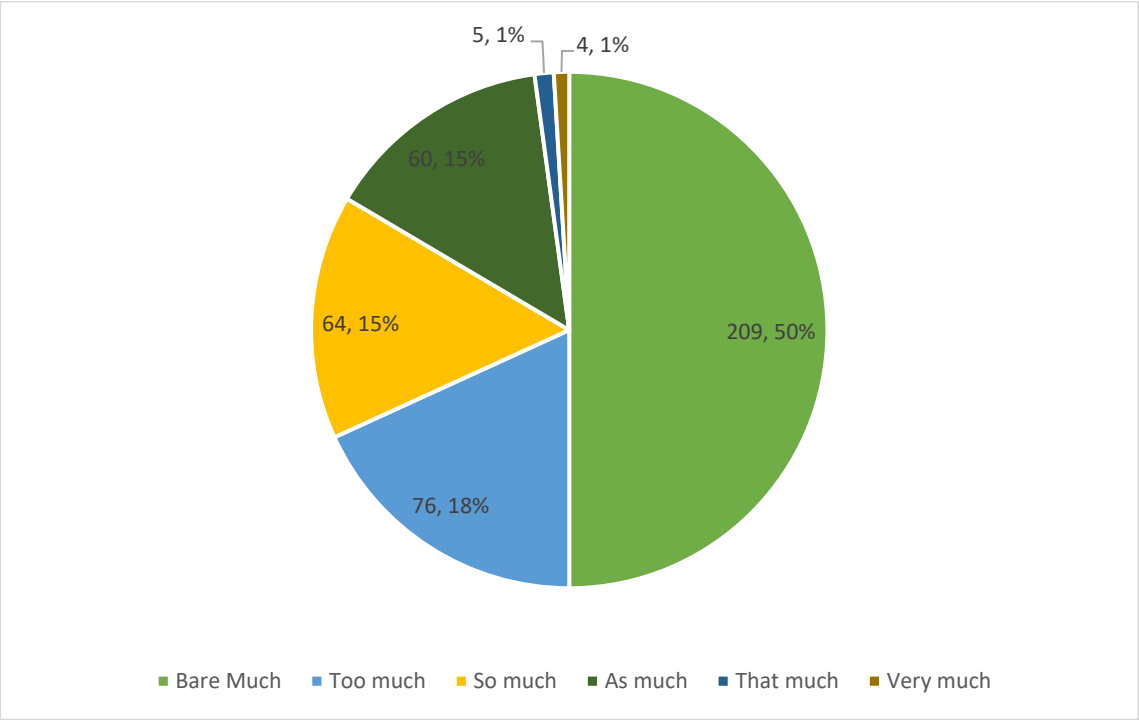
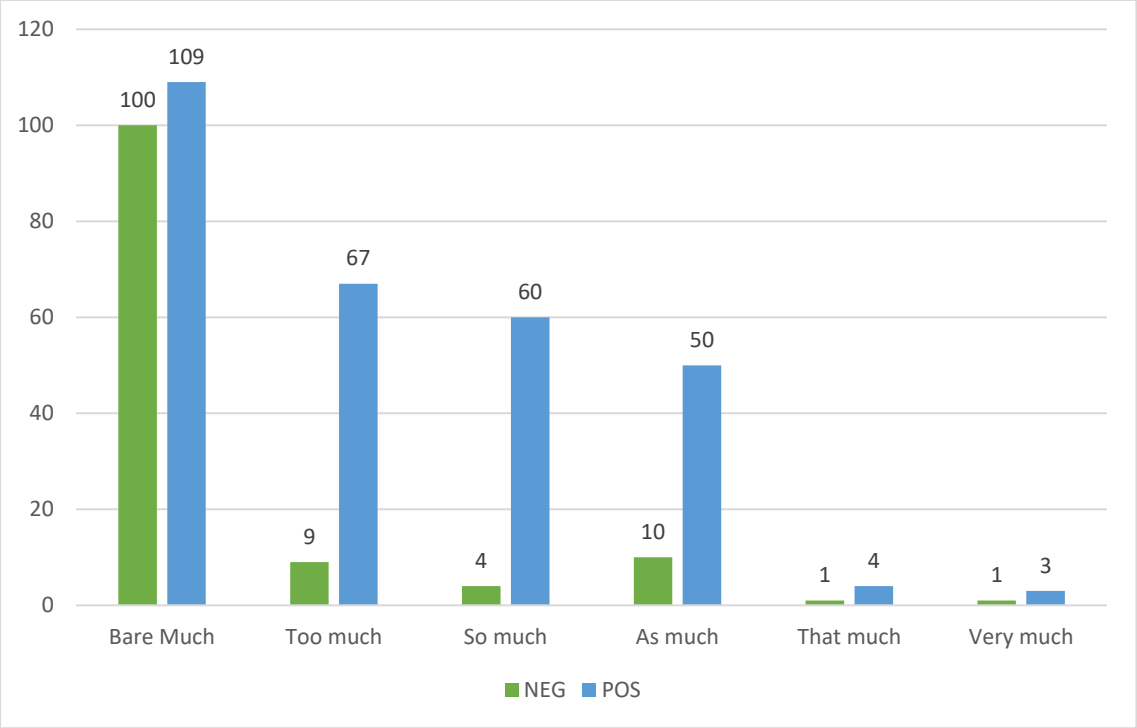


Figure 19

NEG Versus POS Instances Among Adnominal Much *Combinations*

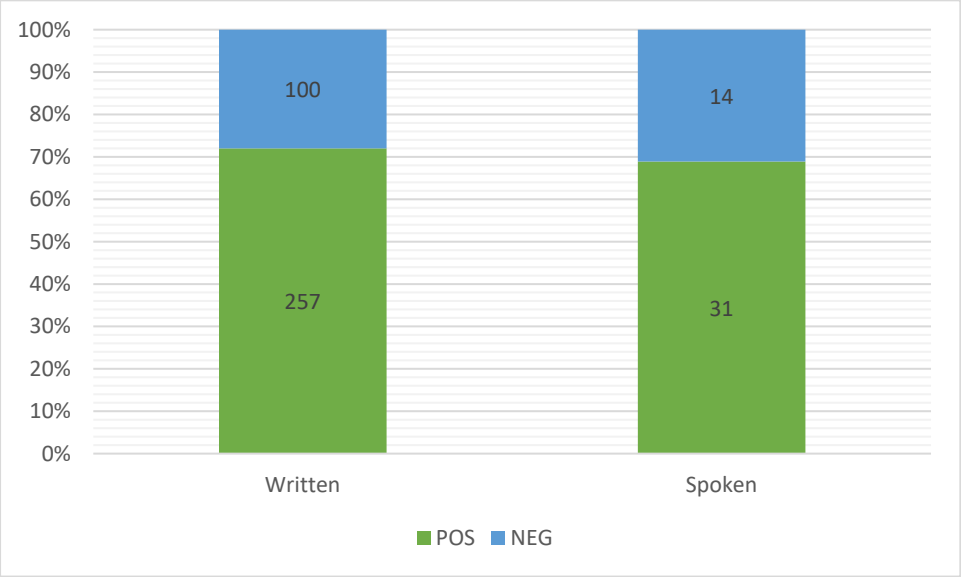


4.2.5 Much *Genres*

The instances were analysed for genre preference (see Figure 20). Of the 418 instances, 357 were written, and 45 were spoken. Of the written instances, 100 were NEG, and 257 were POS. Of the spoken instances, 14 were NEG, and 31 were POS. Proportionally, NEG instances occurred slightly more in spoken contexts, whereas POS instances occurred slightly more in written contexts.

Figure 20

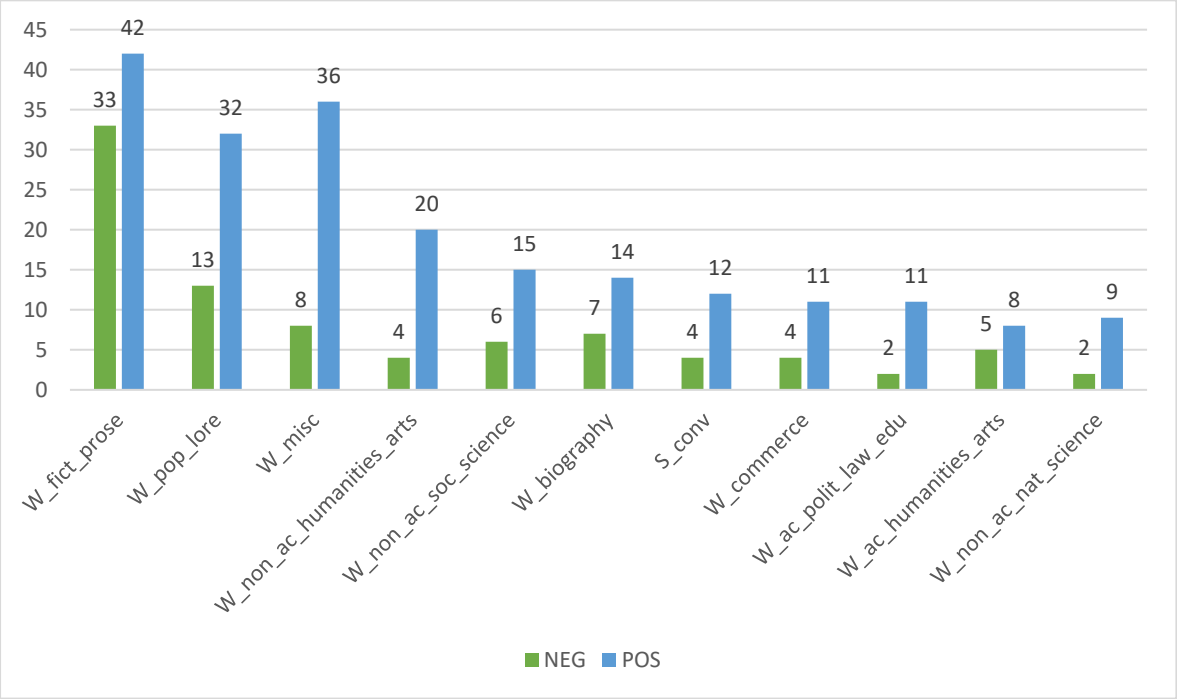
Written and Spoken Instances for POS and NEG Adnominal Much



A comparison of both the POS and NEG subgenres (see Figure 21) shows that with the most-used subgenres (i.e., the subgenres that are used 10 or more times), every subgenre has both NEG and POS instances. The most-used subgenre is yet again ‘W_fict_prose’ (42 POS versus 33 NEG instances), with ‘W_pop_lore’ (32 POS versus 13 NEG instances) and ‘W_misc’ (36 POS versus 8 NEG instances) being the second- and third-most-used. For a complete list of the NEG and POS instances per subgenre, see Appendix 6.2, and for an explanation of all the genre tags, see Appendix 4.

Figure 21

Most-Used NEG Versus POS Subgenres for Adnominal Much



5. Discussion

In this chapter, the results (see chapter four) will be discussed, and, if possible, linked to the theory from the Literature Review (chapter two). These results will be discussed in the same order as they were presented in the Results section. The limitations of this study and some recommendations for future research will also be given. Lastly, the implications for the theory will be given. Again, please do note that that the number of written materials far outweigh the number of spoken materials, and that within the written section, W_fict_prose again outweighs the rest of the written subgenres in number.

5.1 Differential *Much*

5.1.1 NEG Versus POS Instances of Differential Much

Differential *much* has a definite propensity for occurring in POS contexts (see Figure 9). Out of all 358 instances, only 17 – five percent – were NEG. This shows that in the BNC, differential *much* hardly occurs in contexts with (implicit) negation.

Interestingly, Lee (2015) states that differential *much* does not have as strong a negative polarity tendency as other uses of *much*. However, she later states that more recent instances in dialogue data occur more in NPI contexts. Although proportionally, more instances are NEG when spoken than they are written (see Figure 11 and section 5.1.3), it is still only a relatively small percentage. Regardless, it is clear that differential *much* prefers contexts where (implicit) negation does not occur, which is interesting, since the literature (from grammars like Quirk et al., 1985, to linguistic articles and books, like Israel, 2011) take *much* to be an NPI. This is not reflected in this data.

5.1.2 Much *Combinations*

These differential *much* instances were divided up into several combinations: bare *much* (which does not combine with anything), *so much*, *very much*, *that much*, and *as much* (see Figure 10). These modified cases of *much* generally only occurred in POS contexts. This may indicate that when differential *much* occurs in combination with *so*, very, *that* or *as*, it has a preference for POS contexts.

To confirm the validity of this statement (as was stated in the Methodology; see chapter 3), a short corpus search of the British National Corpus was done of each of the NEG differential *much* combinations (See Appendix 8 for these results; see Figure 22 for a summary), in which the first 30 random instances were analysed. Of course, of these 30 instances, some had to be deleted since they were not followed by a comparative.

Concerning *so much*, nine instances had to be deleted. Only one instance was NEG:

(78) Harry later --; not **so much later** – sought to marry an island girl, and settled down. (Instance 23)

The other instances were all POS, three of which are shown below:

(79) (…) they're just as good as I am, some can sing **so much nicer**, and I've worked with Scotsmen in engineering factories (…). (Instance 5)

(80) It would make you look **so much younger**. (Instance 17)

(81) And on horseback they would feel **so much safer**. (Instance 26)

This shows that there is, a (slight) possibility that *so much* may occur in a NEG context, although it has a strong preference for a POS context.

Then, *very much* was analysed. Nineteen instances were deleted (due to instances like 'Thank you very much'). Of the 11 instances that were left, all of them were POS:

(82) (…) but for reasons that I don't (pause) wholly understand, this is **very much dearer** than the local er supplies available (…). (Instance 2)

(83) I was **very much happier** by the time I went to sleep. (Instance 18)

(84) The space devoted to rare books was **very much smaller** than to the secondhand. (Instance 25)

Interestingly, *very much* here does not occur in a NEG context at all, unlike in Figure 10, in which it was the only modified differential which had NEG instances. Of course, the number of instances in the Figure is too small to draw any conclusions, but it seems possible (although unlikely) that *very much* occurs in NEG contexts.

Thirdly, *that much* was analysed. Fourteen instances were deleted. Of the 16 instances that were left, two were NEG:

(85) If the 1920s were a time of depression, the 1930s were not **that much better**, and morale amongst deaf people was still at an all-time low. (Instance 4)

(86) (…) it doesn't make a lot of sense you know, it's not **that much cheaper**. (Instance 30)

The other 14 instances were POS:

(87) Matters would have been made **that much simpler** had the guild clerk also been the parish clerk (…). (Instance 6)

(88) Although ODT 2.0 will make SunSoft, USL and NeXT work **that much harder** for market share the longer term future of SCO's Unix strategy is somewhat (…). (Instance 17)

(89) I don't quite know, er morning always seems **that much busier** as regards food, so Ivan's going up in the morning (…). (Instance 25)

This also shows that, unlike what Figure 10 shows, *that much* may occur in NEG contexts as well as POS contexts, although it has a definite preference for POS contexts.

Lastly, with *as much*, only two instances were deleted. Of the 28 instances, two were NEG:

(90) (…) an anxious person, even an intelligent one, does not retain **as much new** information as normally. (Instance 2)

(91) (…) it doesn't place you at **as much potential** disadvantage as the orthodox roundhouse kick. (Instance 30)

The other 26 were POS:

(92) (…) which egg laying [sic] females locate by searching narrowly circumscribed [sic] micro-habitats; they are **as much niche-specific** as host-specific (…). (Instance 4)

(93) (…) the Ministry of Agriculture, mindful of its responsibility to increase the production of **as much cheap** food as possible, gave grants to farmers for hedgerow removal. (Instance 15)

(94) Naturally, they exerted **as much downward** pressure on ex-mill prices as they could. (Instance 24)

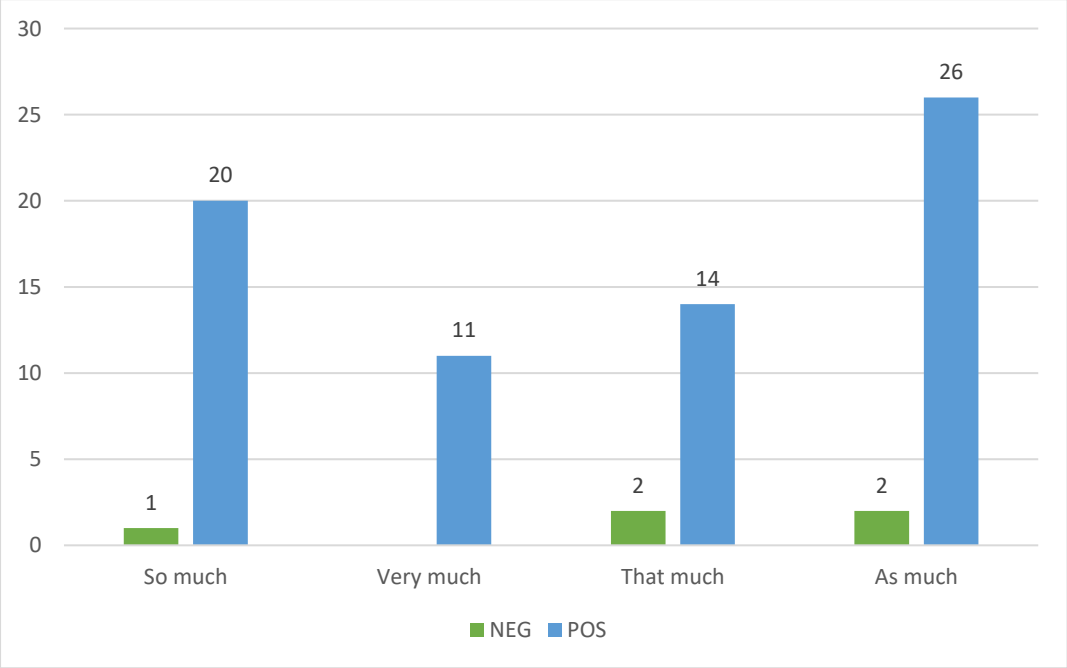
Although the original results contained too few instances to draw any conclusions (four instances; see Figure 10), they do show that there is a slight possibility of *as much* occurring in NEG contexts.

A summary of the results can be found in Figure 22 below (compare with Figure 10). Overall, it can be said that although differential *much* combinations *can* occur in NEG contexts, as can be seen by the examples above and in Figure 10, they have a strong

preference for POS contexts. The same can be said of bare *much*, and thus, differential *much* overall.

Figure 22

A Summary of the Corpus Searches of Differential Much *Combinations*



5.1.3 Written Versus Spoken

When looking at where the NEG instances occurred, most of them (323 instances; see Figure 11, the explanation above the Figure, Figure 12, and Appendix 6.1) occurred in a written context, whereas around 10% (35 instances) occurred in a spoken context. A reason for this is, as was stated before, that the BNC has more written than spoken materials (Lee, 2002). This explains why *much* has such a clear 'preference' for written contexts.

Proportionally, more NEG instances occurred in spoken materials than in written materials (see Figure 11). This may indicate that NEG instances prefer spoken contexts to written contexts. Regardless, most of the instances, both NEG and POS, still occur in written contexts.

The literature states that *much* as an 'NPI' (i.e., occurring in NEG contexts) occurs more in informal and spoken genres, because the POS instances have been replaced by *lot* (i.e., *a lot* (*of*) or *lots* (*of*); Kytö & Smitterberg, 2006; Lee, 2015). Written and formal genres should not include NPI *much* as much. More specifically, NPI *much* occurs in scripted dialogue, plays and film scripts, whereas in non-fiction and general written material, other corpora tend to be neutral or prefer POS contexts (Lee, 2015).

So, when looking at the general written and spoken genres, we do see proportionally more NEG occurrences occurring in spoken material than in written material. Despite this, most occurrences – both spoken and written – are still POS – which clashes with what Kytö and Smitterberg (2006) and Lee (2015) found.

When looking at the most-used subgenres (see Figure 12), then, several things can also be concluded. First of all, several genres which show 'natural' or informal language, like W_pop_lore, W_biography and W_fict_prose, should show more instances of NEG *much*. However, W_pop_lore does not show any instances at all, and W_fict_prose as well as W_biography show very few. Secondly, the instances of more formal, non-fiction writing, should include more POS instances of *much*. This seems to be correct, since most of the most-used subgenres, like W_ac_soc_science and W_ac_polit_law_edu seem to prefer POS contexts. However, again, this seems to conflict with the general idea that *much* is an NPI.

5.2 Adnominal *Much*

5.2.1 NEG Versus POS Instances

As could be seen in the Results section (see Figure 13), roughly a third of the instances (114 instances) occurred in NEG contexts, whereas the other 288 occurred in POS contexts. This shows that although adnominal *much* has a higher propensity for occurring in NEG contexts than differential *much*, it is still only a third. However, this might not be

entirely the case, as can be seen in the section about adnominal *much* combinations below (5.2.4), as well as the Results section (see chapter four). Furthermore, there is something to be said for *much* idioms as well (5.2.3), as can be seen below and the Results section (see chapter four).

Interestingly, as is the case with the differential *much* instances, the literature states that *much* is an NPI (Israel, 2011; Quirk et al., 1985; etc.). However, although more instances are NEG than with differential *much*, it is still a relatively low percentage compared to what one would expect, it being called an 'NPI'.

5.2.2 Different Noun Types

The nouns were divided into three subcategories (see Figure 14): *much* followed by a mass noun (i.e. '*much* + mass'), *much* as being part of an idiom (i.e. '*much* idiom'), and *much* being followed by a gerund (i.e. '*much* + gerund'). *Much* + mass was used the most by far. About a third of the instances of these were NEG (see Figure 15), whereas the rest was POS. Interestingly, when looking at the *much* idiom instances, more of them (12 NEG instances versus four POS instances) were NEG (see also 5.2.3). This may indicate that when *much* is part of an idiom, it has a propensity for being an NPI. This will be discussed in more detail in the next section (section 5.2.3). *Much* + gerund, however, is the opposite: only about a fifth of the instances were NEG, the rest being POS. This might mean that when *much* is combined with a gerund, it has very little propensity for occurring in contexts with (implicit) negation. Of course, for both the *much* idioms and *much* + gerund combination, there are not many instances, which means that these conclusions may change with larger samples.

5.2.3 Much *Idioms*

The *much*-idioms could be divided into different categories (see Figures 16 and 17). Of the different *much* idioms, *much point* and *of much use* only occur in NEG contexts, which may indicate that they are NPIs. Similarly, *much call* and *much talk* only occur in POS contexts, which may indicate the opposite. *Much chance* and *much notice* both occur (more than) twice as often in NEG contexts than in POS contexts, which may also mean that have NPI tendencies. Again, only very few instances of these *much* idioms were found, which affects the validity and accuracy of the results. Thus, as was stated in the Methodology (see chapter three), a short BNC search was done of each idiom, and the first 30 results were analysed and compared with the data from the Results. These corpus searches can be found in Appendix 9.

Of the 30 instances of *much chance*, one was deleted, and one was POS. The rest, 28 instances, were NEG. This shows that *much chance* has a definite preference for occurring in NEG contexts, confirming its validity in the Results section. Of course, it is still possible that it occurs in POS contexts, although it is unlikely. The one example of POS *much chance* is:

(95) what do you mean there's **much chance**, he comes down every Christmas (Instance 9)

Some examples of NEG *much chance* are:

(96) Well between Gemma and the dog you don't stand **much chance** do you? (Instance 5)

(97) Not much hope of a job, not **much chance** of writing a song. (Instance 19)

(98) With his history of rent defaulting, there's not **much chance** of another tenancy, is there? (Instance 30)

With *much point*, no instances were deleted. All 30 instances were NEG. This generally confirms what was seen in Figure 17. With the instances found in the both the 500-instance sample and the extra corpus search, none were POS, which may indicate that it does not occur in POS contexts.

Some examples of NEG *much point*:

(99) So I thought there's not **much point** in me having them, cos I would wear them (Instance 2)

(100) There's not **much point** in carrying on talking really, is there? (Instance 15)

(101) There wasn't much point in it now if they were going to live in Thirkett. (Instance 27)

Much notice was analysed next. Four instances were deleted, and of the 26 instances left, 20 were NEG, and 6 instances were POS. This is similar to the results seen in Figure 17. Those instances that were POS were preceded by *too* or *as*. Regardless, it confirms the idea that *much point* does have a preference for occurring in NEG contexts. Some of the NEG instances were implicit negation (see (107)).

Some examples of POS *much notice* are:

(102) But I was, very disappointed tonight but I hope it, pay too **much notice** cos they're quite expensive aren't they? (Instance 7)

(103) (…) it is certainly our intention to give everyone as **much notice** as possible. (Instance 10)

(104) (…) what I'm guarding against is taking too **much notice** of precise quotes from from from P P G thirteen. (Instance 14)

Some examples of NEG *much notice* are:

(105) (…) she spends her life trying to impress her father who doesn't really takes **much notice** of her, (unclear) (Instance 2)

(106) I actually think we shouldn't take too **much notice** of the letter. (Instance 9)

(107) Everyone was too interested in singing to the actions of the game to take **much notice**. (Instance 23)

With *of much use*, 29 instances were found in the corpus. Of those 29 instances, none were deleted, two were POS, and the other 27 were NEG. Many of the NEG instances included implicit negation (see (112)). Although Figure 17 did not include any POS instances, the short corpus search does confirm that although *of much use* prefers NEG contexts, POS contexts are also possible, if unlikely.

Some examples of POS *of much use* are:

(108) These passivation glasses are **of much use** in the semi-conductor industry, and we have high hopes that with the burgeoning of (…). (Instance 3)

(109) (…) breadth of the Government's spending, but for the accounts to be **of much use** the disaggregated figures have to be used. (Instance 25)

Some examples of NEG *of much use* are:

(110) (…) to make the correct diagnosis, for fungal treatments are unlikely to be **of much use** against bacteria and vice versa. (Instance 7)

(111) (…) when the slurry finally goes onto the land, it is not immediately **of much use** as a fertiliser. (Instance 14)

(112) (…) pitches were often too uninformative, or too ill-spelt and ungrammatical to be **of much use**. (Instance 23)

Lastly, a search of the BNC for *much call* only resulted in nine instances. Of these nine instances, eight were NEG, and one was POS. The POS instance was preceded by *too*. Here again, there are not many instances in the corpus overall, but despite what Figure 17 says, it still points towards a preference of NEG as opposed to POS.

The example of POS *much call*:

(113) (…) if, there are too many er, there's, there was too **much call** for er lighting in offices, shops, schools, and that sort of thing (…) (Instance 2)

Some examples of NEG *much call*:

(114) You don't ever keep the pineapple juice? Only orange. Not **much call** for it. (Instance 1)

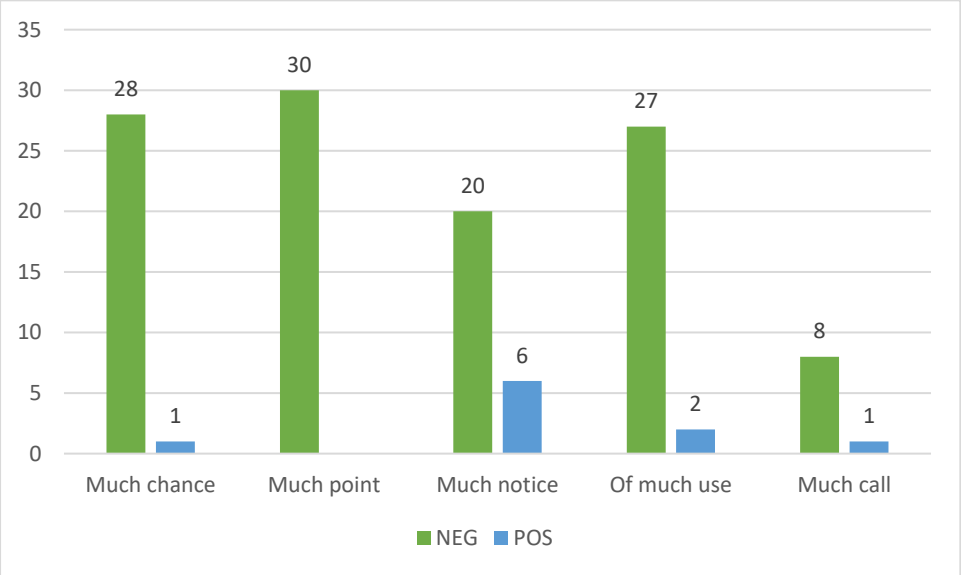
(115) 'I couldn't,' Knocker grunted, 'don't get **much call** for 'em around here, but I expect the Missus can.' (Instance 4)

(116) The Small Business Advice Bureau said there was not **much call** for banksia-blossom owls. (Instance 9)

A summary of the results can be found in Figure 23 below (compare with Figure 17). Overall, it can be said that these idioms prefer to be in NEG contexts, which may indicate that they are NPIs. When they are in a POS context, however, it seems that this is often influenced by a preceding modifier of *much* (i.e. *as, too, that,* etc.; see also 4.2.4 and 5.2.4).

Figure 23

A Summary of the Corpus Searches of Much *Idioms*



5.2.4 Combinations of Adnominal Much

Adnominal *much* also occurred with different modifiers (see Figures 18 and 19). Bare *much* seems to be almost equally divided between POS and NEG instances, whereas the other combinations (*too much*, *so much*, *as much*, *that much*, *very much*) seem to prefer POS contexts. This may mean that bare *much* has a tendency to be an NPI, whereas modified *much* has a preference for occurring in POS contexts.

Interestingly, with *so much* and too *much*, quite a few of the POS instances have a negative connotation. Take a look at the following examples:

(117) … you spend too much, you waste too **much time**. (Instance 16)

(118) … I could not conceive why Old Red should be the object of **so much wrath** from my fellow nurses. (Instance 72)

(119) … I don't really want to own a car. Too **much worry** and hard work looking after it. (Instance 118)

(120) Father, who would want to stay here? So many memories, **so much hatred**. (Instance 154)

In these cases, it seems to be used in combination with negative affect. Affect is the expression of one's feelings (Martin & Rose, 2011). Negative affect, then, is the expression of negative feelings towards a subject. Although these are not in any way part of (implicit) negation, it definitely shows that the context is salient, as Zwarts (1981) also stated.

In order to give more validity to the results shown in Figure 19, as stated in the Methodology (chapter three), a short BNC search was done and the first 30 instances were analysed (see Figure 24 and Appendix 10). Firstly, a corpus search of *too much* was done. Of the 30 instances, three were deleted (as they were idioms, which are a separate category), five were NEG, and 22 were POS. This confirms the earlier assumption that *too much* prefers POS contexts above NEG ones, although it is possible for NEG ones to occur.

Some examples of POS *too much*:

(121) I said the trouble is with the world today everybody wants **too much money** for doing what they have to do (…) (Instance 1)

(122) You'll not catch me anywhere near the fighting, ma'am. I've got **too much sense** for that, so I have. (Instance 16)

(123) He didn't hear Oliver, there was **too much noise** on the pontoon from the engine and the pump. (Instance 28)

Some examples of NEG *too much*:

(124) (…) the local farmer and his family er which was all very nice and er not **too much wine** of course as you can well appreciate (…) (Instance 8)

(125) Great Warriors didn't want to attract **too much attention** to themselves when they were trying to think their way out of their (…) (Instance 22)

(126) Or is that next? I'm sorry, but I haven't had **too much experience** of transcendence. (Instance 27)

Next, *so much* was analysed. After a brief corpus search, two instances were deleted (yet again idioms), two were NEG, and 26 were POS. Here, again, adnominal *so much* definitely prefers POS to NEG contexts. Some examples of POS *too much* are:

(127) I've never heard anybody that would cover a thing in quite **so much detail**. (Instance 2)

(128) Unless you'd er think of America, but they've got **so much problems** there that they've got to look within themselves now haven't they? (Instance 13)

(129) He was so reasoned, and there was **so much truth** in what he said. (Instance 29)

The two NEG examples are:

(130) Well they're not **so much children** actually they were about eighteen. (Instance 6)

(131) (…) now she was lying down the boat didn't seem to be doing quite **so much heaving** and rolling. (Instance 27)

With *as much*, no instances were deleted, two were NEG, and 28 instances were POS. Interestingly, the use of negation in one of the NEG instances (see (135)) actually gives the opposite effect. Yet again, we can say that adnominal *much* in combination with *as* has a clear preference for POS contexts, although occurring in NEG contexts is still possible.

Some examples of POS *as much* are:

(132) And bacon's not fattening grilled on this diet, you can eat **as much bacon** as you like as long as you cut the fat off and grill it (…) (Instance 1)

(133) He then walked slowly and gingerly towards the bathroom, keeping **as much weight** as possible on his right leg. (Instance 11)

(134) I hope that Pink Rock and Postcards gives **as much pleasure**. (Instance 26)

The two NEG examples are:

(135) She walked straight in, feeling she had never needed **as much courage** in her life before. (Instance 14)

(136) (…) a laugh, but has become a job to me. It's not **as much fun** any more,' he says. (Instance 28)

Then, *that much* was analysed. Of the 30 instances, 13 were deleted because they showed *that* as not modifying *much*, but more being a clausal indicator, for example. Eight instances were NEG, and nine instances were POS. Here they seem to be equally divided, whereas with in Figure 19, there was a preference for POS contexts, despite the few instances. This shows that depending on the context, *that much* may occur equally in POS and NEG contexts.

Some examples of POS *that much* are:

(137) With **that much money** involved it is not surprising that fusion has seen its share of political intrigue (…) (Instance 7)

(138) (…) the only trouble with this job is that there's **that much stuff** around. (Instance 20)

(139) (…) a grill and just left them there (…) and there was about **that much bacon** (pause) on the bacon slice, the rest were fat (…) (Instance 27)

Some NEG examples are:

(140) A few apricots or a slice of bread will not by themselves supply **that much iron**. (Instance 6)

(141) I mean admittedly you don't get **that much fish** in there do you? (Instance 19)

(142) Oh well when you're planning to go there won't be **that much road traffic** (Instance 30)

Lastly, *very much* was analysed. Of the 30 instances, 19 had to be deleted (as *very much* was often part of the phrase 'thank you very much', then followed by a name, among others). Of the 11 left, nine were NEG, and two were POS. Interestingly, many more instances here were NEG instead of POS, which is different from what can be seen in Figure 19. This may be because there were very few instances.

The two POS *very much* examples are:

(143) (…) it's just what we hoped would happen, and really **very much thanks** to Fox in fact, er it seems to be happening. (Instance 5)

(144) On the surface Horatia was **very much mistress** of the situation. Inside, she was bleeding from the wounds inflicted by (…) (Instance 16)

Some NEG examples are:

(145) So we are feeling here there's a lot of persuasive language but not **very much action**. (Instance 4)

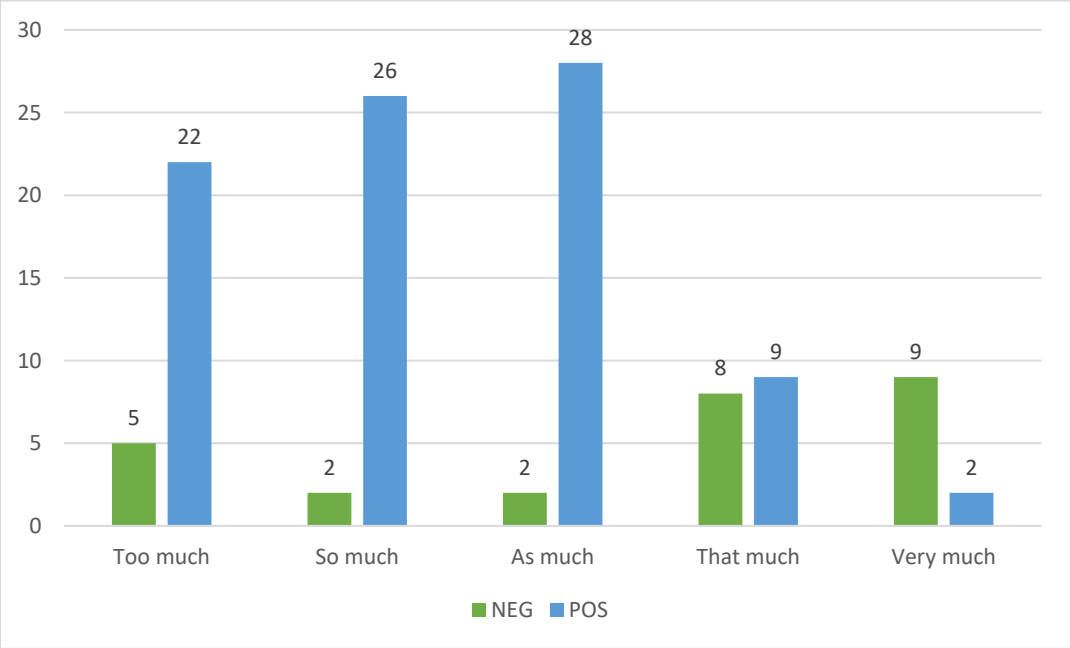
(146) (…) because none of those people are gonna be in a position to have **very much choice** when it come—when it comes to finding somewhere to live. (Instance 21)

(147) He says little about it, but I don't think that there is **very much doubt** that intellectually he did exhaust himself. (Instance 30)

A summary of the results of the corpus searches can be found in Figure 24 below (compare with Figure 19; see also Appendix 10). Overall, it can be said that *so much*, *too much*, and *as much* generally prefer to be in POS contexts. *That much* seems to be about equally divided, and thus seems not to have a preference either way, even though Figure 19 shows a preference for POS contexts. On the other hand, *very much* seems to have a clear preference for NEG contexts, which also conflicts with Figure 19. Lastly, the instances of bare *much* are almost equally divided into POS (109) and NEG (100) instances. This may mean that *much* in combination with a bare mass noun has no preference when it is not used in combination with a modifier of *much*.

Figure 24

A Summary of the Corpus Searches of Adnominal Much *Combinations*



5.2.5 Written Versus Spoken

When analysing Figure 20 (see also Appendix 6.2), both written and spoken materials have almost the same percentages for POS (around 70%) and NEG (around 30%). More

specifically, the NEG spoken instances are proportionally a little more (around 32%) than the NEG written instances (around 28%). This seems surprising, since according to the literature, spoken material is supposed to include mostly NEG instances (Kytö & Smitterberg, 2006; Lee, 2015). Of course, the many instances of written materials are due to the fact that the BNC contains many more written than spoken materials (Lee, 2002).

With reference to the subgenres (see Figure 21), some interesting observations can be made. For example, spoken genres should generally include more NEG than POS instances (Lee, 2015). However, in the case of S_conv, only four out of 16 instances (25%) were NEG. More natural, informal language also occurs in W_fict_prose, which then has quite a high proportion of NEG instances: 44%. W_biography, which should also have more informal language, has seven out of 21 instances (33%); and W_pop_lore has 28.9% NEG instances.

More formal language, then, should have fewer NPIs (Lee, 2015). This is true for some subgenres, like W_ac_polit_law_edu and W_non_ac_humanities_arts, but others, like W_ac_humanities_arts and W_commerce, do have proportionally relatively high numbers of NEG instances (38.5% and 26.7%, respectively).

It seems that spoken materials have fewer NEG instances than the literature (e.g. Lee, 2015) predicted. Furthermore, although some subgenres that use formal, written languages do have few NEG occurrences, others have quite many, proportionally. Therefore, more research needs to be done on the genre preference of NEG adnominal *much*, since it is sometimes in conflict with the existing literature.

5.3 Comparison Adnominal and Differential *Much*

5.3.1 Comparison Number of NEG Instances

The number of NEG differential and adnominal instances clearly differ when compared. NEG differential *much* is almost nonexistent in the current dataset with its 17

instances (see Figure 9). NEG adnominal *much* occurs in NEG contexts much more often with its 105 instances (see Figure 13). It may even be true that *much* is a PPI when it is a differential; more research is needed to confirm this.

On the other hand, adnominal *much* does not seem to be an NPI, given the fact that it occurs in many POS cases as well. It may, however, have NPI tendencies: its bare form (without *so*, *too*, etc. preceding it) can almost equally be divided into NEG and POS *much* (see Figure 19). This shows that adnominal *much* does occur in sentences in which (implicit) negation occurs. However, when it is preceded by *so* and *too* it may be said that it almost exclusively occurs in POS contexts – both for differential and adnominal *much*.

5.3.2 Genre Comparison

Concerning the genres differential and adnominal *much* occur in (compare Figures 11 and 20), it can be seen that NEG differential *much* occurs less often in written and spoken genres (4% and 12% respectively). However, it does occur more often in spoken genres than in written genres. On the other hand, NEG adnominal *much* occurs much more in both written and spoken genres (around 30%), but there is only a minute preference for spoken genres (28% written versus 32% spoken instances). The difference is much more noticeable with differential *much*.

With reference to the subgenres (compare Figures 12 and 21; see Appendix 6), both *much* types have W_fict_prose as their most-used genre. Interestingly, with adnominal *much*, almost half the W_fict_prose instances (44%) are NEG, whereas with differential it is much less (8.7%). Both *much* types hardly any most-used spoken subgenres; only adnominal *much* has S_conv. In the case of adnominal *much*, some formal, non-fiction genres seem to have quite a few NEG instances, where this is not the case for differential *much*. On the other hand, the more natural, informal genres with differential *much*, like W_fict_prose,

W_pop_lore and W_biography, have hardly any NEG instances, whereas with adnominal *much*, they have noticeably more, proportionally.

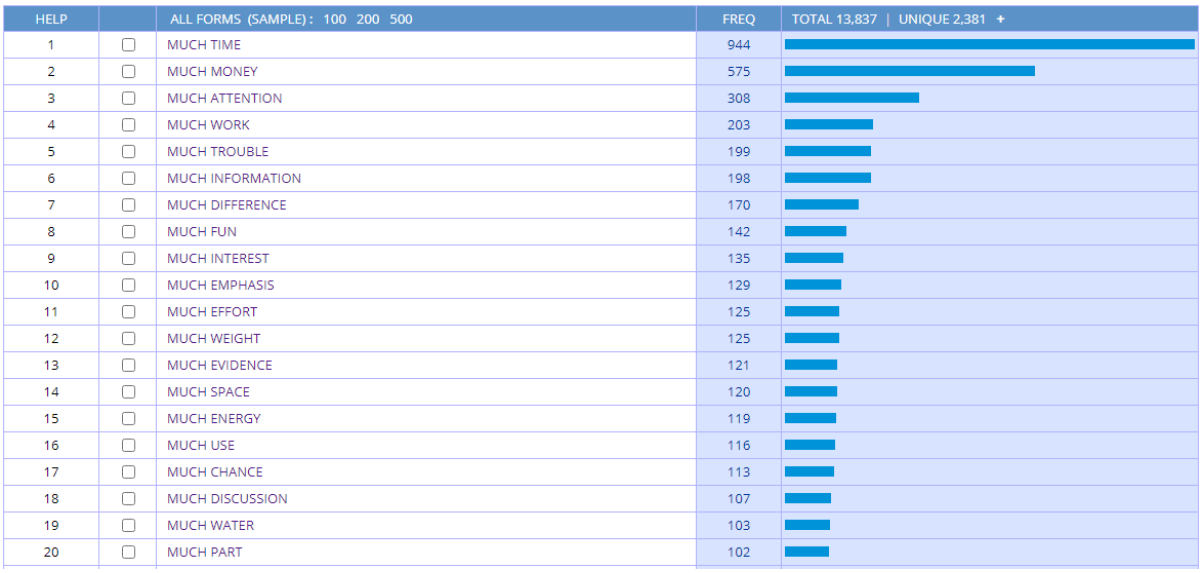
5.4 Limitations of the Study

There are several limitations concerning this thesis that should be addressed. First of all, the study was done using the British National Corpus, a corpus with an unbalanced number of different types of materials. Although it has a very broad range of genres – both written and spoken – most of the materials are written, and even within the written genre, certain subgenres (like W_fict_prose) have precedence over the others since they have vastly more materials than other subgenres. This makes it difficult to draw balanced conclusions on the use of *much* concerning genre preference.

Another limitation is that the website that was used to access the BNC, namely https://www.english-corpora.org/bnc/, has severe limitations on the amount of random sample data one can access. When you fill in the phrase "much NOUN", for example, it will show you the most-used word combinations instead of a random sample of data (see Figure 25). However, the data is most robust when a random sample is used, and the limit on that number (as can also be seen in Figure 25) is 500 instances. This means that research can only be done with random samples that are 500 instances or less, with specific word combinations, or with the corpus as a whole; it is not possible to get samples that are larger than 500 instances.

Figure 25

Screenshot of "Much NOUN" Results on the English Corpora Website



HELP		ALL FORMS (SAMPLE): 100 200 500	FREQ	TOTAL 13,837 | UNIQUE 2,381 +
1	☐	MUCH TIME	944	
2	☐	MUCH MONEY	575	
3	☐	MUCH ATTENTION	308	
4	☐	MUCH WORK	203	
5	☐	MUCH TROUBLE	199	
6	☐	MUCH INFORMATION	198	
7	☐	MUCH DIFFERENCE	170	
8	☐	MUCH FUN	142	
9	☐	MUCH INTEREST	135	
10	☐	MUCH EMPHASIS	129	
11	☐	MUCH EFFORT	125	
12	☐	MUCH WEIGHT	125	
13	☐	MUCH EVIDENCE	121	
14	☐	MUCH SPACE	120	
15	☐	MUCH ENERGY	119	
16	☐	MUCH USE	116	
17	☐	MUCH CHANCE	113	
18	☐	MUCH DISCUSSION	107	
19	☐	MUCH WATER	103	
20	☐	MUCH PART	102	

Note. From https://www.english-corpora.org/bnc/.

These instances that were used were, indeed, random, which made the data more robust, but many of them still had to be deleted because they, for example, included only partial words, and were thus unintelligible (in the case of spoken instances). This left 358 differential *much* instances and 418 adnominal *much* instances.

A last limitation was that in some instances there was not enough data to be conclusive, as with the *much* idioms, the '*much* + gerund' category, etc. This made it difficult to draw strong conclusions based on the available information, since those conclusions might prove to be wrong with more data. Although the extra corpus search did help validate some data, not all of these extra corpus searches came up with enough instances either.

5.5 Recommendations for Further Study

Several recommendations can be made for further study. First of all, given a larger timeframe, one could look at a larger sample, or even at all the instances the BNC has

concerning differential and adnominal *much*, and see whether the total of these instances affect or differ from the outcome of this thesis. Secondly, different corpora could be used. Examples are corpora that focus on different types of English (e.g. American English), or corpora that are more diachronic, and thus lets a researcher examine whether differential and adnominal *much* have the same relationship concerning NPIs and PPIs as is stated in this thesis.

Future research could also take *much* in contexts different from the ones researched here (i.e., differential *much* and adnominal *much*) and see whether those *much* types have a propensity for negative polarity (or positive polarity; or, even, for being 'neutral'). Another, broader option for future study would be to compare *much* with, for example, *many*, or to compare *much* with *lot*, and to research whether their distribution changes or not.

Likewise, a question that could be asked is whether the type of noun influences the preference for a negative or positive environment (think of, for example, gerunds versus mass nouns). Further research could additionally look into whether the *much* combinations, i.e., those combined with *so*, *too*, etc., are PPIs are not. The same could be done for differential *much* as a whole.

Lastly, researchers could also look into the different *much* idioms and see whether indeed some of them have a propensity for being NPIs (or PPIs) or not.

5.6 Implications for the Theory

There are several implications to the theory. Firstly, concerning differential *much*, Lee (2015) stated that in comparatives, do not occur as much as with other *much* types. The data from this study also confirmed this, as out of the 358 instances, only 17 occurred in a NEG context (see Figure 9). This could indicate that in comparative contexts, differential *much* is

not an NPI, and may even be a PPI, since it prefers non-negative contexts. This is a topic for future research.

Secondly, when comparing the results of this thesis to other studies, adnominal *much* does not have as many NEG instances (114 NEG instances versus 288 POS instances; see Figure 13) as for example Kytö and Smitterberg (2006), Lee (2015) and Smitterberg (2009) stated from their research. Despite that, *much* seems to be almost a clear-cut NPI according to the literature (see also Behre, 1967, 1969; Israel, 1996, 2011; Quirk et al., 1985), which contradicts the findings of this study.

Lee (2015, p. 91) did at one point state that in scripted dialogue, there is "a less negative tendency observed in the last decade (2000-2009)", which this study seems to confirm, since the data is all from the late 20th century. This, then, may show that adnominal *much* may be becoming more neutral of a word, instead of having negative polarity.

Concerning the *much* idioms (see Figure 23, 24, and Appendix 9), no real research has been done on them, but they do seem to indicate that most of them are NPIs, since they are used predominantly in NEG contexts.

For both differential and adnominal *much*, when dividing them into their bare forms and modified combinations (see Figures 16 and 17, and Appendices 5, 8, 9 and 11), it can be seen that both types in combination with *too, so,* etc. overwhelmingly prefer POS contexts, as was confirmed by Israel (1996), Lee (2015), and Solt (2015). In the case of adnominal *much*, the bare form occurs in NEG and POS contexts almost equally. This could indicate that for both *much* types, when they occur with a modifier, they are uncommon in NEG contexts and prefer to be in contexts where negation is not present. For bare adnominal *much*, since the number of POS and NEG instances are almost equal, as stated above, it may mean that adnominal *much* is not an NPI, but possibly has NPI tendencies, and may be becoming more neutral in spoken and written contexts.

Concerning the analysis of genres, Kytö and Smitterberg (2006), as well as Lee (2015), stated that in informal speech (or in Lee's case, scripted dialogue), *a lot* (*of*)/*lots* (*of*) is used more in non-negative contexts, whereas *much* is used more in formal written contexts. Quirk et al. (1985) state that *much* is "rarely used, at least in informal English, without some negative or interrogative implications" (p. 384). Lee (2015) further states that in non-fiction, the instances of *much* tend not to be used in negative contexts. This study confirms that in formal written non-fiction work, there is a preference for POS occurrences, although NEG occurrences do still occur. However, this study also showed that POS occurrences also prefer spoken contexts as well, which is not confirmed by the literature, since it is expected to be replaced with *a lot* (*of*)/*lots* (*of*). This is not the case. It also begs the question of where *lot* does occur, if *much* is becoming a more neutral (i.e., non-NPI) word.

With differential *much* (see Figures 11 and 12), it generally only occurs in non-negative contexts, and occurs in more informal writing (like W_fict_prose, W_pop_lore) as well as in more formal writing (like W_ac_soc_science, W_commerce, W_ac_polit_law_edu). It does not seem to have a preference for a specific (sub)genre. Despite this, NEG instances do seem to have a slight preference for the spoken genre. With adnominal *much*, the same conclusions can be drawn, although the NEG instances' preference for spoken genres is only slight. The subgenres NEG adnominal *much* occurred in relatively often ranged from more natural, informal subgenres (like W_pop_lore and W_fict_prose) to more formal, non-fictional subgenres (like W_ac_humanities_arts and W_commerce). Thus, both *much* types seem to have no real preference, regardless of whether they are NEG or POS. This is not in line with what Kytö and Smitterberg (2006) and Lee (2015) found.

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Appendix

Appendix 1: Google Books Ngram Viewer: *A Lot of* and *a Lot* in English

The original (larger) version of *a lot* and *a lot of*, earlier shown in Figure 1, can be found at the following link:

https://books.google.com/ngrams/graph?content=a+lot%2C+a+lot+of&year_start=1500&year_end=2019&case_insensitive=on&corpus=26&smoothing=0&direct_url=t4%3B%2Ca%20lot%3B%2Cc0%3B%2Cs0%3B%3Ba%20lot%3B%2Cc0%3B%3BA%20lot%3B%2Cc0%3B%3Ba%20Lot%3B%2Cc0%3B.t4%3B%2Ca%20lot%20of%3B%2Cc0%3B%2Cs0%3B%3Ba%20lot%20of%3B%2Cc0%3B%3BA%20lot%20of%3B%2Cc0#t4%3B%2Ca%20lot%3B%2Cc0%3B%2Cs0%3B%3Ba%20lot%3B%2Cc0%3B%3BA%20lot%3B%2Cc0%3B%3Ba%20Lot%3B%2Cc0%3B.t4%3B%2Ca%20lot%20of%3B%2Cc0%3B%2Cs0%3B%3Ba%20lot%20of%3B%2Cc0%3B%3BA%20lot%20of%3B%2Cc0

Appendix 2: Google Books Ngrams Viewer: *Much* in English

The original (larger) version of *much*, earlier shown in Figure 2, can be found at the following link:

https://books.google.com/ngrams/graph?content=much&year_start=1500&year_end=2019&case_insensitive=on&corpus=26&smoothing=0&direct_url=t4%3B%2Cmuch%3B%2Cc0%3B%2Cs0%3B%3Bmuch%3B%2Cc0%3B%3BMuch%3B%2Cc0#t4%3B%2Cmuch%3B%2Cc0%3B%2Cs1%3B%3Bmuch%3B%2Cc0%3B%3BMuch%3B%2Cc0

Appendix 3: Explanation Deleted Instances

3.1 Differential Much

With differential *much*, the types of instances that were deleted were as follows:

- Instances where – in spoken genres – the word after *much* was cut off, and it was unclear what was meant (e.g. “that’s about that much wa— shade (…)”; instance 1)
- Instances where *much* was not followed by a comparative (e.g. “I didn’t have that much left (…)”; instance 2); and
- Instances where *much* was part of the combination “how much”, due to the negative-islands theory: See Koeneman and Zeijlstra, 2017; Ross 1984 (e.g. “How much smaller do you want?”; instance 3).

3.2 Adnominal Much

With adnominal *much*, the types of instances that were deleted were as follows:

- Instances where *much* wasn’t followed by a noun (e.g. “The Health Service has been very much male-oriented”; instance 44);
- Instances where *much* was part of an idiom (e.g. “thank you very much”; instance 42);
- Instances where *much* was part of the combination “how much”, due to the negative-islands theory (e.g. “so I go over to her and ask how much money I got”; instance 68); see Koeneman and Zeijlstra, 2017; Ross 1984) and
- Instances where – in spoken genres – the word after *much* was cut off, and it was unclear what was meant (e.g. “but there aren’t (pause) isn’t much obli--, er evidence (…)”; instance 60), or where the word after *much* was an unclear abbreviation (e.g. “He has taken too much pt”; instance 76).

Appendix 4: List of Genre Tags

The complete list of genre tags used in this thesis, including their meanings, can be found below (See Table 2). They are ordered alphabetically.

Table 2

List of Genre Tags Used in This Thesis

Genre Tag	Meaning
S_brdcast_discussn	TV or radio discussions
S_brdcast_news	TV or radio news broadcasts
S_classroom	Non-tertiary classroom discourse
S_consult	Mainly medical and legal consultations
S_conv	Face-to-face spontaneous conversations
S_demonstratn	'Live' demonstrations
S_interview	Job interviews and other types
S_interview_oral_history	Oral history interviews/narratives, some broadcast
S_lect_humanities_arts	Lectures on humanities and arts subjects
S_lect_soc_science	Lectures on the social and behavioural sciences
S_meeting	Business or committee meetings
S_pub_debate	Public debates, discussions, meetings
S_sermon	Religious sermons
S_speech_scripted	Planned speech, whether dialogue or monologue

Genre Tag	Meaning
S_speech_unscripted	More or less unprepared speech, whether dialogue or monologue
S_tutorial	University-level tutorials
S_unclassified	Miscellaneous spoken genres
W_ac_humanities_arts	Academic prose: humanities
W_ac_medicine	Academic prose: medicine
W_ac_nat_science	Academic prose: natural sciences
W_ac_polit_law_edu	Academic prose: politics, law, education
W_ac_soc_science	Academic prose: social and behavioural sciences
W_ac_tech_engin	Academic prose: technology, computing, engineering
W_advert	Print advertisements
W_biography	Biographies/autobiographies
W_commerce	Commerce and finance, economics
W_essay_school	School essays
W_fict_prose	Novels and short stories
W_hansard	Hansard[16]/parliamentary proceedings
W_institut_doc	Official/Govermental [sic] documents/leaflets, company annual reports, etc; excludes Hansard
W_instructional	Instructional texts/DIY

[16] Hansard is, according to the Merriam-Webster dictionary, "the official published report of debates in the parliament of a member of the Commonwealth of Nations". (Merriam-Webster, n.d.-b)

Genre Tag	Meaning
W_letters_personal	Personal letters, postcards, notes
W_letters_prof	Professional/business letters
W_misc	Miscellaneous texts
W_news_script	TV autocue data
W_newsp_brdsht_nat_arts	Broadsheet national newspapers: arts/cultural material
W_newsp_brdsht_nat_commerce	Broadsheet national newspapers: commerce and finance
W_newsp_brdsht_nat_misc	Broadsheet national newspapers: miscellaneous material
W_newsp_brdsht_nat_report	Broadsheet national newspapers: home and foreign news reportage
W_newsp_brdsht_nat_sports	Broadsheet national newspapers: sports material
W_newsp_other_arts	Regional and local newspapers: arts
W_newsp_other_commerce	Regional and local newspapers: commerce and finance
W_newsp_other_report	Regional and local newspapers: home and foreign news reportage
W_newsp_other_social	Regional and local newspapers: material on lifestyle, leisure, belief and thought
W_newsp_other_sports	Missing from Lee, 2002
W_newsp_tabloid	Tabloid newspapers

Genre Tag	Meaning
W_non_ac_humanities_arts	Non-academic/non-fiction: humanities
W_non_ac_medicine	Non-academic: medical/health matters
W_non_ac_nat_science	Non-academic: natural sciences
W_non_ac_polit_law_edu	Non-academic: politics, law, education
W_non_ac_soc_science	Non-academic: social and behavioural sciences
W_non_ac_tech_engin	Non-academic: technology, computing, engineering
W_pop_lore	Popular magazines
W_religion	Religious texts, excluding philosophy

This information is from Lee, 2002.

Appendix 5: List of Instances for Differential *Much*

The link for the list of instances for differential *much* can be found here: https://drive.google.com/file/d/1yasy0YrMckfiFx9AMNUD_qEPUAHyXxDC/view?usp=sharing.

Legend:

- Sentences coloured **green** are NEG;
- Sentences coloured **black** are POS;
- Sentences coloured **red** have been deleted (and are thus not used); and
- Sentences are coloured **pink** when the combination *as much* occurs in them.

It should be noted that the bolded phrase is the phrase that was found by the BNC search engine. These were the only occurrences that were analysed, even if more than one instance of "much ADJ" occurred in the same sentence.

Appendix 6: List of Instances per Subgenre

6.1 Differential Much

Below is a table of the subgenres in which differential *much* is used, divided into POS and NEG (see Table 3). The last column shows the total number of instances for each subgenre, and at the bottom of the table, the total numbers for NEG, POS, and the overall total are given. The percentage of the subgenre instances, divided into NEG and POS, are also given. The genres are sorted from most-used to least-used.

Table 3

Subgenres of Differential Much*, Divided Into POS and NEG, With Percentages*

Genre Tag	NEG	NEG Percentage	POS	POS Percentage	Total
W_fict_prose	4	8.70%	42	91.30%	46
W_misc	0	0.00%	35	100.00%	35
W_pop_lore	0	0.00%	27	100.00%	27
W_ac_soc_science	3	11.11%	24	88.89%	27
W_commerce	1	4.17%	23	95.83%	24
W_non_ac_nat_science	1	6.25%	15	93.75%	16
W_non_ac_soc_science	0	0.00%	16	100.00%	16
W_ac_polit_law_edu	0	0.00%	15	100.00%	15

Genre Tag	NEG	NEG Percentage	POS	POS Percentage	Total
W_biography	1	6.67%	14	93.33%	15
S_conv	1	11.11%	8	88.89%	9
S_brdcast_discussn	2	22.22%	7	77.78%	9
W_non_ac_humanities_arts	0	0.00%	9	100.00%	9
W_religion	1	11.11%	8	88.89%	9
W_news_script	1	12.50%	7	87.50%	8
W_ac_humanities_arts	0	0.00%	8	100.00%	8
W_non_ac_polit_law_edu	0	0.00%	8	100.00%	8
W_hansard	0	0.00%	8	100.00%	8
W_newsp_other_report	0	0.00%	7	100.00%	7
S_interview_oral_history	2	33.33%	4	66.67%	6
W_ac_tech_engin	0	0.00%	6	100.00%	6
W_ac_nat_science	0	0.00%	6	100.00%	6
W_ac_medicine	0	0.00%	5	100.00%	5
W_newsp_other_social	0	0.00%	4	100.00%	4
S_meeting	0	0.00%	3	100.00%	3
W_newsp_brdsht_nat_report	0	0.00%	3	100.00%	3
W_non_ac_medicine	0	0.00%	3	100.00%	3
W_non_ac_tech_engin	0	0.00%	3	100.00%	3
W_instructional	0	0.00%	3	100.00%	3
S_tutorial	0	0.00%	2	100.00%	2
S_pub_debate	0	0.00%	2	100.00%	2

Genre Tag	NEG	NEG Percentage	POS	POS Percentage	Total
S_speech_scripted	0	0.00%	2	100.00%	2
W_newsp_brdsht_nat_misc	0	0.00%	2	100.00%	2
W_newsp_brdsht_nat_arts	0	0.00%	2	100.00%	2
W_newsp_brdsht_nat_commerce	0	0.00%	2	100.00%	2
W_advert	0	0.00%	2	100.00%	2
S_lect_humanities_arts	0	0.00%	1	100.00%	1
S_speech_unscripted	0	0.00%	1	100.00%	1
W_newsp_tabloid	0	0.00%	1	100.00%	1
W_newsp_other_arts	0	0.00%	1	100.00%	1
W_institut_doc	0	0.00%	1	100.00%	1
W_letters_personal	0	0.00%	1	100.00%	1
Total	17	-	341	-	358

6.2 Adnominal Much

Below is a table of the subgenres adnominal *much* is used in, divided into POS and NEG (see Table 4). The *much* idioms are excluded. The last column shows the total number of instances for each subgenre, and at the bottom of the table, the total numbers for NEG, POS, and the overall total are given. The percentage of the subgenre instances, divided into NEG and POS, are also given. The genres are sorted from most-used to least-used.

Table 4

Subgenres of Adnominal Much*, Divided in POS and NEG, With Percentages*

Genre Tag	NEG	NEG Percentage	POS	POS Percentage	Total
W_fict_prose	33	44.00%	42	56.00%	75
W_pop_lore	13	28.89%	32	71.11%	45
W_misc	8	18.18%	36	81.82%	44
W_non_ac_humanities_arts	4	16.67%	20	83.33%	24
W_non_ac_soc_science	6	28.57%	15	71.43%	21
W_biography	7	33.33%	14	66.67%	21
S_conv	4	25.00%	12	75.00%	16
W_commerce	4	26.67%	11	73.33%	15
W_ac_polit_law_edu	2	15.38%	11	84.62%	13
W_ac_humanities_arts	5	38.46%	8	61.54%	13
W_non_ac_nat_science	2	18.18%	9	81.82%	11
W_ac_soc_science	1	11.11%	8	88.89%	9
W_non_ac_polit_law_edu	2	25.00%	6	75.00%	8
W_newsp_other_report	0	0.00%	7	100.00%	7
W_hansard	1	14.29%	6	85.71%	7
W_religion	1	14.29%	6	85.71%	7
W_news_script	2	28.57%	5	71.43%	7
S_interview_oral_history	1	16.67%	5	83.33%	6
W_newsp_other_social	1	20.00%	4	80.00%	5
W_newsp_brdsht_nat_arts	2	50.00%	2	50.00%	4
S_brdcast_discussn	3	75.00%	1	25.00%	4
S_meeting	3	75.00%	1	25.00%	4

Genre Tag	NEG	NEG Percentage	POS	POS Percentage	Total
W_instructional	0	0.00%	3	100.00%	3
W_non_ac_medicine	0	0.00%	3	100.00%	3
S_classroom	1	33.33%	2	66.67%	3
W_newsp_brdsht_nat_misc	2	66.67%	1	33.33%	3
S_demonstratn	0	0.00%	2	100.00%	2
S_unclassified	0	0.00%	2	100.00%	2
W_newsp_tabloid	0	0.00%	2	100.00%	2
S_pub_debate	1	50.00%	1	50.00%	2
W_ac_medicine	1	50.00%	1	50.00%	2
W_newsp_other_sports	1	50.00%	1	50.00%	2
S_brdcast_news	0	0.00%	1	100.00%	1
S_consult	0	0.00%	1	100.00%	1
S_interview	0	0.00%	1	100.00%	1
S_lect_humanities_arts	0	0.00%	1	100.00%	1
S_sermon	0	0.00%	1	100.00%	1
W_ac_nat_science	0	0.00%	1	100.00%	1
W_essay_school	0	0.00%	1	100.00%	1
W_newsp_brdsht_nat_sports	0	0.00%	1	100.00%	1
W_newsp_other_commerce	0	0.00%	1	100.00%	1
S_lect_soc_science	1	100.00%	0	0.00%	1
W_letters_prof	1	100.00%	0	0.00%	1
W_non_ac_tech_engin	1	100.00%	0	0.00%	1

Genre Tag	NEG	NEG Percentage	POS	POS Percentage	Total
Total	114	-	288	-	402

Appendix 7: List of Instances for Adnominal *Much*

The link for the list of instances for adnominal *much* can be found here: https://drive.google.com/file/d/1ExS7U33ySoW3ihXE-rf5EUlWAKKlIBAQ/view?usp=sharing.

Legend:

- Sentences coloured **green** are NEG;
- Sentences coloured **black** are POS;
- Sentences coloured **red** have been deleted (and are thus not used);
- Sentences are coloured **purple** when *much* occurs as part of an idiom; i.e., a '*much* idiom'; and
- Sentences are coloured **red-brown** when a gerund follows *much*.

Again, it should be noted that the bolded phrase is the phrase that was found by the BNC search engine. These were the only occurrences that were analysed, even if more than one instance of "much NOUN" occurred in the same sentence.

Appendix 8: Differential *Much* Combinations

These are the search results from the Discussion, used for comparison with the results from the Results section, to confirm whether those from the Results section are accurate.

The differential *much* instances from the Discussion section can be found here: https://drive.google.com/file/d/1kSikCjLbes2OpKE4npinnp2JZpZmPXGW/view?usp=sharing.

Legend:

- Sentences coloured **green** are NEG;
- Sentences coloured **black** are POS; and
- Sentences coloured **red** have been deleted (and are thus not used).

Appendix 9: Adnominal *Much* Idioms

These are the search results of adnominal *much* idioms from the Discussion, used for comparison with the results from the Results section, to confirm whether those from the Results section are accurate.

The adnominal *much* idioms from the Discussion section can be found here: https://drive.google.com/file/d/13XlgtQ2ePg9Th_oA-BlwkEGg3nCbDeC5/view?usp=sharing.

Legend:

- Sentences coloured **green** are NEG;
- Sentences coloured **black** are POS; and
- Sentences coloured **red** have been deleted (and are thus not used).

Appendix 10: Adnominal *Much* Combinations

These are the search results of adnominal *much* combinations from the Discussion, used for comparison with the results from the Results section, to confirm whether those from the Results section are accurate.

The adnominal *much* combinations from the Discussion section can be found here: https://drive.google.com/file/d/1xiNCSvqF0QGqt_QATc_sU7iKaYRuS3_h/view?usp=sharing.

Legend:

- Sentences coloured **green** are NEG;
- Sentences coloured **black** are POS; and
- Sentences coloured **red** have been deleted (and are thus not used).