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A Corpus-Based Study on Metaphor and Hyperbole in English News Discourse

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Abstract. A corpus-based analysis of English economic news discourse (10,808 words) is conducted to explore how metaphor and hyperbole are related. The research measuring the isolation and combination of the two tropes across word class shows that the figure of metaphor occurs more frequently in news discourse than hyperbole does. The combination of metaphor and hyperbole is another prominent type of figurative language use differing from the respective usage of either trope. The reason lies in that the two tropes are related to different word classes and their combinations, which are mostly found in nouns and verbs, have distinct features compared to either trope used in isolation. Therefore, this study supports the hypothesis defining metaphor and hyperbole as two discrete categories.

1. Introduction

In classical theories on rhetoric, metaphor and hyperbole, the two figurative devices, were discussed under the encompassing category of tropes. In a clever use as important language skills, both of them can strengthen the expressiveness and persuasion of a poem or a speech. However, this trend changed with the "cognitive turn" in linguistics in the late 1970s (Steen, 2011) and the introduction of Conceptual Metaphor Theory (Lakoff & Johnson, 1980). A flood of researches turn to focus on the cognitive conception of metaphor, having far advanced studies of cognitive linguistics, but meanwhile promoting most contemporary literature on figurative language to center on one trope in isolation rather than on tropes in combination. "An important topic in current studies of figurative language relates to the ways in which different tropes are related" (Burgers et al., 2018).

Researches on the relation between metaphor and hyperbole are divided mainly on the definition of metaphor. On the one hand, Conceptual Metaphor Theory (Lakoff & Johnson, 1980, 2003) defines metaphor as a cross-domain mapping, which means elements from a source domain are mapped onto a target domain. In this way, people use a known, specific and familiar conception to comprehend an abstract conception. Thus, metaphor is a cross-conceptual comparison. While generally, the core of the definition of hyperbole is exaggeration or extremity (Norrick, 2004), which implies evaluation according to a certain scale. Under this perspective, hyperbole, whose emphasis is extreme evaluation, differs from metaphor. On the other hand, Relevance Theory (Sperber & Wilson, 1985, 2008) holds that metaphor is "simply a range of cases at one end of a continuum that includes literal, loose and hyperbolic interpretations" (Sperber & Wilson, 2008:84). Distinct from the perspective above, this view argues that the distinction between literal and intended meaning is not unique to metaphor in that every utterance in human communication contains implications that are expected to be inferred (Burgers et al., 2018). Thereby, RT scholars categorize metaphor and hyperbole together as the loose use of language, on a continuum with approximations (Sperber & Wilson, 2008).

Many foreign scholars have conducted theoretical research on the basis of empirical study. Barden (2015) puts forward the concept of "likeness-exaggerating" to explain the specific grammatical structure of direct metaphor "X is Y", indicating that direct metaphor suggests a higher degree of likeness than simile does. Through investigations on the isolation and combination of hyperbole and other figurative devices, Carston and Wearing (2015) find that hyperbole co-occurs with other tropes

more frequently than any other trope does. They also propose that hyperbole shares some characteristics with metaphor but the two are essentially distinct. Rubio-Fernandez et al. (2015) prove that in Relevance Theory, metaphor and hyperbole, although both belong to the loose use of language, are still significantly different, which further promotes the independent study of hyperbole. Burgers et al. (2016) introduce the Hyperbole Identification Procedure and confirm its feasibility to be equivalent to the Metaphor Identification Procedure Vrije Universiteit (Steen et al., 2010).

The domestic studies on English rhetoric relatively less focus on combined figures of speech. Yang (2002) argues that hyperbole is a metaphor whose meaning crosses categories or cognitive domains in certain scope or degree. In this view, exaggeration (including overstatement and understatement) is enlargement or reduction of the word meaning, and the exaggerated word just becomes the vehicle with the tenor disappearing in hyperbole. Based on the intentionality theory, He (2013) reclassifies the commonly used semantic figures of speech from three dimensions "adjacency", "similarity" and "adjacency and similarity". Then hyperbole falls into the category of bidirectional-adjacent tropes when metaphor is categorized as similarity in connotation.

The studies above have promoted people's understanding of the relationship between metaphor and hyperbole from multiple perspectives. Nevertheless, most of them employ an up-down approach, supporting the existing theoretical hypotheses with screened and inducing linguistic data. The conclusion is consequently subjective and one-sided because researcher's intuition cannot fully reflect the actual pragmatic situation. However, quantitative analysis based on a large-scale corpus is helpful to correct deviations in previous studies. In addition, English news discourse is rhetorical, and it is the second most significant discourse type that counts metaphors, just behind academic writing (Krennmayr, 2015). As such, taking samples of English news texts on economic topics, this paper will adopt corpus analysis method to make a quantitative study on isolation and combination of metaphor and hyperbole on word class. Furthermore, the paper will discuss the relation between these two tropes on the basis of the analysis results above in order to get a better explanation of the use of metaphor and hyperbole in news discourse.

2. Methodology

The methods of this corpus-based paper mainly involve sample selection, processing, and reliability testing of the processing results. The processing of sample includes part of speech analysis, metaphor and hyperbole recognition, and word frequency statistics.

2.1 Sample

The corpus comprises news articles written in English news media in February 2019. It focuses on articles on economic topics, which are usually related to figurative language use (Burgers et al., 2018). Articles are collected from websites of six different English news outlets: three quality newspapers (*The Los Angeles Times*, *The New York Times* and *The Guardian*) and three popular newspapers (*News Weekly*, *The Daily Express* and *The Daily Mail*). The corpus compiling involves two preconditions. One is to select randomly in each news outlet with an equal number of texts. The other is to make a corpus containing about 10,000 words in total. Ultimately, based on these criteria, a corpus of 11260 words (3 articles per news outlet) comes into being.

2.2 Procedure

The plain text of the 18 news articles is firstly transformed into Python programming language, subsequently parsed into words and coded for word class by Jieba, a Part-of-Speech parser and tagger. After that, words are unitized into lexical units (Steen et al., 2010) which are basically equivalent to words.

Before the check of all codes made by the POS tagger, words written in other languages than English are excluded for further analysis. Next, some manual corrections are carried out for the POS tagger makes a few coding mistakes that are mainly related to polysemous expressions (e.g., the word *cost*, which can be used both as a verb and a noun). In some other cases, the POS tagger encounters problems in coding terms specific to the field of economics that have not yet been included in a

dictionary of general English use (e.g., *bitcoin*). Lastly, for 101 words, the POS tagger uses the tag "OTHERS" for special cases it cannot allocate to any other word class. For example, names of people or geographical places, names of specific financial institutions, new abbreviation and creative compounds that are not included in dictionary are tagged with "OTHERS". All the cases listed are resolved in manual corrections.

After the exclusion of non-English expressions and the clean-up of tags, the final corpus has 10808 lexical units. Word classes most commonly used in the corpus are nouns (3,574 lexical units), verbs (1,965 lexical units), prepositions (1,790 lexical units), adjectives (1,231 lexical units), adverbs (530 lexical units), pronouns (206 lexical units) and remainders (1,512 lexical units).

Each lexical unit is subsequently coded for metaphor according to MIPVU (Steen et al., 2010). On the basis of the operational definition that metaphor is a cross-domain mapping, MIPVU recognizes a lexical unit as a metaphorical usage when its use can possibly be explained from a more basic contextual meaning through cross-domain mapping (Steen et al., 2010). To take the lexical unit "nest egg" in the sentence "savers have missed out on £188 billion of interest on their nest eggs" as an example, the basic meaning of the phrase *nest egg* is "an egg that the farmer left in a nest to induce hens to lay their eggs in it". This differs from its contextual meaning which is "a sum of money that you are saving for something special in the future". The contextual meaning can be interpreted by cross-domain mapping, as the money put by as a reserve is ready for a particular purpose, like the egg is left deliberately in a nest for more eggs. This makes "nest egg" a metaphor.

HIP (Burgers et al., 2016) is employed in coding lexical units for hyperbole. On the basis of the operational definition that hyperbole is an expression which is more extreme than reasonable in view of its ontological referent, HIP requires the construction of a qualitative or quantitative scale for each lexical unit, and the placement of both expression and bandwidth of ontology referent on the scale. Take the lexical unit "five days" in the sentence "for anyone with bullish sentiments, the last five days have all been about falling back to the bannermen and regrouping as they prepare to make another assault up the markets this weekend". The ontological referent actually refers to certain trend in the stock market these days. However, the expression *five days* refers to every daily activity. This is more extreme than the trend in stock market, making *five days* an example of hyperbole.

Apart from the cases in which either metaphor or hyperbole is used in isolation, the combination of the two tropes is also coded in accordance with MIPVU and HIP. See Figure 1 for the example of combined usage. The sentence "the crazy passion of England flooded the financial system with cheap cash" can be read as a metaphor for the crazy passion is an emotional atmosphere rather than a surge of water, so the verb "flooded" here is a metaphorical usage. Yet, this sentence can also be interpreted as a hyperbole because "England", which originally represents various aspects related to a country, here especially refers to the British people, implicating an exaggeration. Such a case where metaphor and hyperbole are used together to achieve some overall rhetorical purpose is considered as the example of combined usage in this paper.

To avoid dependence on the analyst's intuition, authoritative dictionaries (*Oxford Advanced Learner's Dictionary* and *Longman Dictionary of Contemporary English Online*) are taken as independent reference tools to check basic and contextual meaning.

Figure 1 Corpus examples of configurations of metaphor and hyperbole

Configuration	Example
No figuration	It's adaptable too so it fits existing production without changes.
Metaphor only	Savers have missed out on £188 billion of interest on their nest eggs.
Hyperbole only	For anyone with bullish sentiments, the last five days have all been about falling back to the bannermen and regrouping as they prepare to make another assault up the markets this weekend
Metaphor* hyperbole	The crazy passion of England flooded the financial system with cheap cash.

2.3 Reliability

The reliability of coder is calculated on a subsection of 4 texts which contain 2558 lexical units and are encoded independently by another two coders. Results show that, for both metaphor (92.86% agreement) and hyperbole (95% agreement), the reliability is substantial.

3. Results and Discussion

Results demonstrate that a total of 2,565 lexical units (23.73% of the corpus) are metaphoric, while only 74 lexical units (0.68% of the corpus) are hyperbolic. This suggests that, in economic news articles, metaphor is far more often used than hyperbole. The following is detailed analysis on these two tropes.

3.1 Isolation and Combination of Metaphor and Hyperbole

"For metaphor, we know that the distribution of metaphor across word class differs from the general distribution of word class" (Burgers et al., 2018). Such conclusion involving the relation between rhetorical devices and word class has been early drawn by Krennmayr (2015). This implies that relation between trope usages among different word classes should be focused as an anchor to identify how a trope appears in isolation. Since both metaphor and hyperbole have been measured at word class level, attention will first be applied to how these two tropes are used in isolation and combination.

Figure 2 Number of metaphoric and hyperbolic lexical units per word class in the corpus

Word class	No hyperbole		Hyperbole		Total
	No metaphor	Metaphor	No metaphor	Metaphor	
Noun	3108	449	9	8	3574
Verb	1342	615	5	3	1965
Preposition	599	1191	0	0	1790
Adjective	934	266	24	7	1231
Adverb	500	10	10	0	530
Pronoun	182	16	8	0	206

The corpus has 10808 lexical units in total. "Remainder" (1512 lexical units) is excluded from the word class list for its little value verified in previous tests (e.g., Krennmayr, 2015; Burgers et al., 2018).

Figure 2 demonstrates metaphoric and hyperbolic lexical units per word class in the corpus. According to it, there are 18 lexical units in the corpus containing both metaphor and hyperbole. From a metaphorical perspective, this means that 0.70% (i.e., 18 out of 2,565) of the metaphors are also hyperboles. From a hyperbolic perspective, this means that 24.32% (i.e., 18 out of 74) of the hyperboles are also metaphors. Next is to zoom in on the word types related to the two tropes and their combinations. Trailing the tabulation employed by Burgers (2018), the question whether and how the combined usages of metaphor and hyperbole are different from their respective usages can be answered through comparisons between the distribution of different configurations across word class and the general distribution of word class described in Figure 2.

Firstly, comparison is made to find the relation between metaphor and word class. According to Figure 2, the general distribution of each word class in corpus is as follows: nouns making up 33.07% of 10808 words, verbs 18.18%, prepositions 16.56%, adjectives 11.39%, adverbs 4.90%, and pronouns 1.91%. For the distribution of metaphor across word class, the percentages should be achieved through comparing metaphorical usage per word class with total metaphors (2592 lexical units) in corpus. The descriptive data is as follows: prepositions accounting for 45.95% of 2592 words, verbs 23.84%, nouns 17.63%, adjectives 10.53%, pronouns 6.17%, and adverbs 3.86%. Both sets of distribution data is ranked from the largest to the smallest. Through the comparison between the orders of word class in two sets, we can find that verbs, prepositions and pronouns are metaphorically used more often than anticipated based on the general distribution. In contrast, nouns, adjectives and adverbs are metaphorically used less often than anticipated.

Secondly, comparison is made to find the relation between hyperbole and word class. The general distribution of each word class in corpus is shown above. While for the distribution of hyperbole across word class, the percentages should be made by comparing hyperbolic usage per word class with total hyperboles (74 lexical units) in corpus. The detailed data are as follows: adjectives taking up 41.89% of 74 words, nouns 22.97%, adverbs 13.51%, pronouns 10.81%, verbs 10.81%, and prepositions 0%. Similarly, we can find through the changes of word class orders that adjectives, pronouns and adverbs are hyperbolically used more often than anticipated on the basis of general

distribution. As a contrast to it, nouns, verbs and prepositions are hyperbolically used less often than expected. This result stands in line with the findings of previous research done by Burgers (2018).

Lastly, the interaction between metaphor and hyperbole in association with word class is investigated. For non-hyperbolic lexical units, there are 3557 nouns, 1957 verbs, 1790 prepositions, 1200 adjectives, 510 adverbs and 198 pronouns, which reflects the general distribution of word class. The distribution of non-hyperbolic metaphors across word class can be obtained by comparing the numbers of non-hyperbolic metaphors per word class with the total number of non-hyperbolic lexical units (9212 words). The rank of word class is as follows: prepositions (12.93%), verbs (6.68%), nouns (4.87%), adjectives (2.89%), pronouns (0.17%), and adverbs (0.11%). For non-hyperbolic lexical units, the comparison between the two word class ranks shows the same pattern of metaphorical usages as drawn in the preceding paragraph.

Interestingly, for hyperbolic lexical units, comparison, however, shows a different pattern. There are totally 74 hyperbolic lexical units in Figure 2, and the general distribution of word class is as follows: adjectives occupying 41.89% of 74 words, nouns 22.98%, adverbs 13.51%, verbs 0%, pronouns 0% and prepositions 0%. The distribution of hyperbolic metaphors across word class is available when we compare the numbers of hyperbolic metaphors per word class with the total number of hyperbolic lexical units (74 words). The word class is consequently ranked as: nouns (10.81%), adjectives (9.46%), verbs (4.05%), prepositions (0%), adverbs (0%) and pronouns (0%). Therefore, for hyperboles, nouns and verbs are involved in more metaphorical usages than expected. By contrast, adjectives are involved in less metaphorical usages than expected. Thus, the biggest shift here is in the noun category: the use of nouns is less than expected when metaphor or hyperbole are considered separately, but when the combinations of metaphor and hyperbole are considered, the use of nouns is more than expected.

The analysis above demonstrates that metaphors can be mainly found in word classes of verbs, prepositions and pronouns, while hyperboles are mostly associated with word classes of adjectives, pronouns and adverbs. In contrast, the combinations of the two tropes primarily exist in nouns and verbs. Therefore, the combined usage of metaphor and hyperbole differs from either respective usage of the two tropes.

3.2 Relationship between Metaphor and Hyperbole

These results back up some former theories on the combination of metaphor and hyperbole. For example, Barnden (2015) proposes that direct metaphors involving A=B nouns will be hyperbolic relatively frequently. Our findings offer some support for his theory by suggesting that the combination of metaphor and hyperbole appears relatively frequently in nouns. Nevertheless, opinions that there is a strong connection between metaphor and hyperbole (e.g., Hsiao & Su, 2010) are challenged given our findings in which 24.32% of hyperboles are metaphoric. Although it is still an appreciable proportion indicating the importance of metaphor for hyperbole, it should be noted that most hyperboles do not contain metaphor.

As to the discussion whether metaphor and hyperbole should be considered as two discrete categories (e.g., Carston & Wearing, 2015) or as parts of a continuum (Sperber & Wilson, 2008), our results also have significant implications. The hypothesis that metaphor and hyperbole are two discrete categories will be supported when the two tropes are related to different word class, and their combinations have distinct features compared to either trope used in isolation. On the contrary, the continuum hypothesis will be proved when both metaphor and hyperbole are related to similar word class, and when their combinations are similar to the respective usage of either trope. Our results back up the former hypothesis that metaphor and hyperbole are two discrete categories.

3.3 Metaphor and Hyperbole in News Discourse

Tropes like metaphor and hyperbole can be used as rhetorical tools to deliver persuasive messages and ideologies. Qualitative analysis may reveal the functions the tropes perform in discourse context, but it can hardly tell patterns and trends of figurative language use in one kind of writing. Krennmayr (2015) confirms through corpus-based analysis that metaphors are distributed unequally across word classes and registers. Similarly, this paper takes a quantitative perspective on metaphor and hyperbole

in economic news discourse. It finds that combination of the two tropes is distinguished from either trope used in isolation through inspection on their distributions across word class, and subsequently holds that metaphor and hyperbole are two different categories. The patterns implicated by quantitative methods can provide supplementary information and examinations for the research on other aspects of tropes in discourse, such as their pragmatic dimensions and persuasive force (Burgers et al., 2018), setting the following stage for more detailed quantitative analysis.

4. Summary

Aiming at mapping the way in which metaphor and hyperbole are related in English news discourse, this paper conducts a corpus analysis measuring the two tropes at the level of word class. Results show that metaphor is more prevalent in news discourse than hyperbole. And the combination of metaphor and hyperbole is another type of figurative language use differing from the respective usage of either trope. The reason lies in that the two tropes are related to different word class, and their combinations have distinct features compared to either trope used in isolation. Thus, the hypothesis that defines metaphor and hyperbole as two discrete categories, rather than as parts of a continuum, finds support in this paper.

This study confirms to the important topic in figurative language that calls for more attention to be applied on the tropes in combination. Besides, the corpus-based analysis adopted in this study is helpful to reduce the deviation occurring when the screened and inducing examples are employed as hypothetical proof. Furthermore, the quantitative perspective, rather than qualitative analysis, can reveal the trends and patterns certain tropes have in one kind of writing. The discussion in this paper may also suggest some interesting topics for further research, such as ways in which another two or three tropes are related, combined usage of tropes in other sample registers like fiction or academic discourse, cross-cultural comparisons in analyzing one certain configuration among different languages, and so on. A larger-scale corpus analysis on metaphor and hyperbole in English news discourse worked in an effective group is recommended for the universality of its conclusion in the future.

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