**12th January, 2016**

**K. Patterson**

**Lexical priming and metaphor – A corpus study of nineteenth century writing.**

**Abstract**

Metaphoricity is often regarded as a distinctive linguistic phenomenon, in opposition to literal, or non-figurative language. Recent research from a corpus-linguistic perspective has begun to show, however, that such a dichotomist stance to metaphor does not bear scrutiny (Deignan 2005; Partington 2006; Philip 2011). Moreover, a metaphor’s ability to violate or bend the limits of linguistic conventions (semantically, lexically, grammatically) is what gives those who employ them a certain degree of freedom in their use of language. The focus of this chapter is to explore and compare the lexical characteristics of metaphoric and non-metaphoric instances of a single item *grew,* in a 49m-word corpus of nineteenth century writings. The findings suggest that as a metaphor, *grew* is qualitatively a different lexical item, when compared to its non-metaphoric use(s). It is proposed that Hoey’s (2005) Drinking Problem hypothesis can account for these lexical differences, providing a psychological explanation for what drives us as language users to identify metaphor. Crucially, adopting lexical priming as a means to exploring metaphor shifts the perspective of metaphoricity to the individual language user: the findings show that a metaphoric sense of an item appears to be dependent on the primings activated in a reader. It can thus be argued, based upon the lexical priming approach, that metaphoricity is inherent in the language user rather than the language itself.

**Keywords:** *metaphor, lexical priming, corpus linguistics, collocation, semantic association, pragmatic association.*

## 1. Introduction

The last decade has seen researchers follow a trend of more usage-based approaches to metaphor study, drawing their methods and theories from the field of corpus linguistics (Koller 2006; Semino 2006; Partington 2006; Deignan and Semino 2010). The introduction of corpus linguistics has also meant a shift away from the earlier dichotomist stance involved in metaphor theories to more usage-driven issues, based on sociolinguistic and interpersonal contexts in which metaphors are used (Cruse 1986). Rather than isolated examples, corpus linguistics provides the resources to focus on repeated patterns and recurrent instances of metaphor, which are, by their nature, clearly successful uses of the language. This focus on repetition of language use also goes some way to providing us with notions of *expectation* in language behaviour: when a metaphor is re-used, it comes to be an expected use of the language, as opposed to its original and creative deviation from the norm. This research focuses on the use of a single item in both metaphoric and non-metaphoric contexts, in order to explore what it is that allows us to recognize when language is being used metaphorically, as opposed to non-metaphorically, when both uses are said to be conventional. By focusing on meaning within a Neo-Firthian framework, this research aims to re-focus discussions of metaphor within the wider discourse field, taking into consideration context, pragmatic meaning, the individual’s mental lexicon, and subsequently what role these factors play in interpreting metaphoric meaning.

The first aim of this chapter then is to explore what metaphoricity means through repeated use, and the ways in which metaphoricity is manifest in the language, as revealed through a corpus approach. The second more specific aim of the research is to explore the extent to which the theory of lexical priming can account for our ability to recognize metaphoric instances of an item or phrase, in contrast to non-metaphoric instances. The theory successfully accounts for the lexical characteristics and patterns of use associated with our use of language in both spoken and written language within particular domains, but little attention has been paid to figurative language. Similar research by Hoey (2005) and Tsiamita (2009) looked at polysemy, and found that two distinct senses of a word or item tend to avoid each other’s primings (as claimed in Hoey’s Drinking Problem Hypothesis, 2005). In relation to a pervasive phenomenon such as metaphor, whereby analysis of metaphoric behaviour and subsequent identification of metaphoric language remains creatively ‘unrestricted’ and largely problematic, Hoey’s (2005) theory may provide an explanation for what drives us as language users to identify such a phenomenon. The introduction of an extended theory involving our psychological associations with language could possibly offer an explanation for how we recognise conventional norms, both metaphoric and non-metaphoric.

These two research aims are explored by means of a case study in section 4: a corpus-driven lexical analysis of a keyword (*grew*) identified in a 49-million-token corpus of nineteenth century writing, when compared against a more contemporary, general comparator, the British National Corpus. The aim is to compare and contrast the lexical behaviours associated with clear metaphoric language and clear non-metaphoric language and to determine in how far the lexical behaviours (and subsequently the senses), are distinct from each other. If metaphoric uses of a lexical item can be shown to avoid the primings of the non-metaphoric uses of that same item, this supports the idea that metaphoric senses have, to an extent, a fixed set of choices in terms of grammar and lexis.

## 2. Theoretical Background

### 2.1 Metaphor, creativity and corpus linguistics

The exploitation or deviation from a linguistic norm which is often considered inherent in metaphoric language cannot occur without a collectively accepted ‘normal’ or expected way of using language. Working in the field of philosophy of language, Wittgenstein claimed that the meaning of a word or phrase is nothing other than the set of informal rules governing the use of the expression in actual life (Wittgenstein [1922] 2014). Wittgenstein emphasised the idea that language itself can only be understood as a practice, and that meaning – and therefore understanding - is developed through social situations and interaction. More than this, it must be arrived at through the co-operation of the partners in a conversation. This co-operation is what governs the expected conventions of usage. According to Wittgenstein, language has an ‘open structure’, whereby *meaning* has the ability to subtly shift according to the subjective understanding of the language users and their circumstances of use. Philosophers of language working within this tradition claim that this openness and subjectivity is what reinforces socialisation amongst individuals. Speakers, as collective individuals, become members of a society and it is the creation of this community which monitors the collective uses of language (*cf.* Habermas 1990; Gadamer 2004). From this perspective, language, whether figurative or non-figurative, is a social tool, and repetitive patterns of use are adopted to conform, or can be avoided to create novel and new expressions (Gibbs 1994). Creativity is often defined as a breaking of particular linguistic norms and conventions and as a result is thought of as a largely free act of expression, but while this may be true to some extent, the expressive effect of that choice of language is diminished if it does not retain meaning for the user. Philip (2010) claims of language generally, that there is a “requirement of expressing unique, unrepeatable meanings by means of a syntax and vocabulary which must retain a high level of rigidity so that the texts can be understood by the users of language” (Philip 2010: 151). In terms of metaphor, language is granted a less conforming ‘level or rigidity’; either in terms of the grammatical or semantic relationships, but it must still retain enough linguistic conventionality (grammatically, lexically, pragmatically) to be understood by the receiver. The focus of this research is on the conventions which govern both metaphoric and non-metaphoric uses of language.

Ortony (1979) in his seminal book *Metaphor and Thought* addresses the dichotomy between creativity and convention from a philosophical perspective. He claims that a ‘successful’ metaphor must strike a balance between the two:

…the writer or speaker is employing conventional means to produce a non-standard effect, while using only the standard syntactic and semantic resources of his speech community. Yet the meaning of an interesting metaphor is typically new or ‘creative’, not inferable from the standard lexicon.

(Ortony, 1979: 23)

Developing from this, Ortony (1979) posits the danger of presenting a standard response to a given metaphorical statement: “such a view is untenable because a metaphorical statement involves a rule violation. There can be no rules for ‘creativity violating’ rules. And that is why there can be no dictionary of metaphors” (Ortony 1979: 25). For many years, metaphor theorists within a range of disciplines have been concerned with the distinctions between literal and metaphoric language. For many in the philosophical and rhetorical traditions, questions relating to metaphor included “What is metaphor and how does it differ from both literal and other forms of figurative language?” and “Why do we use expressions metaphorically?” (Searle, 1979: 92). For those seeking answers to these questions, the distinction between literal and metaphor language is contrastive. This distinction coloured (and continues to colour in some schools of thought) the ways in which metaphor was interpreted. This research follows the shift towards more sociolinguistic and interpersonal views on metaphor, largely as a result of corpus linguistic methodology.

With the advent of corpus linguistics and the more usage-based approach this offered to language analysis, metaphor theorists now have the ability to look at real data when making their claims. Truth and the violation of truth become less central to a theory on metaphor from a corpus based perspective, largely because the focus shifts to an interactive and sociolinguistic one. Moreover, Ortony’s (1979) claim that there cannot be rules for ‘creativity violation’ and hence no metaphor dictionary holds true largely, because metaphor does not violate a single linguistic/semantic rule. Researchers then must look to exploring a wide range of lexical characteristics, involving grammar and lexis, but also more secondary or abstract aspects of meaning such as semantic and pragmatic association. J. R. Firth’s contextual theory of meaning argues that meaning is not situated within the isolation of an item itself, but inextricably tied to its place in both co-text and context. Thus an exploration of metaphoricity must take into account the variety and intricacy of meaning manifest in co-text and context. Corpus linguistics offers this opportunity.

### 2.2 Lexical priming and the Drinking Problem Hypothesis

As an approach to analysing metaphor, lexical priming may be able to account for the distinction between literal and metaphoric senses of a word or phrase from a psychological perspective. Specifically, an outcome of the theory, entitled the Drinking Problem Hypothesis[[1]](#footnote-1), offers up this potential. The hypothesis centres on the assumption that different word senses will avoid the patterns associated with the other sense(s) of that word of which we are primed for. These patterns take the form of collocations, colligations and semantic associations amongst others. Hoey’s (2005) account of the hypothesis is further supported by a study of the polysemous senses of *drive* and *face* by Tsiamita (2009). The implication is that metaphoric senses will also avoid the patterns (or primings[[2]](#footnote-2)) of the literal sense(s), since a metaphor and its literary counterpart might reasonably be regarded as a special case of polysemy.

The hypothesis can be approached in relation to metaphor by testing the three sets of the lexical priming claims. Lexical characteristics can be explored in relation to co-textual, contextual and text-linguistic features of both senses of a lexical item. By focusing on a single item, an investigation would allow for a full analysis of all exhaustive instances of one item within a corpus. The analysis would also take into consideration items with phraseological features, including fossilised collocations, idiomatic instances of the item. Moreover, such an investigation would determine if the different senses of a single item have particular textual functions, such as the preference of a metaphor to be found in a particular genre if its meaning is more specific than its literal sense.

This approach would explain what other lexical metaphor theories have missed so far: namely that metaphoric uses of language and their non-metaphoric counterparts must be analysed lexically, grammatically, semantically, and pragmatically as a consistent whole, in order to differentiate behaviours in patterns and meaning. If the hypothesis were to prove true for metaphor as well as polysemy, this would lead to the idea that metaphoric instances of words have (to an extent) a fixed set of choices in terms of grammar and lexis. Interestingly, Deignan (2005) also touches upon this idea:

It is possible that when a metaphorical mapping first takes place, a linguistic expression becomes ambiguous between literal and metaphorical. Eventually the regular association of the expression with its metaphorical meaning means that speakers start to avoid using it with a literal meaning.

(Deignan 2005: 212).

In Hoey’s own words creative exploitation is discussed as “the result either of making new selections from a semantic set for which a particular word is primed or of overriding one or more of one’s primings” (2008: 16). Thus we can talk of ‘overriding’ one’s primings in relation to metaphor use: accordingly, it is when a metaphoric sense becomes well used, or conventionalised, that readers may start to be primed to associate certain collocations, colligations, semantic, pragmatic and textual associations with the metaphoric sense.These primings in turn will become strengthened the more established the metaphoric sense is, and thus more removed from the non-metaphoric sense. This idea was given support in a study of the verb *to kindle* in 19th Century fiction (Patterson 2014), whereby the more conventionalized uses of the verb as a metaphor displayed stronger associations or primings than novel or original metaphors using *kindle*, and were more distinct from the non-metaphoric sense. Noun, adverb and personal pronoun collocates were shown to play a role in the semantic and lexical distinctions of metaphoric and non-metaphoric instances of kindle (Patterson 2014). This shed light on the types of things kindling, the ways in which they are kindled and the degree of animacy or animacy associated with the action of kindling. This research will focus on colligational priming, taking the top ten most frequent collocates as a starting point.

Whilst the Drinking Problem Hypothesis (2005) will not shed any light on how to identify or definitively classify metaphoric language (as no theory so far can), it might facilitate a focus on the set of choices being made by a speaker/writer and the level of fixedness of metaphoric senses in relation to their non-metaphoric counterparts. This might make possible a lexically driven explanation of our ability to identify metaphorical meanings, based on our encounters with language.

## 3. Methodology

### 3.1 The corpus

The corpus consists of texts written by English authors between 1800 and 1899. In total, there are 416 texts with a running token size of 45,480,658. There are no more than two texts written by a single author, in order to gain as widely representative a collection as possible, eliminating any idiosyncrasy. The texts are divided into two subfolders: fiction and non-fiction. Each subfolder consists of between 22 - 23 million tokens. The table below illustrates the exact token size and percentage of each sub-folder:

Table 1. Number of texts and token size of each subfolder of the corpus

|  |  |  |  |
| --- | --- | --- | --- |
| Subfolder | No. of texts | Running token size | % of corpus |
| 1. Fiction | 184 | 22,979,640 | 50.53 |
| 2. Non-Fiction | 232 | 22,501,018 | 49.47 |
| CORPUS TOTAL | 416 | 45,480,658 | 100 |

WordSmith Version 5 (Scott 2008) is used to extract data from the corpus. An initial Keyword search identified words of unusually high frequency in the nineteenth century corpus in comparison with a more general and contemporary comparator corpus (the BNC). The Keyword function (Scott 2008) compares the ‘keyness’ of items in one corpus, compared to a larger reference corpus[[3]](#footnote-3). Items with a significant ‘keyness’ appear more frequently than would be expected in one of the two corpora. The aim is to highlight high frequency items which are specific to the corpus. The analysis makes use of Wordsmith’s functions, such as concordance lists, collocates, clusters and pattern data. It is hoped that a combined approach of all functions will allow for a detailed analysis of possible colligational primings.

### 3.2 The metaphor identification process

The analysis and comparison of the lexical characteristics of metaphoric and non-metaphoric instances requires, in the first place, a methodological decision involving the classification of each item as metaphor. In order to be able to analyse the two groups statistically, they must be divided in such a way that they become, in effect, separate corpora. This entails the division of concordance lines into two clear groups of metaphoric and non-metaphoric instances. The division cannot be undertaken objectively, and so it was decided to create a middle group to amass any unsure, ambiguous or weak or heavily conventionalized metaphors. This will help to keep the two datasets as clear and prototypical as possible. Each list of concordance lines has been distributed to between three and six evaluators on separate occasions. They were asked to decide whether a given words was being used metaphorically within the context provided. Concordance lines were all set to 120 characters in length. If not enough context was provided to permit a decision, the participants could check more co-text by clicking on the concordance line to reveal more text[[4]](#footnote-4). Participants were given three options for categorization. These were *metaphoric*, *literal* and *unsure*. Where there was discrepancy between any individual(s) and the remaining readers, the concordance was in any case placed in the *unsure* group. The intention was to create the assurance that all clearly identified metaphors have unanimously been agreed upon by no fewer than three individuals. The decision to use the term non-metaphoric rather than literal is in order to reduce the dominance of a dichotomist stance between the two groups, and instead to see them as a set that displays metaphoric behaviours, and a set that does not. The analysis will discuss more or less metaphoric meaning and more or less non-metaphoric meaning, seeing these as “end-points on a scale, rather than absolutes”, a stance similarly adopted by Lindquist and Levin (2008: 145). The sets of concordances lines are treated as if they were corpora and fed into WordSmith (Scott 2008) as single sub-corpora.

## 4. The study

The first group of data consists of the clear metaphors, which total 2863 instances and comprises over three quarters (75.10%) of the total data. The second group comprises the non-metaphors, which total 807 instances and make up 21.17% of the data. The analysis will focus on the top ten most frequent collocates in each dataset. It is expected that the items will be grammatical non-lexical items and thus should give an indication of wider colligational patterns.

The top 10 collocates of *grew* for both datasets are given below:

Table 2. Top ten collocates in metaphoric and non-metaphoric datasets

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | METAPHOR | |  | |  |  | NON-METAPHOR | | |  | | |
| R | Collocate | Freq. ptw. | | L Freq. | R Freq. | R | | Collocate | Freq. ptw. | L Freq. | | R Freq. |
| 1 | AND | 69.08 | | 795 | 1236 | 1 | | THE | 37.34 | 297 | 292 | |
| 2 | THE | 58.67 | | 1072 | 653 | 2 | | AND | 23.26 | 154 | 213 | |
| 3 | OF | 21.84 | | 328 | 314 | 3 | | OF | 12.55 | 99 | 99 | |
| 4 | AS | 16.36 | | 224 | 257 | 4 | | UP | 10.97 | 5 | 168 | |
| 5 | MORE | 15.00 | | 45 | 396 | 5 | | A | 10.90 | 61 | 111 | |
| 6 | HIS | 14.01 | | 260 | 152 | 6 | | IN | 10.02 | 37 | 121 | |
| 7 | HE | 13.77 | | 279 | 126 | 7 | | AS | 8.81 | 115 | 24 | |
| 8 | IT | 12.86 | | 273 | 105 | 8 | | WHICH | 8.75 | 127 | 11 | |
| 9 | TO | 12.82 | | 93 | 284 | 9 | | THAT | 8.62 | 113 | 23 | |
| 10 | A | 11.70 | | 118 | 226 | 10 | | TO | 7.86 | 36 | 88 | |

In terms of the top three collocates (*and, the* and *of*), the point most worthy of note is the frequency difference of *and*. There is a 45.82‰ difference between the metaphoric dataset (69.08‰) and the non-metaphoric set (23.26‰) frequencies. The distribution before and after the headword *grew* is roughly similar in both datasets: it appears slightly more frequently after *grew* than before it in both groups.

The fourth most frequent collocate of metaphoric *grew* is *as* (occurring 16.36 times per thousand words). As a single item, *as* has a variety of functions. Each instance has been identified as having one of two roles: prepositional or subordinating (based on Carter and McCarthy’s terminology, 2006). The large majority of uses of *as* are subordinating in the metaphoric corpus and these are fairly evenly distributed between *grew* being a part of the subordinating clause (e.g. *he became more and more angry, as he grew in years)* and the *grew* preceding the subordinating clause (e.g. *Ships and guns, masts and sails, grew better, as did the administrative process)*. In the non-metaphoric corpus, the majority of instances of *as* are also subordinating, but most often *grew* is a part of the subordinating clause, and usually positioned on the right of *as* (e.g. *I meant to explain this some time as you grew older*). Below is a comparison of the most frequent *as*/*grew* clusters in each corpus:

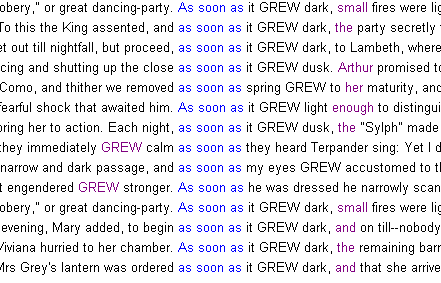
Table 3. Most frequent as/*grew* clusters in both datasets (with a minimum frequency of 5)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | METAPHOR | |  | NON-METAPHOR | | |  |
| R | Cluster | Freq. | Freq. (ptw) | R | Cluster | Freq. | Freq. (ptw) |
| 1 | AS IT grew | 44 | 2.79 | 1 | AS THEY grew | 20 | 0.68 |
| 2 | SOON AS IT grew | 21 | 1.33 | 1 | AS HE grew | 20 | 0.68 |
| 3 | AS SOON AS IT grew | 20 | 1.27 | 2 | AS SHE grew | 16 | 0.54 |
| 4 | AS IT grew DARK | 19 | 1.2 | 3 | AS SHE grew UP | 13 | 0.44 |
| 5 | AS HE grew | 15 | 0.95 | 4 | AS HE grew UP | 11 | 0.37 |
| 6 | AS THEY grew | 11 | 0.37 | 5 | AS I grew | 10 | 0.34 |
| 7 | AS SHE grew | 10 | 0.34 | 6 | AS I grew UP | 9 | 0.31 |
| 8 | grew BETTER AS | 5 | 0.17 | 7 | AS THEY grew UP | 6 | 0.2 |

The table shows that *as* appears in a wider variety of clusters in both datasets. The token frequency however is greater in the metaphoric data, supporting the higher frequency of *as* as a collocate over all. Whilst both cluster lists show *grew* as a part of a subordinating clause, *grew* precedes a subordinating clause, only in the metaphoric dataset (*grew* *better as*). Interestingly, it is the non-metaphoric cluster list that shows a higher frequency of personal pronouns (*they, he, she* and *I* are found in all clusters). There are four cluster types with the lexical item *grew* *up*, which may account for the high frequency of pronouns. *Grew* *up* as a lexical item has a specific and separate meaning to *grew*, being restricted to human life only. The use of *grew* *up* within a subordinating *as* clause suggests the item provides additional information rather than being the focus of the statement.

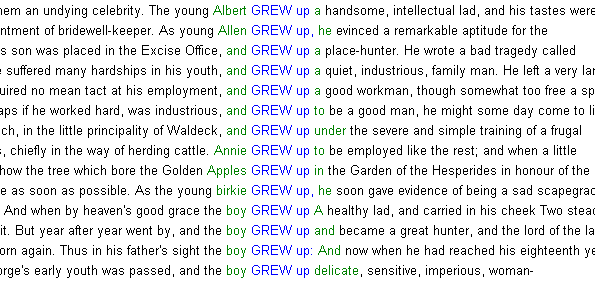
The first four clusters in the metaphoric dataset in contrast, refer to *it* as subject pronoun. Only 24.83% of all the clusters make reference to a personal pronoun (*he, she* of *they*). *Grew* *better as* signals an improvement in condition, and is thus loosely associated with a non-metaphoric sense of *grew*. Also of interest are the two clusters containing *soon*, which refer to *time*. There is one cluster containing *grew* *dark*, which is also related to time, particularly in the context of the nineteenth century. Finally, calculating all *as* clusters (also those without *grew* present), there is also a higher type frequency amongst the metaphoric dataset. Other instances include *as soon as, as well as,* and *and as it*. Although these cannot be analysed in relation to the behaviour of *grew* directly, the first four of these clusters convey a sense of comparison. This is a finding which mirrors the *cultivated* (v) study, where *cultivated* *as* *X* *as* accounted for half of all instances of the collocate *as* in a metaphoric context. Whilst it might have been expected that some of these instances would be similes, this turns out not to be the case, and the metaphoricity usually lies elsewhere (i.e. outside of the *as* structure), most often referring to the light. The majority of instances of the cluster form the larger phrase *as soon as it* *grew* *dark/dusk/light*:

Concordance 1. *As soon as* clusters in metaphoric dataset



The fourth most frequent collocate of *grew* in the non-metaphoric data is *up* (occurring 10.96 times per thousand words). Almost all of these instances (97.11%) occur to the right of *grew*. This shows a prevalence of the specific lexical item *grew* *up*, and a closer analysis of the collocate data shows that 165 out of a total of 173 (95.38%) instances follow *grew* directly in R1 position. *Grew* *up* occurs in over a fifth (21.44%) of all non-metaphoric instances of *grew* concordance lines, showing it to be a key lexical phrase associated with growing in a non-metaphoric sense. The phrase implies a growing up of people in age, stature, and also maturity:

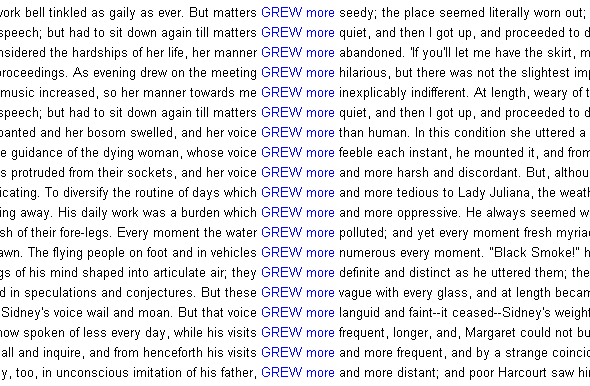
Concordance 2. Selection of *grew* *up* occurrences in non-metaphoric dataset



Many of the lexical items on the left of *grew* *up* are related to children (*boy, young Allen, young Albert, youth, children),* whilst many on the right describe desirable characteristics (*handsome, intellectual, industrious, healthy, strong, hearty).* There are also references to *man* and *lad*.In the majority of instances *grew* *up* is used non-metaphorically to mean a physical growth or development from a *young boy/girl/child*, into a *man/lad* etc., alongside an implied growth in maturity and the positive acquisition of desirable attributes, physical and otherwise. *Grew* UP appears to be used equally as a phrasal verb + complement, (e.g. *the children grew up strong and hearty*), or without a complement (e.g. *in his father’s sight the boy grew up*).As mentioned, as a lexical item the phrase has a separate and specific meaning, thus is always used in relation to humans and found in close proximity to personal pronouns, proper nouns or person-related lexis (*boy*, *child* etc.).

The fifth most frequent collocate in the metaphoric data is *more* which shows a high level of fixedness. 89.8% of all instances occur on the right of *grew*. The majority of these occur in positions R1 and R3: 198 (44.91%) and 116 (26.30%) instances respectively. Concordance examples of *grew* *more* are shown below:

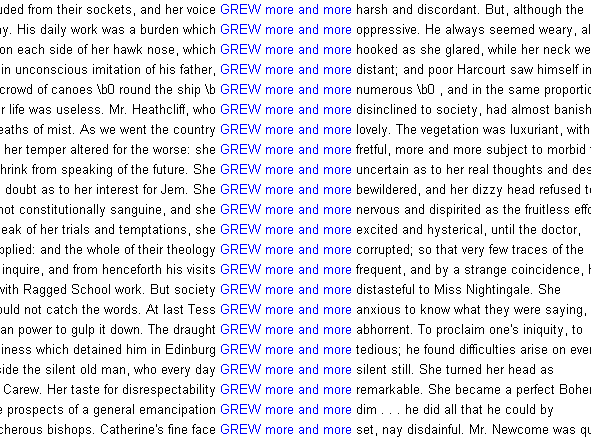
Concordance 3. Selection of *grew* *more* occurrences in metaphoric dataset



The majority of adjectives following the collocation are related to emotion or abstract characteristics, showing that most uses of *grew* *more* are used in relation to a change in temperament, state, or emotion rather than physical growth. A large majority of the imagery associated with the adjectives on the right of the collocation are negative. These include *languid and faint, vague, feeble, tedious, harsh, abandoned, discordant, oppressive* and *seedy*. Even seemingly neutral adjectives are associated with negativity when more context is provided. This includes the increase in the number of people flying and on foot being associated with congestion in the 13th line above, and the increase in the frequency of visits by the character in the 17th line is undesired by Margaret. When *more* is in R3 position, items in R1 and R2 are mainly quantifiers such as in the example *Mr Audley grew a little more agreeable.*

71 of the instances of *grew* *more* form part of the larger colligation *grew* *more and more* (+adj.)where *grew* fills both R1 and R3 positions simultaneously. In total 35.86% of R1 *more* collocates and 61.21% of R3 *more* collocates form part of the larger cluster *grew* *more and more*, which in turn colligates with an adjective. Examples of these are shown below:

Concordance 4. Selection of *grew more and more +* adj. in metaphoric dataset



The adjectives are varied in their references; however there seems to be a similar element of negative pragmatic association. On the left side of the cluster, there is a variety of subjects; the majority are human (*Mrs Hadwin, Freddy, Mr Heathcliff, Tess, Jem, he* x4), there are also abstract subjects (*attention, atmosphere, burden, vigilance, the whole of their theology,* and *her* *taste for disrespectability)* which are not always in the same clause, and a small number of concrete subjects (*country, face* and *voice*). Looking to the right of the cluster, the large majority of the adjectives are clearly negative. This is reflected in the screenshot above (e.g. *abhorrent*, *violent, silent and morose, afraid, drowsy, yellow and woebegone, anxious, oppressive, tedious, disinclined, disdainful, enamoured*). In total 37 out of 98 (37.76%) of the adjectives following the colligation *grew more and more* are negative in their pragmatic association.

More specifically, the sample above suggests that the colligation *grew* *more and more* (+ adj.) is used in relation to a negative change in a character’s temperament or a situation. The repetition *more* *and more* also suggests a slow development rather than a sudden one. This can also be said to be in keeping with the non-metaphoric meaning of gradual, organic development associated with growth and will be discussed in more detail later.

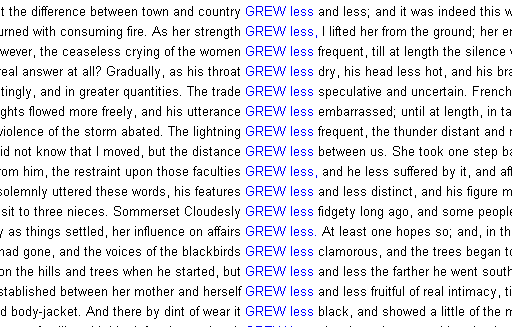
As the above discussion also demonstrated key differences semantically and pragmatically between the two datasets, the role of intensifiers used alongside the adjectives needs now to be explored. The following table summarises the data:

Table 4. Intensifier collocates in both datasets

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| METAPHOR | | | | | NON-METAPHOR | | | |  | |
| R | Collocate | Freq. | | Freq. ptw | R | Collocate | Freq. | Freq. ptw | | |
| 1 | MORE | 481 | | 16.36 | 1 | MORE | 29 | 3.84 | | |
| 2 | VERY | 103 | | 3.50 | 2 | VERY | 17 | 1.08 | | |
| 3 | LESS | 57 | | 1.94 |  |  |  |  | |  | |
|  |  |  |  |

The first point to note is the difference in frequency per thousand for the top collocate *more* between the metaphoric and the non-metaphoric datasets (16.36% and 3.84% respectively). The second most frequent collocate in the metaphoric set is *very*, occurring 3.5 times per thousand. This makes *more* unusually frequent in its comparison to any other intensifier within this dataset. *Less* is only on the collocate list of the metaphoric dataset, presumably because to grow in a non-metaphoric sense, means an increase rather than a decrease. It is possible to grow less fast i.e. at a slower rate, but most often *grew* *less* (X) refers to the *became* sense. *Less* occurs 57 times. It is ranked 50th (according to WordSmith’s collocate list) and occurs 1.94 times per thousand words. 50 out of 57 instances (87.71%) occur on the right of *grew*: 21 of these (42.00%) occur in R1 position whilst 11 (22.00%) occur in R3. It is unsurprising that *less* behaves similarly to *more* in relation to *grew*. Also comparable to *more*, many of the instances of *grew* *less* are followed by an adjective:

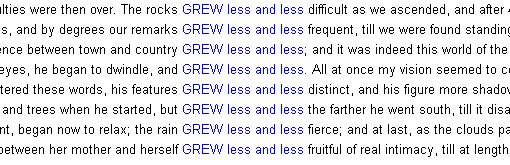
Concordance 5. All instances of *grew less* in metaphoric dataset



Often the items are related to abstract traits in reference to a character, their utterance or action (*constrained, embarrassed, speculative, unpleasing*). Many of the adjectives describe a concrete thing (*dry* in relation to a *throat*, *shaky* in relation to a *hand*). Despite this, *grew* is still not used in a physical sense, but rather as a form of development or transformation. All instances of *grew* *less* can be replaced with *became*.

There are 8 instances of the cluster *grew* *less and less,* making up 14.04% of all instances of *grew* in this corpus. This can be compared to the 71 instances of *grew* *more and more* in the same corpus, making up 16.09% of all instances of *more*. Thus whilst *less* is less frequent than *more*, it is almost as likely to be found in the cluster *less and less* as *more* is likely to be found in the cluster *more and more*. This makes it more fixed in structure. Instances are shown below:

Concordance 6. All instances of *grew less and less* in metaphoric dataset



Again, there appears to be no generalisation that can be made about what *less and less* is referring to in these examples. *Grew* *less and less* is used here both in reference to people (abstract and physical characteristics) and external concrete/abstract entities. There is also less preference for the colligation *grew less and less* (+adj.). Furthermore, unlike *grew* *more* *and* *more*, there appears to be no strong pragmatic associations attached to the cluster. This may be due to the small amount of data. Some instances refer to improvement, whilst other refer to a deterioration in condition or circumstance.

Delving further into the data, analysis of *grew* when used alongside a comparative adjective or adverb (e.g. *darker, smaller* etc.), should also provide a similar indication of whether *grew* as is being used as a metaphor in a transformative sense. Comparatives with a frequency higher than ten are shown below. Columns 4 and 5 show their ranking in R1 and R3 position (taking into consideration clusters such as *grew brighter and brighter*):

Table 5. Collocates acting as comparatives in metaphoric dataset

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| METAPHOR |  |  |  |  |  |
| Comparative | Freq. | Freq. ptw | R1 freq. | R3 freq. | R1 & R3 (*X and X*) |
| FAINTER | 53 | 1.80 | 31 | 22 | 22 |
| LOUDER | 43 | 1.46 | 32 | 10 | 9 |
| STRONGER | 40 | 1.36 | 25 | 8 | 6 |
| DARKER | 37 | 1.26 | 28 | 8 | 8 |
| HEAVIER | 26 | 0.88 | 15 | 2 | 3 |
| BRIGHTER | 23 | 0.78 | 13 | 8 | 5 |
| PALER | 22 | 0.75 | 13 | 8 | 5 |
| CALMER | 17 | 0.58 | 16 | 1 | - |
| LARGER | 17 | 0.58 | 13 | 2 | 3 |
| THICKER | 16 | 0.54 | 9 | 5 | 5 |
| CLEARER | 15 | 0.51 | 8 | 5 | 2 |
| WEAKER | 15 | 0.51 | 12 | 3 | 4 |
| DEEPER | 12 | 0.41 | 8 | 2 | 5 |
| WIDER | 11 | 0.37 | 8 | 1 | 2 |
| WHITER | 10 | 0.63 | 9 | 1 | - |

The table shows a different set of adjectives to those used in Tables 6.2.7 and 6.2.8 Interestingly there appears to be no pragmatic association attached to the adjectives in comparison to the structure *more* + adjective. This is further supported by consulting full concordance lines. Instead of referring to mood and temperament, the adjectives refer more neutrally to external, environmental changes such as those relating to sound or light (e.g. *grew fainter; grew louder*):

Table 6. Frequent clusters involving comparatives in metaphoric dataset

|  |  |  |  |
| --- | --- | --- | --- |
| METAPHOR | |  |  |
| R | Cluster | Freq. | Freq. ptw |
| 1 | GREW LOUDER AND | 21 | 0.71 |
| 2 | FAINTER AND FAINTER | 20 | 0.68 |
| 2 | GREW FAINTER AND | 20 | 0.68 |
| 3 | GREW DARKER AND | 16 | 0.54 |
| 4 | GREW STRONGER AND | 15 | 0.51 |
| 5 | GREW BRIGHTER AND | 8 | 0.27 |
| 5 | LOUDER AND LOUDER | 8 | 0.27 |
| 6 | DARKER AND DARKER | 7 | 0.24 |
| 7 | STRONGER AND STRONGER | 6 | 0.20 |
| 7 | GREW WHITER AND | 6 | 0.20 |
| 7 | HEART GREW HEAVIER | 6 | 0.20 |
| 7 | HE GREW CALMER | 6 | 0.20 |
| 7 | GREW PALER AND | 6 | 0.20 |
| 7 | AND THICKER AND | 6 | 0.20 |
| 8 | IT GREW DARKER | 5 | 0.17 |
| 8 | THICKER AND THICKER | 5 | 0.17 |
| 8 | BRIGHTER AND BRIGHTER | 5 | 0.17 |
| 8 | GREW WEAKER AND | 5 | 0.17 |
| 8 | GREW THICKER AND | 5 | 0.17 |
| 8 | DARKER AND THE | 5 | 0.17 |
| 8 | GREW HEAVIER AND | 5 | 0.17 |

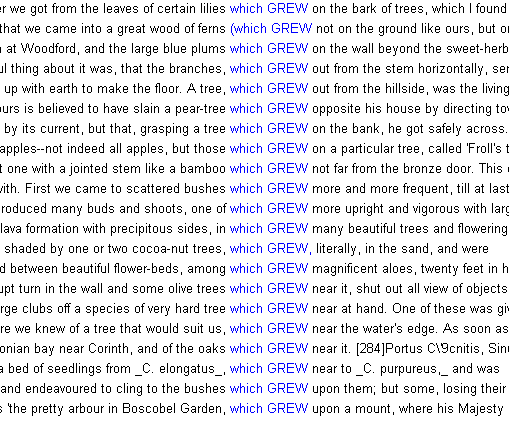
Of particular interest is the colligation adj.(er) *and* adj.(er). The most prevalent of these are *louder and louder, fainter and fainter, darker and darker, stronger and stronger, thicker and thicker,* and *brighter and brighter.* *Grew* *fainter and fainter* is the most frequent, making up the majority of all occurrences of *fainter*. With the exception of *faint* and *dark*, the comparatives depict an increase in intensity, which is similar to the physical, non-metaphoric sense of growing outward or upward. Other, less frequent comparatives found in the colligation *grew* + adj.(er) *and* adj.(er) include *angrier and angrier, bleaker and wilder, closer and heavier, feeble and fainter, colder and colder, denser and denser* and *stupider and clumsier* and *wider and wider.* As with the colligation *grew* *more and more* (+ adj.), the colligation *grew* + adj.(er) *and* adj.(er), depict a preference for comparatives to be used emphatically, signalling a slow or gradual growth or development, rather than an immediate change. There is a difference, however, between the use of *grew* *more and more* (+ adj.) and *grew* + adj.(er) *and* adj.(er), not simply in the structure but also in the semantic nature of the adjective being used in each structure. The majority of *grew* + adj.(er) *and* adj.(er) similarly depict something negative, often creating a sense of something impending of threatening, but the pragmatic association is much more prominent than for the structure *grew more and more* (+ adj.). In total there is negativity associated with 137 out of 171 (80.12%) instances of *grew* + adj.(er) + adj.(er), compared to only 37.76% of instances in the structure *grew more and more* (+ adj.) as was shown earlier in the section.

This finding can be compared with uses of both colligations (*more and more* + adj. and adj.(er) + adj.(er)) more generally, without *grew*, to determine if this is a more general finding of the language, rather than specific to the datasets. A small search of roughly 4 million tokens (taken from 3 random texts from the main nineteenth century corpus) yielded 21 instances of *more and more* + adjective and 100+ instances of verb + adjective (er) + adjective (er). With regard to the first structure, 13/20 are clearly negative in their pragmatic association (adjectives include *incensed, astonished, silent, fretful* and *anxious).* Another two instances reveal a degree of negativity when more context is provided. In summary, within the small sample (21 instances), three quarters of these display negative pragmatic association, which as a consequence, appears to be a salient feature of the structure *more and more* in general. In comparison, the adjectives in the second structure show no sign of characterised pragmatic association (some instances are negative, some are positive, and some are neutral). Similarly, they refer more often to external observations often related to speed (*faster and faster*), spatial description (*nearer and nearer; lower and lower; hither and thither*), or light (*darker and slighter; blacker and thicker*). There is also repetition of *over and over* and other degrees of intensity (*harder and better; graver and steadier*). With the exception of three instances, all show an increase in intensity, again similar to the non-metaphoric meaning of growth. Within the sample there is a mixture of metaphoric and non-metaphoric language. Thus, to conclude, interestingly, the colligation adj.(er) + adj.(er) is specifically negative in its pragmatic association when used alongside *grew* in a metaphoric sense. This finding alone confirms that metaphoric instances of the item *grew* differ in their lexical characteristics to both non-metaphoric uses of the same item, and other more general uses of the same colligation – in this case adj.(er) + adj.(er).

Turning now to the non-metaphoric dataset for *grew*, *more* collocates with *grew* only 29 times in all of the data, making up only 1.84‰ of the data. Whilst 72.41% of these instances occur on the right of *grew*, only 31.03% occur in R1 position, suggesting that there is much less fixedness as well as frequency in its association with *grew* non-metaphorically. Similarly, there are fewer comparatives following *grew* (41 tokens in total). The lexical fields, not surprisingly, relate to age and stature, in keeping with two salient non-metaphoric uses (*older x8, bigger x5, thinner x4, larger x3* and *thicker x2)*. Thus it can be concluded that both *grew* *more and more* and *grew* + comparative (+ comparative) are structures more characteristic of the metaphors. Moreover, *more and more* retains its negative pragmatic association when used in conjunction with *grew* metaphors, and more specifically, relates to negative emotions or changes in a character’s temperament. In contrast, the comparatives used alongside non-metaphoric *grew* are characteristic of more physical yet external aspects of change (i.e. less animate). They usually refer to intensity in light, colour or sound. Other comparatives (including *less*) will be discussed in more detail in the individual collocate analysis.

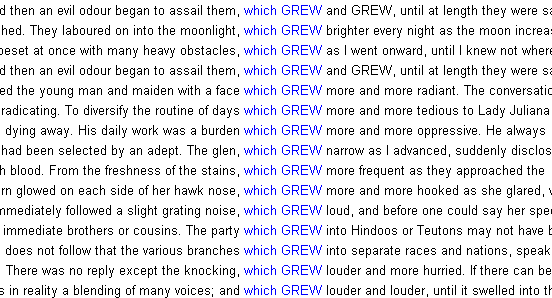
The final items of interest left in the non-metaphoric data are the eighth and ninth most frequent collocates *which* (8.75‰) and *that* (8.62 ‰). The presence of *which* and *that* suggest *grew* is often used in sentences that contain subordinate or relative clauses. This is not always the case with *which* or *that* but it is one characteristic use.A large majority of both items (92.03% and 83.09% respectively) precede *grew* in the concordance line. A closer look at the data shows that 60.87% of *which* and 52.21% of *that* do appear in L1 position and 87.50% and 68.62% of these figures respectively, do signal a relative clause. This depicts the action of the subject (the growing) as a secondary event. Examples are shown below:

Concordance 7. Selection of *which grew* occurrences in non-metaphoric dataset



The screenshot shows a strong colligation associated with *grew* when used non-metaphorically: it is often used in a subordinate or dependent clause as predicted, particularly in the case of *which*. Moreover, the item in R1 position of *grew*, directly following the cluster *that* *grew*/*which* *grew*, is most often a preposition with a locative function: describing extra information related to the place or the manner of the growing (e.g. *at, in, on, round, upon*). In this structure, the growing is not the most important element of the sentence, but the object itself (i.e. *the large trees; a few ripe pears; a little red flower* etc.). This is a colligation specific to the non-metaphoric set. In contrast the metaphoric instances of *grew* would be presumed to be a more important part of the sentence in which they appear, for the specific reason that they are metaphors and thus (often) used for a particular effect by the author (of course, this is not the case with all metaphors, as the research has often discussed). An author may use a metaphor to describe, elaborate on, or emphasise a particular characteristic or action; in such a case it would be expected that the metaphor would have priority in the sentence, so as to carry out its intended effect upon the reader. A closer look at the metaphoric data shows that *which* also occurs on the collocate list generated by WordSmith but is a much weaker collocate than its non-metaphoric counterpart. It is ranked 30th out of all collocates (again, based on WordSmith’s Collocate function) and occurs 140 times, making up 4.89% of the data (in comparison to 17.10% of the non-metaphoric data). It is also less fixed; the most frequent position (also L1) only makes up 34.29% of all instances of *which*. Some of these examples are shown below:

Concordance 8. Selection of *which grew* occurrences in metaphoric dataset



Although prepositions are found in R1 position of the collocation, similar to the metaphoric instances these are less frequent. They also often form part of phrasal verbs, which will be discussed shortly. More prevalent are complements where *grew* is used intransitively: *bright, broad, paler, plainly, rapidly*. There are also repeated trigrams such as *more and more,* *louder and louder,* and *quieter and quieter.* A survey of all 48 *which grew* collocations in the metaphoric dataset reveals that 25 instances (52.08%) are followed by a complement, 11 instances (22.92%) are followed by an object and 11 (22.92%) are followed by a prepositional phrase. Moreover, the instances followed by an object or a prepositional phrase most often are lexical items (*grew* *up*, *grew* *out of*, *grew* *into*, *grew* *upon*, *grew* *from*). Each of these instances within their context displays a different meaning from *grew* + preposition. The most common meaning is to evolve or develop. Removing the lexical items then, and returning to *grew* and its meaning in isolation, there are only six instances that do not have a complement.

Without a complement, we would be left with a meaning closer to the non-metaphoric sense of *grew* e.g. *his daily work was a burden which grew;* rather than *his daily work was a burden which grew more and more oppressive*. The first example suggests the burden to be growing in the physical sense of upward or outward (albeit metaphorical), but the second example portrays the burden as becoming *more* *oppressive*. *Oppressive* here is the signal of a more abstract sense of development. Used alongside *more and more*, which was discussed earlier, the effect is one of gradual development towards a negative state. To summarise the collocation *which* *grew* then: whilst its behaviour in the non-metaphoric examples often demonstrates a sense of extra meaning (often locative) used alongside a prepositional phrase to display the place or manner of the object growing (*it grew around the tree*), in a metaphoric context, the collocation has a non-locative characteristic and is much less prevalent. The collocation is most frequently followed by a complement (*more and more, louder and louder, paler and paler*), and more often than not signifies a development from one state to another. This is either in relation to a character’s temperament (*Meanwhile, Arthur Beaufort’s own complaints, which grew serious…*), or a change in an external state (…*the glen, which grew narrow as I advanced*). In this sense however, it is of importance to note that the use of *grew* mostly stands for a change in a character’s perception of the external world, rather than a physical/concrete transformation. Perception such as this has been discussed in relation to *grew* in the middle group analysis. Also of note is that most of the above instances suggest *grew* being used to describe a noise or a light. Again, the contexts depict a slow or gradual development in either sound or light/darkness.

To conclude, the top ten collocates show differences in the most frequent items collocating with *grew*. Although the majority of items are grammatical rather than lexical, differences have also been found in relation to semantic associations and, more notably, pragmatic associations. The high frequency of the fixed phrase *more and more* alongside *grew* in a metaphoric context showed strong negative pragmatic association as well as revealing a stark difference. Another finding of interest is the use of *which* and *that* amongst non-metaphoric instances. In total, 33.95% of all *grew* instances in the non-metaphoric dataset collocate with either *which* or *that*. This pointed to heavy use of subordinate or relative clauses and a high degree of fixedness more generally. Subsequently, the frequent use of preposition or particle in R1 position to *grew* substantiated this claim.

Metaphoric and non-metaphoric uses of *grew* are signalled differently in the structures and groups of items in which they form a part of. Despite the fact that the full analysis has shown more types of uses of *grew* metaphorically (i.e. specific meanings pragmatically or semantically, such as *grew into,* *grew* signalling an abstract change, *grew* signalling a change in perception, *grew more and more* etc.), there are more varied structures (and thus more high frequency clusters) in the non-metaphoric data. Findings from the analysis show this to mean that *grew* as a non-metaphor is more flexible and less fixed semantically, pragmatically and grammatically.

**5. Conclusions and implications for future research**

The data analysis has shown a number of differences in the behaviour of *grew* when used in a metaphoric or non-metaphoric context. In general, there is a wider variety of collocates, both token and type, associated with the metaphoric instances. Despite this, there are a lower number of frequent clusters in the metaphoric data suggesting that there is a larger range of fixed structures being used overall in the metaphoric data. Pragmatic association featured prominently in the above analysis. Instances are found most apparent in connection with metaphoric structures of *grew*. This includes the phrase *grew more and more*, which often conveys a sense of despair, anger, or weakness in a character’s temperament. Interestingly this is not the case with *grew* *less and less*, another frequent metaphoric cluster. Of more interest is the colligation adj.(*er*) + adj.(*er*), which had a much stronger negative pragmatic association that *grew more and more* + adj. Moreover, the structure was shown to be specific to the verb *grew –* there was no pragmatic association found associated with the more general colligationadj.(er) + adj.(er)in the BNC.The adjectives displaying the highest degree of fixedness in R1 position also display a negative pragmatic association (*grew pale, worse, tired, weary, hot*). There is no such association shown in the non-metaphoric adjectives, or indeed in any collocate analysis with the non-metaphoric dataset. Interestingly Louw (1993) claims that metaphor is often enlisted “both to prepare us for the advent of a semantic prosody and to maintain its intensity once it has appeared” (Louw, 1993: 172). The findings here do indeed show a prevalence for pragmatic association amongst metaphoric instances of items in comparison to the non-metaphoric uses. Thus it could be suggested that pragmatic association and metaphor form a creative relationship.

Hoey (2008) states that more work needs to be done in relation to creativity and lexical priming. Metaphor by its very nature is creative.

## References

Cruse, D. 1986. *Lexical Semantics.* Cambridge: Cambridge University Press

Deignan, A. 2005. *Metaphor and Corpus Linguistics.* Amsterdam: John Benjamins.

Deignan, A. and [Semino, E.](http://www.research.lancs.ac.uk/portal/en/people/elena-semino(8aebf947-2263-4c4e-8829-07f8c06ffc7d).html) 2010. ‘Corpus techniques for metaphor’*.* In: Cameron, L. and Maslen, R. (eds.), *Metaphor Analysis: Research Practice in Applied Linguistics, Social Sciences and the Humanities.* London: Equinox, pp. 161-179.

Firth, J., R. 1957. ‘A Synopsis of Linguistic Theory 1930-1955’. *Studies in Linguistic Analysis*, Oxford, Philological Society. Reprinted in Palmer, F. R. (ed.), *Selected Papers of J. R. Firth*, Harlow, Longman, 1968.

Gadamer, H. 2004. *Truth and Method*, trans. Joel Weinsheimer and Donald G. Marshall. London and New York: Continuum.

Gibbs Jr., R., W. 1994. *The Poetics of Mind*. Cambridge: Cambridge University Press.

Habermas, J. 1990. ‘A review of Gadamer’s *Truth and Method’*, trans. Fred. R. Dallmayr and Thomas McCarthy. In: Ormiston and Schrift (eds.), *The Hermeneutic Tradition: From Ast to Ricoeur.* Albany: Suny Press, pp. 213-244.

Hoey, M. 2005. *Lexical Priming: A New Theory of Words and Language.* London: Routledge.

Hoey, M. 2008. ‘Lexical priming and literary creativity’. In: M. Hoey, M. Mahlberg, M. Stubbs and W. Teubert (eds.), *Text, Discourse and Corpora*. London: Continuum, pp. 7-30.

Koller, V. 2006. ‘Of critical importance: Using corpora to study metaphor in business media discourse’. In: A. Stefanowitsch, and S. T. Gries (eds.), *Corpus-Based Approaches to Metaphor and Metonymy.* Berlin and New York: de Gruyter, pp. 229-257.

Lindquist, H. and Levin, M. 2008. ‘Foot and mouth: The phrasal patterns of two frequent nouns.’ In: S. Granger and F. Meunier (eds.), *Phraseology: An Interdisciplinary Perspective.* Amsterdam: John Benjamins, pp. 143-158.

Louw, B. 1993. ‘Irony in the text or insincerity in the writer? The diagnostic potential of semantic prosodies.’ *Text and Technology: In Honour of John Sinclair*. Amsterdam: John Benjamins, pp. 157-176.

Ortony, A. 1979. Metaphor: A multidimensional problem. In A. Ortony (Ed.), *Metaphor and Thought*, pp. 1-16. Cambridge, England: Cambridge University Press.

Partington, A. 2006. ‘Metaphors, motifs and similes across discourse types: Corpus-assisted discourse studies (CADS) at work’. In: A. Stefanowitsch & S. Gries (eds.) *Corpus-Based Approaches to Metaphor and Metonymy*. Berlin: Mouton de Gruyter, pp. 267-304.

Patterson, K., J. 2014. ‘The analysis of metaphor: To what extent can the theory of lexical priming help our understanding of metaphor usage and comprehension?’ *Journal of Psycholinguistic Research*. (online) DOI 10.1007/s10936-014-9343-1.

Patterson, K., J. 2015. 'The confinements of 'metaphor’ - Putting functionality and meaning before definition in the case of metaphor'. *Globe: A Journal of Language, Culture and Communication*, 2, pp. 1-22

Philip, G. 2010. ‘Why prosodies aren’t always present: Insights into the idiom principle’. In: M. Mahlberg, V. González-Díaz, and C. Smith (eds.), *Proceedings of the Corpus Linguistics Conference CL2009.* Liverpool: University of Liverpool. Disponible sur< <http://ucrel.lancs.ac.uk/publications/CL2009/317FullPaper.rtf>>

Philip, G. 2011. *Colouring Meaning: Collocation and Connotation in Figurative Language.* Amsterdam: John Benjamins.

Scott, M. 2008, *WordSmith Tools, Version 5*. Liverpool: Lexical Analysis Software.

Searle, J., R. 1979. *Expression and Meaning.* Cambridge University Press: Cambridge.

Semino, E. 2006. *‘*Corpora in cognitive linguistics: Conceptual metaphors’*.* In: A. Stefanowitsch and S. Gries (eds.). *Corpus-Based Approaches to Metaphor and Metonymy*. Amsterdam: John Benjamins, pp. 35-60.

Sinclair, J. 1991. *Corpus, Concordance, Collocation*. Oxford: Oxford University Press.

Tsiamita, F. 2009. ‘Polysemy and lexical priming: the case of *drive’.* In: U. Romer and R. Schulze (eds.), *Exploring the Lexis-Grammar Interface.* Amsterdam: John Benjamins, pp. 247-264.

Wittgenstein, Ludwig. [1922]. 1981. *Tractatus Logico-Philosophicus,* trans. C. K. Ogden. London: Routledge.

1. The name Drinking Problem Hypothesis comes from a scene in the 1980 film *Airplane*! outlined in Hoey (2005), in which the phrase 'drinking problem' is used humorously to refer to the difficulty a man has in getting liquid to his mouth. [↑](#footnote-ref-1)
2. Hoey notes that lexical priming is a property of the person, not the word. When talking of words being primed to collocate, this is short hand for saying that most speakers are primed for the words to collocate. [↑](#footnote-ref-2)
3. [www.lexically.net/downloads/version5/HTML/index.html?keywords\_info.htm](http://www.lexically.net/downloads/version5/HTML/index.html?keywords_info.htm) [↑](#footnote-ref-3)
4. A function of Wordsmith5 (Scott, 2008). [↑](#footnote-ref-4)