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Metaphor, Hyperbole, and Irony:

Uses in Isolation and in Combination in Written Discourse

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Metaphor, Hyperbole, and Irony:

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Highlights

- We study how metaphor, hyperbole, and irony are used in isolation and combination.

- We conducted a corpus analysis of Dutch economic news discourse.

- Typical combinations of metaphor-hyperbole differ from their usage in isolation.

- Irony was associated with hyperbole, but not with metaphor.

- Combinations of the three tropes reflected conventional rather than novel word use.

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Abstract

While classical theories on rhetoric cluster figurative devices like metaphor, hyperbole, and irony under the encompassing category of tropes, current theories and research typically focus on one of the tropes in isolation. To determine how these different tropes are used in combinations, we conducted a large-scale corpus analysis of Dutch printed news discourse (54,851 words). For metaphor and hyperbole, we find that typical combinations are found in nouns and adjectives, showing that such combinations differ from the use of either trope in isolation. For hyperbole and irony, we find a relation between the two tropes in that ironic clauses contain more hyperbole than non-ironic clauses. In contrast, for metaphor and irony, we find no empirical evidence that the use of metaphors differs between ironic and non-ironic clauses. Analysis of clauses containing the three tropes of metaphor, hyperbole and irony shows that these may not always reflect novel and creative word use. Instead, various cases seem to contain conventional uses of metaphor and hyperbole.

Keywords: metaphor, hyperbole, irony, figurative language, public discourse, journalism.

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1. Introduction

In classical theories on rhetoric, figurative devices such as metaphor, hyperbole, and irony were typically discussed as one specific class of rhetorical strategies: tropes (e.g., Quintilian, transl. 1959). This implies that these three different figures were mainly described and analyzed based on their commonalities, in that they have a literal meaning that is somehow different from their intended meaning. Furthermore, these classical treatises mainly focused on tropes as linguistic and poetic strategies that could be used by orators to persuade their audiences.

Since the late 1970s, this tendency changed with the 'cognitive turn' in linguistics (Steen, 2011). An important element of this cognitive turn was the introduction of Conceptual Metaphor Theory (CMT; Lakoff & Johnson, 1980), which proposed that metaphor was an element of thought as much as language. A revolutionary claim of CMT was that metaphors are ubiquitous in language, and that linguistic metaphors cluster under larger conceptual structures known as conceptual metaphors. For instance, linguistic expressions such as "Her ego is very *fragile*", "I'm *going to pieces*", and "She is *easily crushed*" all reflect the conceptual metaphor of THE MIND IS A BRITTLE OBJECT (Lakoff & Johnson, 1980/2003, p. 28). Since its introduction, CMT has been a highly influential theory in metaphor studies leading scholars to move away from the classical perspective, and to view metaphor more in terms of both language and thought. This perspective has greatly advanced the study of metaphor and has led to many new and important findings (see Gibbs, 2008).

The cognitive turn, however, also had another consequence, which is that most academic literature on figurative language typically focused on one trope in isolation, rather than on the combinations of tropes. In other words, contemporary literature on metaphor (e.g., Gibbs, 2008),

hyperbole (e.g., Claridge, 2011) and irony (e.g., Gibbs & Colston, 2007) typically uses its own constructs and theories to explain the workings of each trope in discourse. Nevertheless, in some cases, combinations of metaphor, hyperbole, and/or irony are used in discourse. Consider Dutch right-wing politician Geert Wilders talking about a "Tsunami of Islamization" (Nu.nl, 2006), which combines metaphor (immigration as waves) and hyperbole (by taking the most extreme wave possible). Such combinatory tropes ('figurative frames'; Burgers, Konijn & Steen, 2016) can potentially be very powerful tools in public debates.

An important topic in current studies of figurative language relates to the ways in which different tropes are related (e.g., Barnden, 2010, 2015; Carston & Wearing, 2015; Gibbs & Colston, 2012). In this debate, much of the literature on the interconnections between metaphor, hyperbole and irony is either theoretical (e.g., Burgers et al., 2016; Carston & Wearing, 2015), based on experimental research (e.g., Burgers, Konijn, Steen & Iepsma, 2015; Katz & Lee, 1993; Rubio-Fernández, Wearing & Carston, 2015) and/or limited to specific grammatical constructions (e.g., Barnden, 2015; Veale, 2013). In all cases, authors present cases of metaphor, hyperbole and irony in both isolation and combination under the presupposition that these are representative for their usage in discourse. However, corpus analysts have shown that actual language use often differs from intuitive assumptions of analysts (Deignan, 2005).

Thus, to further the debate on the combinations of metaphor, hyperbole, and irony, we ask how, in natural language use, these tropes are used in combination, and how this usage differs from the use of either trope in isolation. As an anchor of how a trope is used in isolation, we focus on the relation between the use of the trope to different word classes, because, for metaphor, we know that the distribution of metaphor across word classes differs from the general distribution of word classes (Krennmayr, 2015; Pasma, 2011). To answer our main questions, we report on a large-scale corpus analysis of the three tropes within the same corpus. Below, we first

present an account of the different perspectives on the interactions between metaphor, hyperbole and irony. Subsequently, we report on an analysis of a corpus of Dutch economic news discourse, which we systematically investigated for the use of the three tropes.

1.1. Metaphor and Hyperbole

In most contemporary studies on metaphor, metaphor is defined as a cross-domain mapping (e.g., Lakoff & Johnson, 1980/2003) which means that elements from a source domain are transferred onto a target domain. Thus, in a metaphor (e.g., "Her ego is very *fragile*") elements from a source domain (e.g., brittle objects) are mapped onto a target domain (e.g., the mind). When defining metaphor in this way, the trope is clearly distinct from hyperbole. After all, most definitions of hyperbole emphasize elements like extremity (e.g., Norrick, 2004) and exaggeration (e.g., Carston & Wearing, 2015). Such definitions typically imply evaluation along some kind of scale. Under this perspective, hyperbole (emphasizing extreme evaluations) is distinct from metaphor (emphasizing comparison across domains).

A first debate on the relation between metaphor and hyperbole hinges on the definition of metaphor. Within Relevance Theory (RT), Sperber and Wilson (1985; 2008) see metaphor as "simply a range of cases at one end of a continuum that includes literal, loose and hyperbolic interpretations" (Sperber & Wilson, 2008, p. 84), thereby challenging the CMT perspective on metaphor. RT proposes that the distinction between literal and intended meaning made in metaphor theories like CMT makes metaphor seem special, because its intended meaning is not wholly reflected within the propositional structure. Instead, RT argues that this is the case for every linguistic utterance, because every utterance in communication contains implications and (implicit) propositions that are not (all) reflected within the utterance's grammatical and

semantic structure. Thereby, RT assumes that every linguistic utterance is underdetermined in that the speaker expects the addressee to infer certain elements from their statements.

As such, RT takes a different perspective on the relationship between tropes like metaphor and hyperbole. While most theories see metaphor and hyperbole as two distinct and discrete categories of language use (e.g., Burgers, Konijn & Steen, 2016; Claridge, 2011; Kreuz, Roberts, Johnson & Bertus, 1996), RT presupposes a continuum between metaphor and hyperbole. To illustrate this continuum, Sperber and Wilson (2008, p. 94) provide the following example:

(1)   Joan is an angel.

Utterance (1) can be read as a metaphor in that the person Joan is not literally a divine heavenly being. Yet, this utterance can also be interpreted as hyperbole, in that Joan may be a very kind person, but likely does not possess the level of kindness typically associated with angels. In any case, Sperber and Wilson (2008) propose that whichever of these two interpretations you choose, does not fundamentally alter the way in which utterance (1) is understood, making metaphor and hyperbole more of a continuum rather than two separate discrete categories of language use.

This hypothesis of metaphor and hyperbole being elements of a continuum has recently been challenged by other RT scholars (e.g., Carston & Wearing, 2011, 2015; Rubio-Fernández et al., 2015). These scholars agree with Sperber and Wilson (2008) that both hyperbole and metaphor are examples of loose talk, but also that hyperbole and metaphor differ in important ways. In this alternative proposal, hyperbole serves different goals from metaphor. Hyperbole is proposed to be mainly evaluative (Carston & Wearing, 2015), and as such draws attention to the basic meaning of the referent (Carston & Wearing, 2011). In contrast, metaphor is proposed to

primarily give a description of its referent (Carston & Wearing, 2015), which moves attention away from the referent's basic meaning (Carston & Wearing, 2011). Under this perspective, examples like utterance (1) thus reflect both metaphor and hyperbole rather than an intermediate form between the two tropes. By studying how metaphor and hyperbole are used in isolation and in combination, we can establish whether their usage patterns suggest two discrete categories or a continuum. We should find empirical support for the former position in case both tropes are associated with different word classes and that the profile of combinations is different from the use of either trope in isolation. By contrast, the continuum position would be supported when both tropes are associated with the same word classes and when the profile of combinations is similar to the use of either trope in isolation.

Various authors have proposed that examples like utterance (1) are fairly common, and that hyperbole is the trope that is most often used in combination with other tropes (e.g., Carston & Wearing, 2015; Hsiao & Su, 2010; Kreuz, Roberts, Johnson & Bertus, 1996). For instance, for abstract concepts like emotions, hyperboles are often combined with metaphor, which led Hsiao and Su (2010, p. 1393) to propose that metaphor functions as the "bedrock of hyperbole". Similarly, Kreuz et al. (1996) report on a corpus analysis of contemporary literature, which shows that hyperbole is the trope that is used most often in combination with other tropes, and that most co-occurrences of hyperbole are with metaphor. Claridge (2011) studied hyperbole in a subset of the Santa Barbara Corpus of Spoken American English (SBC) and the British National Corpus (BNC). She found that metaphor was included in between 14 per cent (SBC) and twenty per cent (BNC) of hyperboles (Claridge, 2011, p. 43).

In a recent paper, Barnden (2015) proposed that hyperbole may be especially relevant in the context of direct metaphors that take the form of A=B. Consider the following example:

(2) Crime is a disease (Barnden, 2015, p. 41).

In Barnden's (2015) theory, utterance (2) not only proposes some kind of similarity between crime and diseases. Instead, A=B metaphors present a hyperbolic similarity between source and target in such a way as to suggest that source and target are very much alike, thereby suggesting extreme likeness between the two elements of the metaphor. Under this perspective, then, hyperbolic metaphors should be found more often in direct metaphors compared to other types of metaphors.

In sum, various authors posit that metaphor and hyperbole are the tropes that co-occur most often in discourse (e.g., Hsiao & Su, 2010; Kreuz et al., 1996). Our first research question asks whether this is indeed the case for non-literary discourse and how combinations of metaphor and hyperbole differ from either trope used in isolation.

1.2. Hyperbole and Irony

Like the relationship between metaphor and hyperbole, the connections between hyperbole and irony have received empirical attention from a (mostly) theoretical perspective. The literature on connections between hyperbole and irony has been explored in two different traditions of (irony) research. The first tradition is rooted in classic treatises on figurative language (e.g., Quintilian, transl. 1959) and proposes that hyperbole and irony should be considered as two separate rhetorical figures (e.g., Burgers, Konijn & Steen, 2016; Carston & Wearing, 2015; Wilson, 2013). Under this definition, hyperbole and irony are both seen as pragmatic devices in language.

In this perspective, the linguistic level of analysis for irony differs from hyperbole (and metaphor). The main reason lies in the definition of irony as "an utterance with a literal

evaluation that is implicitly contrary to its intended evaluation" (Burgers, van Mulken & Schellens, 2011, p. 190). This definition includes the word 'utterance', implying a different linguistic level of analysis from metaphor and hyperbole, which are more often identified at the level of individual words (hyperbole: Burgers, Brugman, Renardel de Lavalette, & Steen, 2016; metaphor: Pragglejaz Group, 2007, Steen et al., 2010a).

Despite the differences of linguistic level of analysis, both hyperbole and irony reflect a change in evaluation between the propositional ('literal') and intended meaning of the word(s) or statement(s). The nature of the change in evaluation, however, differs. In addition, both hyperbole (e.g., Colston & Keller, 1998) and irony (e.g., Attardo, 2000a; Wilson & Sperber, 1992) are typically used when expectancies are disconfirmed. Hyperbole includes a change in magnitude (with the literal meaning being more extreme than the intended meaning; e.g., Colston & O'Brien, 2000), which can highlight a discrepancy between expectation and reality (Colston & Keller, 1998; e.g., if Peter is supposed to be an excellent baker, but slightly burns an apple pie, Mary could hyperbolically say: "That pie is completely burnt!").

Irony, in contrast, comprises a reversal in evaluative valence (from a positive to a negative meaning, or vice versa). In cases of a failed expectation, irony can simultaneously mention the original expectancy and critique it for being false in the situation at hand (e.g., Wilson & Sperber, 1992; for instance, when Mary exclaims: "Peter really is an excellent baker!"). In this way, irony reflects relevant inappropriateness (Attardo, 2000a), because the ironic statement is both relevant for the discussion (by for instance mentioning the original expectation), yet literally inappropriate to the situation (because Peter showed poor rather than excellent baking skills).

Because hyperbole and irony both include a change in evaluation, various scholars have identified hyperbole as an irony marker. That is, hyperbole can serve as a clue alerting a reader

to a potential ironic intent of the speaker (e.g., Attardo, 2000b; Seto, 1998). Kreuz and Roberts (1995), for instance, show that hyperbolic constructions combining an adverb (e.g., *absolutely*, *just*, *simply*, *really*) with an adjective with extreme (positive) valence (e.g., *fantastic*, *amazing*, *brilliant*, *wonderful*) are likely to be seen as ironic as well. In such studies, hyperbole is thus analyzed as a marker of irony.

In addition, Giora and colleagues recently introduced the *defaultness hypothesis*, which posits that some grammatical constructions are automatically processed as irony regardless of the meaning of individual words (Giora, Givoni & Fein, 2015; Giora, Givoni, Heruti & Fein, 2017). One of the constructions that has been marked as a default ironic construction is negated hyperbole (specifically: *not the best XX*, with a noun on the XX spot). In this way, defaultness through negated hyperbole provides additional support for the thesis that hyperbole and irony are closely related.

Furthermore, hyperbole does not only alert a reader to the use of irony, but the combination of hyperbole and irony adds meaning to the utterance compared to an utterance using only one of the two tropes. This is reflected in a study by Colston and Keller (1998) who present participants with situation descriptions containing only hyperbole, only irony or both hyperbole and irony. Their results indicate that recipients infer more surprise from the combination of hyperbole and irony than from either of the figures in isolation, suggesting that combining the two tropes adds meaning compared to any of the figures in isolation. However, corpus-analytic results by Claridge (2011, p. 85) suggest that only a small amount of hyperboles contain irony, as she found only "three or four instances" of ironic hyperboles.

While the first (classical) research tradition sees hyperbole and irony as two separate (but related tropes), the second research tradition views hyperbole as a subtype of irony, together with sarcasm, jocularity and other tropes like understatement and rhetorical questions (e.g., Gibbs,

2000; Gibbs & Colston, 2012; Hancock, 2004). This tradition uses a very broad definition of irony. Gibbs (2000, p. 23) for instance posits that "[i]rony is not a single category of figurative language, but includes a variety of types, each of which is motivated by slightly different cognitive, linguistic, and social factors and conveys somewhat different pragmatic meanings". Under this perspective, then, irony and hyperbole are defined at different levels of analysis, with irony being located at a higher level than hyperbole. As a result, in this perspective, all examples of hyperbole are also ironic due to the broad nature of the definition of irony.

In this broader view on irony, the irony subtype of sarcasm may be closest to the trope of verbal irony as defined by scholars who take the more narrow definition of irony. Sarcasm occurs when "speakers spoke positively to convey a more negative intent" (Gibbs, 2000, p. 12). While studies from the classical perspective focus on the commonalities between hyperbole and irony, studies from this broader perspective highlight the differences between hyperbole and sarcasm. For instance, Gibbs (2000) demonstrates that, in conversation, sarcasm is used more by male than female speakers, while for hyperbole, this is reversed. Furthermore, sarcasm is typically seen as more critical than hyperbole. Hancock (2004) compares the use of sarcasm and hyperbole in conversations taking place face-to-face (FTF) or through computer-mediated communication (CMC; i.e., chat) and shows that sarcasm is used more often in both modalities than hyperbole. Furthermore, while hyperbole use does not differ between FTF and CMC, sarcasm is used more often in CMC than in FTF. In contrast, other types of CMC show different uses of hyperbole and sarcasm. In e-mail conversations (Whalen, Pexman & Gill, 2009) and online blogs (Whalen, Pexman, Gill & Nowson, 2013), hyperbole was used more often than sarcasm. Speakers also tended to use less discourse markers with hyperbole than with sarcasm

(Whalen et al., 2009). Thus, studies from this broader perspective accentuate the differences between sarcasm and hyperbole in that the two tropes are used differently in discourse. [1]

In sum, the literature on irony and hyperbole shows diverging patterns on their interconnectedness. Scholars who view both irony and hyperbole as distinct tropes focus on their commonalities, by proposing that hyperbole is a general way to mark irony (e.g., Attardo, 2000b; Kreuz & Roberts, 1995; Okamoto, 2006; but see Claridge, 2011). At first glance, scholars who take a broader view of irony can be seen to agree, because they classify both hyperbole and sarcasm as subtypes of irony which also suggests commonalities. However, corpus analyses from this second perspective actually tend to demonstrate that and how hyperbole and sarcasm are used in very different ways in discourse, suggesting that co-occurrences of hyperbole and irony within one utterance should be rare. This leads to our second research question which asks if and when hyperbole and irony co-occur in discourse.

1.3. Metaphor and Irony

In contrast to the combination of metaphor and hyperbole and the combination of hyperbole and irony, the ways metaphor and irony interact have received relatively little empirical attention. For instance, while in RT, metaphor and hyperbole are seen as being related on a continuum, irony is seen as a trope that is different from both (e.g., Carston & Wearing, 2015). Similarly, the broader view of irony (e.g., Gibbs, 2000) does not see metaphor as a subtype of irony, which means that studies from this perspective also pay little attention to metaphor.

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[1] Proponents of both perspectives debate the merits of each focus. For instance, Carston and Wearing (2015, pp. 83-86) argue against the perspective of hyperbole being a subtype of irony, because many hyperboles do not contain an implicit shift of valence (from positive to negative or vice versa). Please note that such discussions typically hinge on the definition of irony. After all, scholars who favor the position that hyperbole is a subtype of irony often emphasize how hyperbole differs from sarcasm (e.g., Gibbs, 2000; Hancock, 2004).

Nevertheless, some previous studies have explored the relations between metaphor and irony. For instance, Veale (2013) reports on a computational analysis of similes, which shows that ironic similes are an important subset of metaphors. Similes are a specific type of direct metaphor, which includes a metaphor flag such as 'like' or 'as' (e.g., *as useful as a clock*). In a simile, the speaker includes an explicit comparison statement, which may draw attention to the inferred similarity (e.g., clocks are typically useful). An ironic simile subverts this notion of similarity by including a source that typically does not have the inferred property (e.g., *as useful as a screen door on a submarine*; Veale 2013, p. 324). In these ways, irony serves as a way to change simile from a figure expressing similarity to a figure expressing dissimilarity.[2]

Other studies focusing on the combination of irony and metaphor do so from an experimental perspective. Burgers et al. (2015), for instance, investigate if conventional metaphor and irony can positively impact the persuasiveness of commercial advertisements. They find that only conventional metaphors (e.g., 'library' to denote storage capacity on an e-reader) increase advertising persuasiveness. Conventional irony had no effects on persuasiveness, both in isolation and in combination with conventional metaphor. In contrast, Colston and Gibbs (2002, Experiment 3) studied processing of combinations of metaphor and irony. They found that statements that contained both metaphor and irony were more difficult to process than statements that contained only irony. Furthermore, Colston and Gibbs (2002, Experiment 4) also found that an ironic utterance without metaphor more closely mirrored a speaker's prior belief than an ironic utterance with metaphor.

A series of studies by Albert Katz and Penny Pexman demonstrates that socio-cultural cues can be an important moderator in determining whether a statement is taken as metaphor

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[2] Please note that Carston and Wearing (2015, p. 88) analyze such cases in a different way from Veale (2013). While Veale (2013) classifies examples like "He's as charismatic as a traffic cone" as ironic simile, Carston and Wearing (2015) propose to label them "hyperbolic metaphor".

and/ or irony. Katz and Pexman (1997) presented participants with a series of statements in a neutral context that were either spoken by somebody with an occupation that was highly associated with irony (e.g., cab driver, comedian) or by somebody with an occupation that was highly associated with refraining from irony (e.g., clergyman, doctor). In their study, metaphorical statements were rated as more ironic when spoken by somebody with a high-irony profession. Furthermore, a follow-up study demonstrated that readers first attend to the metaphorical element of the utterance, after which the ironic element is (sometimes) activated (Pexman, Ferretti, & Katz, 2000).

These studies thus show an asymmetry between metaphor and irony in that the metaphorical element of the utterance seems to be the element that is activated and processed first, after which an ironic reading can or cannot be attached to it. Many of the examples used in these earlier studies (e.g., Katz & Pexman, 1997; Pexman et al., 2000) typically comprise direct metaphor of the form of A=B (e.g., *Her mind is an active volcano*; Katz & Pexman, 1997, p. 23). Earlier research into metaphor showed that such examples of direct metaphor are relatively infrequent in regular discourse (Steen et al., 2010b). Thus, an important question is whether such examples of ironic direct metaphor are representative of combinations of metaphor and irony in actual discourse. This leads to our third research question asking about the ways in which metaphor and irony are used in combination in discourse.

1.4. Tropes in newspaper texts

One important first register in which we can test assumptions about the relation between different tropes is newspaper texts. Two independent studies of metaphor usage in English (Krennmayr, 2015) and Dutch (Pasma, 2011) show that, in this genre, metaphors are typically used in different ways from general word use. That is, both studies demonstrate that, on average,

between 16.4% (English – Krennmayr, 2015) and 22.1% (Dutch – Pasma, 2011) of words are metaphoric. However, when looking at different word classes, both studies show that a larger percentage of prepositions, verbs and adjectives are metaphoric compared to this general distribution. As such, the news register gives us a good first test case to check for combinations of the three tropes, and to see whether combinations of metaphor with hyperbole and irony follow this general pattern or whether these combinations are different. If so, we have quantitative evidence that and how combinations of two or more tropes differ from their usage in isolation.

Additionally, the studies we discussed so far focused on a combination of two of the three tropes (metaphor, hyperbole, irony). In some cases, it is possible to have expressions that combine all three tropes. Burgers et al. (2016) for instance provide an example of Dutch PM Mark Rutte who suggested in Parliament that the euro currency was "Hotel California: You can check in, but never leave!". This statement contains a metaphor comparing the euro currency to Hotel California. It also contains hyperbole, by suggesting that it is impossible for a country to ever leave the euro. Finally, this example contains irony, by referring to Hotel California. In general, hotels are pleasant and nice places to stay. In the song by the Eagles, however, Hotel California is presented as a place of nightmares. To the best of our knowledge, no empirical corpus study has yet explicitly focused on corpus analysis of expressions combining metaphor, hyperbole and irony. We therefore analyze the structure of such expressions through bottom-up corpus analysis, which leads to our fourth research question about the ways in which the three tropes are combined in discourse.

2. Method

2.1. Sample

Our corpus comprised news articles written in Dutch news outlets in the first semester of 2014 (i.e., from January 1, 2014 to June 30, 2014). We focused on articles on economic topics, as this topic has generally been associated with figurative-language use (e.g., Charteris-Black & Musolff, 2003; López & Llopis, 2010). In addition, previous corpus analyses demonstrated that the newspaper genre typically contains tropes like metaphor (Steen et al., 2010b) and irony (Burgers et al., 2012).

Articles were sampled from six different Dutch news outlets: two quality newspapers (*De Volkskrant* and *NRC Handelsblad*), two popular newspapers (*Algemeen Dagblad* and *Telegraaf*), and two news websites (*Nu.nl* and *Geen Stijl*)[3]. Our sample was taken from the database of the Amsterdam Content Analysis Toolkit (AmCAT; Van Atteveldt, 2008), which is a computer program that stores every article written in Dutch print and online newspapers. Relevant articles were selected using a Boolean search containing the Dutch equivalents of the word *economy* and its derivations (e.g., *economic, economics*) combined with at least one other word related to the economy (e.g., *stock exchange, inflation, Nasdaq*). In compiling our corpus, we used two other criteria we determined *a priori* and entered into AmCAT. First, we used a stratified sampling procedure in that we aimed to randomly sample an equal number of articles from each news outlet. Second, we strived for a corpus that contained between 50,000 and 60,000 words in total. Based on these criteria, we sampled a total corpus of 108 articles (18 articles per news outlet). Upon inspection, however, one article (from the web site *Geen Stijl*) was sampled twice. Because the total corpus was within the word range we searched for and *Geen Stijl* articles were generally long, we did not replace this article with another one. [4]

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[3] The Nu.nl website was more factual and featured many articles that were written by the Netherlands national news agency ANP. The Geen Stijl website is more partisan, and features an editorial stance to the right of the Dutch political spectrum. Nevertheless, the Geen Stijl website is affiliated to broadcaster PowNews, which is one of the broadcasters using the Netherlands Public Broadcasting System.

[4] Additionally, one randomly sampled text was more than twice as long as any of the other texts in the corpus.

2.2 Procedure

The plain text of the 107 news articles was taken from AmCAT, and transformed into XML language. We used Frog (Van den Bosch, Busser, Canisius & Daelemans, 2007), an online Part-of-Speech (POS) parser and tagger for Dutch, to parse the plain text into words and to code for word class. Punctuation marks were removed from the XML dataset. Subsequently, words were unitized into lexical units (see Steen et al., 2010a for general coding instructions for English). Lexical units are mostly equivalent to words, with some exceptions. In Dutch, an important exception is the use of separable complex verbs (SCV). These are verbs of which the infinitive comprises two elements, which can be separated in some actual language use, such as the Dutch infinitive *plaatsmaken*, which is spelled as two words when used as a finite verb (*plaats* and *maken*). The two words comprising an SCV were counted as one lexical unit (following Pasma, 2011).

In total, this led to a corpus containing a total of 55,568 lexical units (of which 445 were SCVs). First, some sentences were written in another language than Dutch (e.g., direct quotations from an English-language report) and were excluded for further analysis. Next, we checked all codes applied by the POS tagger. For some words (229 cases, 0.4% of the corpus), the POS tagger made coding mistakes. These mistakes were related to the coding of homonyms, e.g., the Dutch word *zijn*, which can refer to a verb (translated into English as *to be*) or to a possessive pronoun (translated into English as *his*) and to polysemous expressions like the word *oudere* (translated into English as *elderly*) which can be used both as a noun and an adjective. In other cases, the POS tagger had problems with coding words specific to the domain of economics that are not (yet) in a dictionary of general usage of Dutch (e.g., *bitcoin*). Finally, for 3,599 words

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Because we analyze at the level of individual words and did not want this one text to have an undue influence on results, we only coded the first twenty-three sentences of this text.

(6.6% of the corpus), the POS tagger used the tag of SPEC for special cases it could not assign to any other word class such as references to geographical places (e.g., names of cities, regions and countries), references to people by their given names (e.g., Obama, Rutte), references to specific financial institutions by their proper names (e.g., the specific names of stock exchanges like *Nasdaq* or *AEX*, or specific names of banks like *Rabobank* or *ABN AMRO*) and new, creative compounds that were not in the dictionary (e.g., *gratisgeldkraan*, which translates into English as *free money tap*). These cases of SPEC were all manually corrected and resolved.

After the clean-up of POS tags and the exclusion of non-Dutch quotations, our final corpus had 54,851 lexical units[5]. Word classes used most often in the corpus were nouns (14,943 lexical units; 27.2% of the corpus), verbs (8,750 lexical units; 16.0% of the corpus), prepositions (7,732 lexical units; 14.1% of the corpus), adjectives (4,767 lexical units; 8.7% of the corpus), pronouns (4,516 lexical units; 8.3% of the corpus), adverbs (3,813 lexical units; 6.9% of the corpus) and remainder words (10,330 lexical units; 18.8% of the corpus).[6]

Subsequently, each lexical unit was coded for metaphor through the Metaphor Identification Procedure – Vrije Universiteit (MIPVU, Steen et al., 2010a), an updated version of the Metaphor Identification Procedure (MIP, Pragglejaz Group, 2007). Starting from the operational definition of metaphor as a "cross-domain mapping" (Lakoff & Johnson, 1980/2003), MIPVU identifies a lexical unit as metaphorically used when its use may potentially be explained via cross-domain mapping from a more basic contextual meaning of the word[7], or

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[5] The total number of lexical units per news outlet was as follows: *Algemeen Dagblad:* 7,527; *Geen Stijl*: 9,492; *NU.nl*: 5,399; *Telegraaf:* 8,576; *NRC Handelsblad:* 12,112; *Volkskrant:* 11,745.

[6] The category of remainder words contains the word categories of articles, connectives, interjections and numerals. These were taken together for the purpose of this study, because they contained little to no metaphor or hyperbole, which are the two main variables measured at the level of lexical units (see Table 1 for exact counts).

[7] In some cases, a word form can be used as a word in two different word classes, such as the English word form 'blossom' which can both be a noun and a verb. Deignan (2006) demonstrates that, in many such cases, the noun ('the blossom') is used more often non-metaphorically, while the verb ('to blossom') reflects the metaphorical meaning. Such cases are not taken into account in the current analysis, because the noun and verb meanings have

via cross-domain mapping from a more basic referent or topic of the text (Steen et al., 2010a, pp. 25-26). Take the word 'bubble' (in Dutch: *bubbel*) in the expression 'bubble on the housing market'[8]. The basic meaning of the Dutch word *bubbel* is 'air bell'[9]. This is different from the contextual meaning, which is 'a sector of the economy that threatens to rapidly decline in economic value'. The contextual meaning can be explained by cross-domain mapping, as the value of the housing market can decline very suddenly and without much effort, like the popping of an air bell. This makes 'bubble' a metaphor. For a more detailed explanation of MIPVU, please see Steen et al. (2010a) who developed the original procedure for English, and see Pasma (2011) who adapted it for Dutch.

For hyperbole, we used the Hyperbole Identification Procedure (HIP, Burgers, Brugman, et al., 2016). HIP starts from the operational definition of hyperbole as "an expression that is more extreme than justified given its ontological referent." It subsequently asks to construct a quantitative or qualitative scale for each lexical unit, and to place both the bandwidth of the ontological referent and the expression on the scale. Take the lexical unit 'everywhere' (in Dutch: *overal*) in the sentence "Now the number of house sales has risen with dozens of percents, accredited mortgage consultants are in demand *everywhere*"[10]. The ontological referent of this expression refers to prospective house buyers. However, the expression *everywhere* refers to *all places*. This is more extreme than the group of prospective house buyers, making

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separate dictionary entries, which means that they should be treated as separate words following the MIPVU procedure (Steen et al., 2010a).

[8] The Dutch expression is '*bubbel op de huizenmarkt*'.

[9] In MIPVU, the basic meaning is determined by a dictionary, that is preferably usage-based like MacMillan for English. Following Pasma (2011), we used the Dutch dictionary *Van Dale* for the Dutch-language corpus.

[10] The Dutch expression is "*Nu het aantal huizenverkopen met tientallen procenten stijgt, worden overall erkende hypotheekadviseurs gevraagd*".

everywhere an example of hyperbole. For a more detailed explanation of HIP, please see

Burgers, Brugman et al. (2016).

For irony, we used the Verbal Irony Procedure (VIP, Burgers, van Mulken & Schellens,

2011)[11]. VIP starts from the operational definition of irony as an "utterance with a literal

evaluation that is implicitly contrary to its intended evaluation". Subsequently, it analyses irony

at the level of simple clauses, to be able to include implicitly evaluative ironic utterances

(Burgers et al., 2012b; Wilson & Sperber, 1992), which are ironic without any of the individual

words carrying the ironic meaning.[12] For each clause, coders construct a scale with a positive and

a negative domain, and place both the literal and intended evaluation onto the scale. Take the

clause 'Welcome to Hospice European Union'[13], which was written in a Eurosceptic column

discussing the EU's refugee policy. The literal evaluation of this clause is positive, welcoming

refugees to the EU. The intended evaluation, however, is negative in that the column's author is

in favor of closed borders. As the literal and intended evaluation differ in valence (positive vs.

negative), this clause is ironic. For a more detailed explanation of VIP, please see Burgers et al.

(2011).[14] For corpus examples of the different configurations, see Table 1.

[TABLE 1 ABOUT HERE]

2.3 Reliability

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[11] In case scholars want like to apply MIP, HIP and/or VIP to a corpus of their own choosing, they may like to know that – after extensive coder training – it takes, on average, between 30 seconds and 2 minutes per unit per procedure to make a coding decision, depending on context. This implies that trained coders can code between 30 and 120 units per hour. Please also note that coders need to take regular breaks to prevent mistakes from coding fatigue, and individual coders are recommended to code for a maximum of four hours per day.

[12] Wilson and Sperber (1992) use the example 'Oh Tuscany in May' uttered by a speaker during a downpour in Tuscany in May, when the speaker was explicitly promised sunny skies. The irony in this statement cannot be resolved by taking the opposite of any of the individual words 'oh', 'Tuscany', 'in', or 'May'.

[13] The Dutch expression is "*Welkom in Gasthuis Europese Unie*".

[14] Because irony is coded at the clause-level and metaphor and hyperbole are coded at the lexical-unit level, combinations of tropes including irony are described at the level of clauses.

Intercoder reliability was calculated on a sub-section of 10 texts containing 4,444 lexical units, which were independently coded by two coders. Coders agreed that none of the sentences in this sub-section was ironic (100% agreement, Cohen's κ=1.0) Results show that the reliability for metaphor (95.05% agreement, Cohen's κ=.71) and hyperbole (99.66 % agreement, Cohen's κ=.62) was "substantial" (Landis & Koch, 1977).[15]

3. Results

Results demonstrate that, of the three tropes, metaphor is used most often in that 10,819 lexical units (19.7% of the total corpus) were metaphoric. A total of 535 lexical units (1.0% of the corpus) was hyperbolic. A total of 30 out of 6,533 clauses (0.5% of the corpus) were ironic. The 30 ironic clauses comprise a total of 227 lexical units. These results demonstrate that metaphor is used most often in economic newspaper articles, followed by hyperbole and irony. We now turn to the analyses for the different research questions.

3.1. Research question 1: Metaphor and hyperbole

Because both metaphor and hyperbole are measured at the level of word class, we first establish how they are used together vs. in isolation. We find that 64 lexical units in the corpus contain both metaphor and hyperbole. From the perspective of metaphor, this implies that 0.6% (i.e., 64 out of 10,819) of the metaphors in the corpus are also hyperbolic. From the perspective of hyperbole, this implies that 12.0% (i.e., 64 out of 535) of the hyperboles in the corpus are also metaphoric. These results provide some concrete support for the notion that hyperbole is a trope which relatively often combines with other tropes (e.g., Carston & Wearing, 2015; Hsiao & Su, 2010).

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[15] This intercoder reliability test has previously been reported in Burgers, Brugman et al. (2016), which describes the steps of HIP into detail.

Next, we zoom in on the types of words that are associated with metaphor, hyperbole, and their combinations. To determine whether and how the combinations of metaphor and hyperbole differed from their respective usages in isolation, we conducted a log-linear analysis with backward selection and metaphor (present vs. absent), hyperbole (present vs. absent) and word class (adjective, adverb, noun, preposition, pronoun, verb, remainder) as predictors. Backward elimination statistics show that the saturated (complete) model should be analyzed ($\chi^2(6) = 72.45$, $p < .001$). Subsequently, we conducted separate chi-square analyses for the associations between hyperbole and word class, between metaphor and word class, and between hyperbole, metaphor and word class. The reported strength of association is based on the interpretation of the effect size metric Cramer's V as proposed by Kotrlik and Williams (2003). Table 2 includes descriptive statistics.

[TABLE 2 ABOUT HERE]

First, we find a weak association between hyperbole and word class ($\chi^2(6) = 974.66$, $p < .001$, Cramer's $V = .13$). Inspection of the adjusted standardized residuals demonstrates that adjectives, adverbs, and pronouns[16] are used more often hyperbolically than might be expected based on the general distribution. By contrast, nouns, verbs, prepositions and remainder words are used less often hyperbolically than might be expected based on the general distribution.

Second, we find a relatively strong association between metaphor and word class ($\chi^2(6) = 13{,}011.27$, $p < .001$, Cramer's $V = .49$). Inspection of the adjusted standardized residuals demonstrates that prepositions, verbs and adjectives are used more often metaphorically than might be expected. By contrast, nouns, adverbs, pronouns and remainder words are used less often metaphorically than might be expected. Our result that, in Dutch news discourse,

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[16] In our corpus, all hyperbolically used pronouns are indefinite pronouns like *alle* – every, *niemand* – nobody, and *iedereen* – everybody.

prepositions, verbs and adjectives are relatively often metaphorically provides a direct replication of previous research into the relations between metaphor and word class in Dutch news discourse (Pasma, 2011).

Next, we investigate the interaction of hyperbole and metaphor in relation to word class. For non-hyperbolic lexical units, we find a relatively strong association between metaphor and word class ($\chi^2(6) = 12,915.05$, $p < .001$, Cramer's $V = .49$). Inspection of the adjusted standardized residuals showed the exact same patterns as described in the previous paragraph, in that, for non-hyperbolic lexical units, prepositions, verbs and adjectives are used more often metaphorically than might be expected, while nouns, adverbs, pronouns and remainder words are used less often metaphorically than might be expected. Interestingly, for hyperbolic lexical units, we also find a relatively strong association between metaphor and word class ($\chi^2(5) = 136.42$, $p < .001$, Cramer's $V = .51$),[17] which showed a different pattern. For hyperboles, nouns and verbs are used metaphorically more often than might be expected. In contrast, adverbs and pronouns are used less often metaphorically than might be expected. The largest shift here is thus found in the category of nouns: while nouns are used less than expected when considering metaphor or hyperbole in isolation, we find that nouns are used more than expected when considering combinations of metaphor and hyperbole.

3.2. Research question 2: Hyperbole and Irony

The second research question dealt with the connections between irony and hyperbole. We find that twelve (out of the 535) hyperboles in the corpus are used in ironic clauses (see Table 3 for descriptive statistics). To determine the relationship between hyperbole and irony, data analyses can be run at the level of clauses (the unit of analysis of irony) and at the level of lexical units

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[17] Because none of the prepositions was hyperbolic, this word class was not included in this specific analysis.

(the unit of analysis for hyperbole). Depending on the type of analysis chosen, the strength of association between irony and hyperbole differed. At the clause level, we find that, on average, ironic clauses (M = 0.400, SD = .77) contain more hyperbolic lexical units than non-ironic clauses (M = 0.080, SD = .31, $t(29.04)$ = 2.27, $p < .05$, Cohen's d = .54). In this case, the strength of association (based on the effect size metric Cohen's d) should be seen as "medium" (Kotrlik & Williams 2003). At the level of lexical units, we also find a significant association between irony and hyperbole ($\chi^2(1)$ = 43.86, $p < .001$, Cramer's V = .028), which demonstrates that, on average, hyperbole is used more in ironic (vs. non-ironic) clauses. In total, 5.3% of lexical units in ironic clauses are hyperbolic, while only 1.0% of lexical units in non-ironic clauses is hyperbolic. At the same time, the strength of the association (based on the effect size metric Cramer's V) should be seen as in-between negligible and weak (Kotrlik & Williams, 2003). Thus, both the analysis at the level of clauses and at the level of lexical units reveal an association between irony and hyperbole, yet the strength of association also seems dependent on the type of analysis run.

[TABLE 3 ABOUT HERE]

Unfortunately, the number of hyperbolic lexical units embedded in ironic clauses is too low to run an analysis involving word class with sufficient statistical power. We did find a negligible to weak association between irony and word class ($\chi^2(6)$ = 13.82 $p < .05$, Cramer's V = .016), with adverbs and pronouns being used more often in ironic (vs. non-ironic) clauses. The association between hyperbole and word class was already discussed in the results section for research question 1.

3.3. Research question 3: Metaphor and Irony

The third research question explored the connections between metaphor and irony. Like the relation between irony and hyperbole, we can run this analysis at both the level of clauses (the unit of analysis for irony) and lexical units (the unit of analysis for metaphor). At the clause level, we find that, on average, ironic clauses contain 1.40 metaphorical lexical units ($SD =$ 1.54), while non-ironic clauses contain 1.66 ($SD = 1.61$) metaphorical lexical units. This difference is non-significant ($t(6531)=.87, p = .38$). At the level of lexical units, we find that 18.5% of lexical units in ironic clauses (i.e., 42 out of 227 lexical units) are metaphoric, compared to 19.7% (or 10,777 out of 43,847 lexical units) in non-ironic clauses. This difference is non-significant as well ($\chi^2(1) = .22\ p = .64$). Thus, both analyses provide no support for the claim that metaphors are used in a different proportion in ironic (vs. non-ironic) clauses.

<div align="center">[TABLE 4 ABOUT HERE]</div>

Similarly, we find no significant association between metaphor, irony and word class ($\chi^2(6) = 8.03, p = .24$), which means that we find no support for the claim that different kinds of linguistic metaphors are used in ironic (vs. non-ironic) clauses. Descriptive statistics can be found in Table 4.

3.4. Research question 4: Metaphor, Hyperbole, and Irony

Our fourth research question deals with the connections between the three tropes. We find that 8 out of the 30 ironic clauses (26.7%) contain no metaphors or hyperbole. Two out of 30 ironic clauses contain hyperbole (6.7%), but no metaphor. A total of 14 out of 30 ironic clauses (46.7%) contain metaphor and no hyperbole. Finally, 6 out of 30 ironic clauses (20%) contain both hyperbole and metaphor.

While, of course, caution should be taken not to draw sweeping conclusions from this limited set of six utterances containing the three tropes, it is worth taking a qualitative,

explorative look at these examples. Interestingly, five out of these six clauses come from the

same text published in *Algemeen Dagblad* which was a newspaper column in which the author

was very negative about large bonuses awarded to managers of banks and other financial

institutions during the recent economic crisis. In the column, the author singles out the case of

the Dutch bank *ABN Amro* whose managers had received large salary bonuses while, at the same

time, the bank had had to be saved from insolvency through nationalization by the Dutch

government. The five ironic utterances contain barbs against the quality of the managers,

questioning the deservedness of their bonuses. Consider the following examples (with codes

MRW for metaphor and HYP for hyperbole in uppercase-italics):

> (3) [Een jaar later bleek dat] al de geweldige topbestuurders[18] van al die geweldige
>
> banken een crisis hadden veroorzaakt .
>
> [A year later (it) turned out that] all the magnificent[HYP] senior-managers[MRW] of[MRW]
>
> all those magnificent[HYP] banks a crisis[MRW] had caused.
>
> [A year later], all the wonderful, senior managers of all those magnificent banks had
>
> caused a crisis.

> (4) Maar in de Londense City en op Wall Street staan ze te springen om topbestuurders
>
> van ABN Amro.
>
> But in the London [of] City and on[MRW] Wall Street, stand[MRW/HYP] they to
>
> jump[MRW/HYP] for[MRW] senior-managers[MRW] from[MRW] ABN Amro.
>
> But they are dying for senior managers from ABN Amro in the City of London and
>
> on Wall Street.

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[18] This may be a case where the metaphor gets lost in translation from Dutch to English. In the Van Dale dictionary, the Dutch word 'bestuurder' has two meanings. Its basic meaning is 'somebody who drives something; driver'. Its contextual meaning is 'leader'. This makes this word – in Dutch – an MRW. The English translation 'manager' is not an MRW.

Examples (3) and (4) both contain a literally positive evaluation of the senior managers from *ABN Amro*. The author's intended evaluation, however, is negative. The two hyperboles in sentence (3) are both adjectives modifying the evaluation of the managers' performance with an extremely positive valence. The metaphors in this sentence are conventional in the economic domain (e.g., by using the noun 'crisis' to discuss the bad economic state of affairs). Sentence (4) contains the only example from the corpus in which the same lexical unit in an ironic clause is both metaphorical and hyperbolical. This example is related to the Dutch idiom 'staan te springen', in which 'staan' literally translates as 'stand' and 'te springen' as 'to jump'. According to the Dutch dictionary, this idiom means that somebody is impatiently looking forward to something. In this way, the metaphorical part of this metaphorical hyperbole is a conventional metaphor.

4. Discussion and Conclusion

The aim of this paper was to map the ways in which metaphor, hyperbole, and irony are combined in natural discourse. Results show that metaphor is most prevalent in Dutch news discourse, followed by hyperbole and irony. The first research question dealt with the combinations of metaphor and hyperbole. Results demonstrate that 12.0% of hyperboles contain metaphor. Interestingly, these combinations of metaphor and hyperbole are different from the ways in which each of the two figures is used in isolation. Hyperboles can mostly be found in the word classes of adjectives, adverbs and pronouns. In accordance with earlier studies (e.g., Pasma 2011; Steen et al. 2010b), metaphors are mainly associated with the word classes of prepositions, verbs and adjectives. The combination of metaphor and hyperbole, in contrast, is mainly found in

nouns and verbs. In these ways, the combination of metaphor and hyperbole are a different type compared to any of these two tropes in isolation.

These results support some previous theories on the combinations of metaphor and hyperbole. For instance, Barnden (2015) predicted that direct metaphors involving nouns of the type A=B would be hyperbolic relatively often. By showing that the combination of metaphor and hyperbole occurs relatively often in nouns (which is not the case for both metaphor and hyperbole in isolation), our findings provide some support for Barnden's (2015) theory. Nevertheless, claims that the figures of metaphor and hyperbole are strongly connected (e.g., Hsiao & Su, 2010) are challenged by our findings. Instead, our finding that 12 per cent of hyperboles contain metaphor aligns more with those reported by Claridge (2011, p. 43) who found that in between fourteen and twenty per cent of hyperboles contain metaphor. While this is still a considerable percentage showing that metaphor is important to hyperbole, it should also be noted that a majority of hyperboles in both our and Claridge's (2011) analyses did not contain metaphor.

Our results also have important implication for the discussion whether metaphor and hyperbole should be seen as a continuum (Sperber & Wilson, 2008) or as two discrete categories (e.g., Carston & Wearing, 2011; 2015). The continuum hypothesis would be supported when both tropes are associated with similar word classes and when combinations resemble the use of either trope in isolation. By contrast, empirical evidence for the hypothesis that both tropes are two discrete categories would be provided when metaphor and hyperbole are associated with different word classes and combinations have different characteristics compared to cases with only one of the two tropes. Our results support the latter hypothesis to define metaphor and hyperbole as two discrete categories. After all, some word classes such as prepositions are associated with metaphor, but not with hyperbole. By contrast, (indefinite) pronouns like

everybody and *nobody* are typically associated with hyperbole, but not with metaphor.

Furthermore, metaphorically used pronouns are typically used in reference to an earlier

metaphor. Thus, even within one word class (pronouns), we find that hyperbole is mostly

associated with a type of pronoun (indefinite pronoun) that is hardly used metaphorically, which

suggests that these are indeed distinct categories.

For the relation between hyperbole and irony, we find that irony contains, on average,

more hyperbole than non-irony. This supports the claim that hyperbole can serve as (and is used

as) a marker for irony in discourse (e.g., Attardo, 2000b; Kreuz & Roberts, 1995; Okamoto,

2006). At the same time, though, only 2.2% of identified hyperboles is used in ironic clauses,

which means that the majority of hyperbolic lexical units identified in the corpus (i.e., 97.8% of

all hyperboles) is used in non-ironic clauses. For instance, most of the pronouns that are used

hyperbolically (e.g., *all* to indicate *most*, *nobody* to indicate *few people*, *everybody* to indicate

many people) seem to be unrelated to ironic usage. Similarly, most hyperbolically used adverbs

(e.g., *never* to indicate *seldom*, *always* to indicate *often*, *each time* to indicate *most of the times*)[19]

are unrelated to irony. In this way, our analysis also supports earlier research into the differential

usage of hyperbole and irony (e.g., Claridge, 2011; Gibbs, 2000; Gibbs & Colston, 2012; Whalen

et al., 2009), by demonstrating that hyperbole and irony are mostly used in different ways in

discourse.

Thirdly, we find that metaphor usage does not differ between ironic and non-ironic

clauses. In our corpus, we did not find any examples of the types of ironic similes as described

by Veale (2013). Furthermore, we also find no evidence that metaphors in ironic (vs. non-ironic)

clauses are constructed with different word classes.

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[19] The original Dutch words in the corpus are: *alle* (all), *niemand* (nobody), *iedereen* (everybody), *nooit* (never), *altijd* (always) and *telkens* (each time).

Fourth, we found that six clauses in the corpus contained metaphor, hyperbole, and irony. While it is tempting to see clauses that combine metaphor, hyperbole, and irony as examples of creative word use, a qualitative analysis of these examples suggests differently. After all, in some cases, combinations of all three figures may not be as novel as might be expected. Consider ironic clauses containing conventionalized metaphorical expressions (e.g., the word 'crisis' in an economic context) or conventionalized hyperbolic metaphors such as the expression *staan te springen*. It should be noted that our sample of only six combinations of the three tropes is too small to generalize to the population of combinations of the three tropes. Nevertheless, the hypothesis that combinations of metaphor, hyperbole and irony can reflect conventional rather than novel use, is – to the best of our knowledge – new to the literature and should be explored further.

As such, our study presents new and exciting questions that can help to further drive and develop the field. One of the main points of CMT (Lakoff & Johnson, 1980/2003) was to study metaphor at the levels of both language and cognition. As such, linguists studying metaphor can do so by focusing on the linguistic instantiation (e.g., how metaphor is reflected in different word classes) and at the level of cognition (e.g., by taking the novelty of metaphor into account). The results from our study suggest that such distinctions are not exclusive to metaphor. Instead, hyperbole (see also Claridge, 2011; Whalen et al., 2013) and irony (see also Barbe, 1995; Burgers et al., 2015) also seem to be used in conventional and novel instantiations. As such, all three tropes can be analyzed on these two dimensions. In addition, earlier research suggests that studying metaphor from a communicative dimension (e.g., Steen, 2011; Musolff, 2016) can also enrich the field further. Our study provides empirical evidence to build such an integrated model which combines the hypotheses and insights from CMT (Lakoff & Johnson, 1980/2003) and its

updates (see Semino & Demjén, 2016 for a recent overview) with studies into hyperbole and irony (see also Burgers & Steen, 2017).

Finally, a word of caution should be included about sample size, p-values and effect sizes. In pragmatics, many scholars use the conventional rule of thumb of declaring a result as statistically significant when $p < .05$. However, it is less known that p-values are susceptible to sample size, with relationships in larger samples reaches the threshold of $p < .05$ faster (e.g., Cumming, 2014). This is why methodologists from other fields such as psychology (e.g., Cumming, 2014; Trafimow & Marks, 2015) recommend including an effect size metric (e.g., Cramer's *V*, Cohen'*d*) in the reporting of statistical analysis. An inspection of the effect sizes in our study shows that a number of results (e.g., the interaction between metaphor, hyperbole, and word class) show strong effects. Nevertheless, even though p-values are below the .05-threshold, some of the relationships (e.g., between irony and word class) we found have effects that can be classified as in-between 'negligible' and 'weak'. We recommend readers to be careful not to draw sweeping conclusions from such small effects.

Furthermore, we also recommend researchers to engage in replication studies (see Cumming, 2014) to see if similar results can be found in other (independent) samples. For instance, our study replicated Pasma (2011) by finding almost identical results on the relationship between metaphor and word class in Dutch newspaper articles. Such replications can further boost the reliability of results reported in the literature. Furthermore, our corpus consisted of Dutch news discourse on economic topics which means that result reflect this particular genre. Other studies could engage in cross-cultural comparisons by analyzing whether metaphor, hyperbole and irony are used similarly in economic news discourse from other Dutch-speaking regions (e.g., Flanders in Belgium), and in other registers (e.g., fiction, academic discourse) and languages (e.g., English, French, Chinese). For cross-linguistic comparison, it is encouraging to

read that scholars have successfully adapted MIP(VU) for languages other than English (e.g.,

Badryzlova, Shekhtman, Isaeva & Kerimov, 2013; Lu & Wang, 2017). Future research could

enable extension of the current research by also providing versions of HIP and VIP for other

languages. Scholars could expand this research program further by examining other tropes like

metonymy (Littlemore, 2015) and understatement (Gibbs, 2000). Finally, future research could

connect the use of combinations of tropes to theories of utterance processing that typically focus

on only one trope. For instance, various authors have proposed that various metaphors are

understood through embodied simulation (e.g., Gibbs, 2006). It would be worthwhile to explore

if and how embodied simulation changes when a metaphor is combined with hyperbole or irony.

   This study is one of the first to present a corpus study of the combinations of different

tropes (metaphor, hyperbole, and irony) in non-literary language. Our analysis reveals that the

three tropes are combined in different ways: While the use of metaphor does not differ in ironic

vs. non-ironic clauses, we find that typical combinations of metaphor and hyperbole differ from

the typical use of either figure in isolation. Such analyses suggest that, in some cases,

combinations of figures are different from the use of either figure in isolation. We also hope that

these results set the stage for more empirical and theoretical research on the interconnectedness

of different tropes.

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Table 1: Corpus examples of the different configurations of metaphor, hyperbole, and irony

Configuration	Example (original Dutch)	Example (English translation)
No figuration	Vrouwen in bijvoorbeeld Portugal of Oost-Europese landen kunnen het zich niet veroorloven om deeltijd te werken.	Women in for instance Portugal or Eastern European countries cannot afford to work part-time.
Metaphor only	de *bubbel* van de huizenmarkt.	The *bubble* of the housing market
Hyperbole only	U mag tot het *einde* der *tijden* werken [voordat u met pensioen mag]	You can work till the *end* of *days* [before you are allowed retirement].
Irony only	Heel raar ideetje hoor,	*Just a weird idea**
Metaphor * hyperbole	Denemarken is *gek* op referenda over Europese onderwerpen.	Denmark is *crazy* for referenda on European topics.
Metaphor * irony	*Ja, hij had het zelf graag anders <u>gezien</u>*	*Yes, he would have liked to <u>see</u> it [turning out] differently***
Hyperbole * irony	<u>*Altijd*</u> *goed om te weten.*	<u>*Always*</u> *good to know****
Metaphor * hyperbole * irony	*Maar in de Londense City en op Wall Street <u>staan ze te springen</u> om topbestuurders van ABN Amro.*	*But they are dying for senior managers from ABN Amro in the City of London and on Wall Street.*****

Note: Lexical in italics indicate the specific configurations.

To place the ironic comments in context:

** The author made this ironic comment to reflect on a situation in which the Dutch government only calculated a budget after enacting a law. The author thus implies that it would have been sensible to run these budget calculations before enacting the law.*

*** The author made this comment to evaluate the comments of a banker who received a €26M bonus after defaulting a bank as disingenuous.*

*** This comment is a critique of a Dutch politician who proposed that upcoming Dutch elections would be primarily concerned with the situation in the Netherlands rather than the situation in Europe, which the author considers to be obvious.*

**** Section 3.4 contains a detailed discussion of this example.*

Table 2: Number of hyperbolic and metaphoric lexical units in the corpus, per word class

Word class	No hyperbole		Hyperbole		
	No metaphor	Metaphor	No metaphor	Metaphor	Total
Adjective	3,618	1,030	101	18	4,767
Adverb	3,590	77	145	1	3,813
Noun	12,991	1,881	41	30	14,943
Preposition	3,061	4,671	0	0	7,732
Pronoun	4,002	355	159	0	4,516
Verb	5,975	2,741	19	15	8,750
Remainder words	10,324	0	6	0	10,330
Total	43,561	10,755	471	64	54,851

Table 3: Number of hyperbolic and ironic lexical units in the corpus, per word class

Word class	No hyperbole		Hyperbole		Total
	No irony	Irony	No irony	Irony	
Adjective	4,629	19	116	3	4,767
Adverb	3,644	23	143	3	3,813
Noun	14,818	54	69	2	14,943
Preposition	7,707	25	0	0	7,732
Pronoun	4,331	26	158	1	4,516
Verb	8,683	33	32	2	8,750
Remainder words	10,289	35	5	1	10,330
Total	54,101	215	523	12	54,851

Table 4: Number of ironic and metaphorical lexical units in the corpus, per word class

| Word class | No irony | | Irony | | |
	No metaphor	Metaphor	No metaphor	Metaphor	Total
Adjective	3,700	1,045	19	3	4,767
Adverb	3,709	78	26	0	3,813
Noun	12,988	1,899	44	12	14,943
Preposition	3,051	4,656	10	15	7,732
Pronoun	4,138	351	23	4	4,516
Verb	5,967	2,748	27	8	8,750
Remainder words	10,294	0	36	0	10,330
Total	43,847	10,777	185	42	54,851

Bio-notes

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Gerard J. Steen is a Professor of Language and Communication at the University of Amsterdam. His main interest is metaphor in discourse, and more generally language use in discourse approached via genre. He is an associate editor of *Metaphor & Symbol* and main editor of *Metaphor in Language, Cognition and Communication*. He currently serves as director of the Metaphor Lab Amsterdam.