

The Climate Crisis as A Supernatural Being in English News Reports 2019-2023: An Ecolinguistic-Critical Metaphor Analysis^(*)

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Abstract

This study investigates the ideological and ecolinguistic role of the SUPERNATURAL BEING metaphor in English online news reports on the climate crisis. The data selected for this study are 96 online English news reports issued from 2019 to 2023 on several official English news websites. Employing a mixed-method approach, the data are analyzed quantitatively using AntConc software and qualitatively using Charteris-Black's (2004) Critical Metaphor Analysis and Stibbe's (2015) ecolinguistic model. The findings show that the SUPERNATURAL BEING domain has three subcategories: impacts of climate change are a ghost, wildfires are zombies, and impacts of climate crisis are a monster. ideologically, the supernatural being domain plays a significant role in highlighting the magnitude of the climate crisis and in evoking public fear, while downplaying human responsibility for the climate crisis. Ecolinguistically, this domain is evaluated as destructive due to its framing of the climate crisis as a myth, contributing to climate inaction rather than encouraging solutions to the issue.

Keywords: climate crisis, conceptual metaphor, critical metaphor analysis, ecolinguistics, SUPERNATURAL BEING metaphor, English news reports

المستخلص

تبحث هذه الدراسة في الدور الإيديولوجي واللغوي البيئي الذي تقوم به استعارة "الكائن الخارق" التي وردت في التقارير الصحفية الإلكترونية الناطقة باللغة الإنجليزية. فالبيانات المختارة لهذه الدراسة هي ٩٦ تقريراً صفياً، تلك التقارير صادرة باللغة الإنجليزية في عدة مواقع إخبارية رسمية عبر الإنترنت من عام ٢٠١٩ حتى عام ٢٠٢٣. وتتبنى هذه الدراسة على منهج البحث المختلط،

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إذ تركز على برنامج (AntConc) لتحليل البيانات تحليلًا كميًا، إضافة إلى التحليل النوعي باستخدام منهجي تحليل الاستعارة النقدي لتشارترز بلاك (٢٠٠٤) واللغويات البيئية لستيب (٢٠١٥). وتوضح النتائج أن حقل "الكائن الخارق" يتضمن ثلاث فئات فرعية، وهي آثار تغير المناخ شبح، حرائق الغابات زومبي، وآثار تغير المناخ وحش. ومن المنظور الإيديولوجي، وتتميز استعارة "الكائن الخارق" بدورها في إبراز خطورة أزمة المناخ وإثارة الخوف في نفوس عامة الشعوب، بيد أنه يخفي مسؤولية البشر في نشوب أزمة المناخ. ومن المنظور اللغوي البيئي، تعد هذه الاستعارة تدميرية لأنها تضع أزمة المناخ في إطار الخرافة مما يساهم في التراخي عن أخذ إجراءات تجاه تغير المناخ بدلا من التشجيع على إيجاد حلول لتلك الأزمة.

الكلمات المفتاحية: أزمة المناخ، الاستعارة المفاهيمية، تحليل الاستعارة النقدي، اللغويات البيئية، استعارة "الكائن الخارق"، تقارير صحفية ناطقة باللغة الإنجليزية

1.Introduction

The year 2019 witnessed a considerable change in news ideology, from the mitigation of climate change and global warming as normal phenomena to the salience of their dire consequences. This is illustrated by *The Guardian* newspaper's 2019 style guide that replaced "climate change" with "climate emergency" or "climate crisis" and "global warming" with "global heating" (Zeldin-O'Neill, 2019). Such change in language stemmed from the intense and unusual climate events that made "change" and "warm" appear as "benign" and unrepresentative of the risk and existential threat of the climate crisis (Forgács & Pléh, 2022). Owing to their metaphorical character, "emergency" and "crisis" draw public attention to the gravity of the crisis and motivate the world to tackle the issue due to the conceptual scenarios they develop in the reader's mind, making the climate crisis viewed as A STATE OF WAR or A PATIENT IN AN EMERGENCY ROOM (Bouman et al., 2020;

Feldman & Hart, 2021; Hornsey & Fielding, 2016; Wang et al., 2018). Years later, the success of these metaphors in raising public awareness about the climate crisis is shown by the most commonly searched “climate anxiety” and “eco-anxiety” worldwide in 2023 (Gilder, 2023; Moench, 2023).

Conceptual metaphors are one of the significant tools in climate crisis reporting. This is because the climate crisis is a scientifically abstract concept that is not easily comprehensible to the general public. Therefore, conceptual metaphors represent the abstract concept of the climate crisis in terms of another concrete and familiar domain. Nevertheless, choosing a specific metaphor rather than another is one of the greatest challenges for the discourse producer as it either highlights or conceals the urgency of the climate crisis. In this respect, the role of conceptual metaphors in the climate crisis news discourse deserves attention as an ideological instrument. Consequently, there has been an increasing interest in analyzing the conceptual metaphor as a key strategy in the climate crisis news discourse. However, previous studies focus on one or two national newspapers, particularly British e.g., *The Guardian* (Adam & Wahyuni, 2020) and *The Guardian* vs *The Daily Mail* (Atanasova & Koteyko, 2017). Others limit their analysis to a specific metaphor, most notably the conventional one in the context of the climate crisis, e.g., CONFLICT (Currie & Clarke, 2022). Although other studies, e.g., Ahmed (2022) and Wang and Habil (2024), have identified several metaphors, they are conventional, e.g., WAR and JOURNEY, and appear in a political context. To date, little attention has been paid to the novel conceptual metaphors used in the climate crisis news discourse. One exception might be Augé’s (2023) study on the climate change framing via the ECOSYSTEM HEALTH metaphor motivated by COVID-19. Nevertheless, there are limits to how this metaphor is evaluated from the perspective of ecolinguistics to analyze how beneficial or destructive it is to the environment. Thus, this study fills a gap in the literature by examining the emerging SUPERNATURAL BEING source domain in the climate crisis news reports using Charteris-Black’s (2004) Critical Metaphor Analysis (CMA) and Stibbe’s (2015) ecolinguistic approach. Drawing upon

these two approaches, the study provides important insights into the ideological purpose of choosing the SUPERNATURAL BEING metaphor to conceptualize the CLIMATE CRISIS on the one hand. On the other hand, it enhances understanding of how the ideological choice of this novel metaphor can frame the climate crisis discourse as ecologically beneficial or destructive. Therefore, the main research question of this study is:

1. How did the SUPERNATURAL BEING metaphor frame the climate crisis in the English online news reports from 2019 to 2023?

This main question entails three sub-questions which are as follows:

- 1.1. What are the elements of the SUPERNATURAL domain applied to the climate crisis and what is their frequency from 2019 to 2023?
- 1.2. What is the ideological significance of the SUPERNATURAL BEING metaphor in the climate crisis news reports from 2019 to 2023?
- 1.3. From an ecolinguistic perspective, how is the SUPERNATURAL BEING metaphor evaluated?

2. Theoretical Background

2.1. Conceptual Metaphor Theory (CMT)

Traditionally, metaphors were used as a figure of speech in literary works, e.g., poems and drama, to give artistic effects. They appear in a formulaic copula sentence (subject and subject complement linked by the verb “to be”). A good example is Shakespeare’s (1902) famous phrase in *As You Like It*, “The world’s a stage” (2.7, p.146-147). This expression follows the Aristotelian concept that metaphors must be manifest and used for an aesthetic purpose. Although the world is not physically “a stage”, the metaphor works on the reader’s imagination to view the world as a theatre, events as scenes, and people as actors.

Such traditional view of metaphor was first challenged by Lakoff and Johnson (1980) who proposed the Conceptual Metaphor Theory (CMT). In their pioneering study, Lakoff and Johnson (1980) show that metaphors are not confined to linguistic and sentential levels. On the contrary, the ubiquity of metaphors in everyday language stems from their conceptual feature that helps people construe new experiences and abstract concepts in terms of other familiar and concrete ones. This construal appears in the form of A IS B mapping. A is the abstract target

domain, such as LIFE, LOVE, ARGUMENT, etc., that is conceptualized by mapping the concrete source domain onto it, such as JOURNEY, WAR, BUILDINGS, etc. (Charteris-Black, 2004; Gibbs, 1998; Grady, 2017; Kövecses, 2002; Lakoff, 1987; Lakoff & Johnson, 1980). This cross-domain mapping is called the conceptual metaphor and is linguistically activated by several metaphorical expressions. This can be exemplified by the IDEAS ARE OBJECTS conceptual metaphor. IDEAS are the abstract target domain, whereas OBJECTS are the concrete source domain. This conceptual metaphor is triggered by the co-occurrences of “give”, “put forth”, and “get” with “ideas” which are not linguistic expressions of the IDEAS concept. Rather, they represent a way of thinking of and acting with IDEAS according to the characteristics of OBJECTS, i.e., being given, put forth, etc.

Lakoff and Johnson (1980) and Kövecses (2002) have pointed out that metaphors are dynamic and motivated by a range of factors, including, but not limited to, historical, social, and cultural conditions, body functions, and real-life experiences. In this sense, a target domain can be conceptualized by a variety of source domains and a source domain can portray several target domains. For instance, in addition to OBJECTS, IDEAS as a target domain can be conceptualized in terms of FOOD, realized linguistically in “digest ideas” that depicts understanding as digesting food. Another important aspect of conceptual metaphors is the highlighting-hiding principle (Lakoff & Johnson, 1980; Kövecses, 2002). According to this principle, the choice of the source domain contributes to highlighting one aspect of the target domain, while hiding others as shown in IDEAS ARE OBJECTS against IDEAS ARE FOOD. Despite the valuable insights of CMT, its heavy reliance on cognitive linguistics did not explain the ideological purpose of mapping a source domain onto a target domain, giving rise to Critical Metaphor Analysis (CMA).

2.2. Critical Metaphor Analysis (CMA)

Taking CMT a step further, CMA is proposed as a broader perspective adopted by Charteris-Black (2004) who moves the investigation of conceptual metaphors from how they cognitively construe news experience to why a certain conceptual metaphor is

chosen rather than another. According to Charteris-Black (2004; 2005; 2012), the role of conceptual metaphors is not confined to identifying new items via cross-domain mappings. The choice of a source domain is not motivated only by prototypical concepts. Rather, a certain source domain is tacitly selected among other varieties to stir emotions, shape and reshape social reality, and structure the reader's reasoning according to the underlying ideology of a discourse producer. Therefore, drawing on CMT, corpus linguistics, and the Critical Discourse Analysis approach outlined by Fairclough (1993), CMA examines a metaphor as a rhetorical strategy with linguistic, pragmatic, and cognitive characteristics and is categorized as conventional or novel (Charteris-Black, 2004).

The linguistic feature of metaphors lies in the semantic tension caused by the association of lexis related to distant domains, or, to put it more accurately, by reification, i.e. mapping concrete concepts onto abstract ones; personification, i.e., conceptualizing inanimate as animate; and depersonification, i.e., representing animate as inanimate. This semantic tension is unobvious when using a metaphor that is frequently and socially established in everyday language (a conventional metaphor). In contrast, it is apparent in the case of unconventionally used metaphors (a novel metaphor). This linguistic characteristic develops a cognitive conceptualization of the target domain. Not only does this cognitive feature emphasize an existing conceptual system, or shape a new one, but it also constructs a specific evaluation about the target domain. This is the pragmatic characteristic of metaphors that arises from the purpose of persuading the reader to negatively or positively perceive the target domain. All these characteristics contribute to a change in social realities and actions, whereby the ideology is uncovered.

Charteris-Black (2004) also classifies source-target mapping into conceptual key, conceptual metaphor, and metaphorical linguistic expressions. The conceptual key is the umbrella source domain under which a set of related conceptual metaphors is realized by numerous metaphorical expressions. For instance, a metaphor like "defusing global warming" (Hanson, 2004) is a realization of the GLOBAL

WARMING IS A TIME BOMB conceptual metaphor categorized under the conceptual key GLOBAL WARMING IS WAR.

2.3. *Ecolinguistics*

Ecolinguistics was first introduced by Haugen (2001 [1972]), whose influential metaphor, “the ecology of language”, defined ecolinguistics as the “interactions between any given language and its environment” (p.325). Based on this concept of interactions, critical analysts develop an Ecocritical Discourse Analysis (EDA) that examines the influence of language on human-nature interaction (Fill, 2001; Goatly, 2001; Halliday, 2001; Harre et al., 1999; Stibbe, 2015). Stibbe’s (2015) cognitive-CDA-based model is one of the prominent theoretical and analytical frameworks within which the analysis reveals the “*stories-we-live-by*” (p.6, emphasis in original), i.e., the “cognitive structures” that are covertly embedded in discourse and have a great impact on the reader’s perception.

According to Stibbe (2015), metaphor is one of the types of these stories that “use a frame from a specific, concrete and imaginable area of life to structure how a clearly distinct area of life is conceptualised” (p.64). In this sense, metaphors frame the target domain by giving salience to some aspects of the elements of the source. This salience influences the reader’s mind, making them evaluate and draw conclusions about the target domain. For that reason, Stibbe (2015) believes that the conceptual frames triggered by metaphor encourage the reader to take an ecologically destructive or protective stance. Like Charteris-Black (2004), Stibbe (2015) acknowledges the importance of developing the cognitive linguistic analysis to CDA to delve into the function of discursive strategies like metaphor. While Charteris-Black (2004) highlights the ideological purpose of the choice of conceptual metaphors in discourse, Stibbe (2015) sheds new light on the influence of metaphor on inspiring people to protect or destroy the environment.

Proposing an ecolinguistic metaphor analysis model (EMA)^(*), Stibbe (2015) highlights three characteristics of metaphors that should

^(*) I coined this term to be used in this study when referring to Stibbe’s (2015) ecolinguistic model

be considered when analyzing a discourse: the conceptual frames activated by the source domain, the metaphorical reasoning, i.e., the conclusion drawn from their conceptual frames, and their (dis)agreement to ecosophy. Ecosophy is a philosophy that promotes the present and future “well-being” of all organisms and the protection of the environment by replacing anthropocentrism with “environmental limits”, “social justice”, and “resilience” (Stibbe, 2015, p.14). Thus, if a metaphor is consistent with the ecosophy, it should be promoted and evaluated as beneficial. In contrast, if it is against the ecosophy, it should be challenged and classified as destructive. Nevertheless, metaphors that greenwash the discourse, i.e., appear as beneficial, while implying anti-environmental behavior, are categorized as ambivalent.

3. Previous Studies

Being an international community concern, a large number of studies on climate change have paid particular attention to its metaphorical representation in several types of discourse. For instance, Negrea-Busuioc (2017) utilizes Cameron’s (2010) discourse framework to analyze the conceptual metaphors used in the 2013 speech by former US President Obama to Georgetown University students. The study identifies two predominant conceptual metaphors, which are FIGHTING CLIMATE CHANGE IS WAR and FIGHTING CLIMATE CHANGE IS A RACE. According to Negrea-Busuioc (2017), conceptualizing climate change via two distinct frames, i.e., WAR/SPORT, is ideologically selected to legitimize Obama’s leading position. This is due to their familiarity with the audience as the WAR metaphor creates a mental representation of the military conflicts, whereas the RACE/SPORT metaphor constructs positive competition that could end with victory.

The predominance of the WAR metaphor in political discourse is consistent with the findings of Currie and Clarke’s (2022) semantic-pragmatic analysis of the portrayal of climate change in the 2015-2019 UK Parliamentary debates. That CLIMATE CHANGE-WAR mapping is interpreted as a mystification of humans as a cause of climate change as it contributes to framing the climate change-human dichotomy.

Furthermore, it presents the decision-makers as attentive to the magnitude of the issue.

While the above two studies limit their analysis to national political discourse, Ahmed (2022) makes a broadly comparative study to investigate the conceptual metaphors used in cross-continent climate change speeches. Analyzing 10 African and 10 European Presidential speeches at the United Nations (UN) 26th Conference of the Parties (COP 26) using Lakoff and Johnson's (1980) CMT, the study identifies more source domains than those found in the previously mentioned ones. To illustrate, the conceptualization of CLIMATE CHANGE WAR, DOOMSDAY, and STOCK MARKET are prevalent in the European political speeches to emphasize the urgency of the issue and the importance of global solidarity. In contrast, FACING CLIMATE CHANGE is metaphorically represented as A JOURNEY, A BUILDING, and HUMAN to signify the exerted efforts to clean energy transition and the necessity of patience.

Taking this analysis a step further, Wang and Habil (2024) examine the conceptual metaphors representing climate change, climate action, and carbon in 32 speeches at COP 28. The analysis relies on Charteris-Black's (2004) CMA and Stibbe's (2015) ecolinguistic analysis model to reveal the purpose of using metaphors in the COP 28 speeches and which of those metaphors are beneficial, destructive, and ambivalent. The findings demonstrate that there are several metaphors conceptualizing climate change, climate action, and carbon, such as WAR, JOURNEY, BUILDING, and COMMODITY. Ecolinguistically, it is concluded that WAR metaphors are destructive due to the human-nature opponency they hold. In contrast, the JOURNEY metaphors are beneficial owing to their representation of the efforts and actions taken to solve climate change, whereas the COMMODITY metaphors are ambivalent because of confusing the audience.

Apart from political discourse, the metaphorical representation of climate change in news discourse has also been investigated. In a comparative study, Atanasova and Koteyko (2017) examine the climate change conceptual metaphors in news discourse, particularly the ones

used in *The Guardian* against those in *The Daily Mail*. Employing Charteris-Black's (2004) CMA, they aim to uncover the ideology of the two newspapers implied in the conceptualizations of climate change. The findings show that climate change is conceptualized in terms of the WAR metaphor in *The Guardian* to raise arguments. In contrast, the RELIGION metaphor is the source domain in *The Daily Mail*. The purpose of this metaphor is to signify climate skepticism and mitigation.

In the same vein, a considerable amount of literature on the metaphorical representation of climate change in news discourse has focused on the United Kingdom (UK) press. For example, Norton and Hulme (2019) employ Stibbe's (2015) ecolinguistic analysis framework to examine the stories of climate change in editorial articles published in five UK newspapers across three years: 2001, 2007, and 2015. Identifying four stories of climate change: Lukewarmer, Ecoactivist, Smart Growth Reformer, and Ecomodernist, it is noted that each had a specific metaphor. That is, religious metaphors are found in Lukewarmer story to mitigate the gravity of climate change, compared to war metaphors in Ecoactivist story to raise alarmism. The Smart Growth Reformer story appears with economic context-related metaphors, e.g., "green growth", whereas the Ecomodernist story is solution-oriented, shown by "carbon capture and storage". Despite shedding new light on climate change research, one criticism of this study is that the authors do not aim to evaluate metaphors from the ecosophy perspective. Rather, they focus on the role of metaphors in salience and framing, providing limited information about which metaphors are beneficial, destructive, and ambivalent.

Other insights into the UK news portrayal of climate change have been provided by Adam and Wahyuni (2020), who adopt an in-depth qualitative analysis of the conceptual metaphors used in 17 news articles on climate change from *The Guardian*. Using the frameworks of CMT and Metaphor Identification Procedure (MIP) (Pragglejaz Group, 2007), the authors limit the metaphor identification to those that signify the urgency of climate change. The findings are influential in terms of identifying nine conventional and novel metaphors in the climate change news discourse, including, but not limited to, A WAR,

A CHEMICAL SUBSTANCE, A NATURAL DISASTER, and A DESTINATION. Despite such numerous conceptualizations, the authors view that the WAR and DESTINATION metaphors are more crisis-reflective source domains, with the entailments of threat and challenges.

Such concept of WAR as a significant metaphor to raise the alarm about climate change is echoed in Gillings and Dayrell's (2023) diachronic analysis. Focusing on the UK press over 17 years (2003 – 2019), the study aims to track the fluctuations in the use of terms, such as “climate change” and “global warming” in the UK tabloids and broadsheets. Upon collocational analysis, it is found that WAR-related metaphorical keywords like “fight” and “combat” were the frequent collocates of “climate change” from 2003 to 2009 and from 2014 onwards, while they co-occurred with “global warming” from 2003 to 2007 only.

Beyond the conventional metaphors found in the above studies, other researchers analyze novel metaphors in climate change discourse (Augé, 2023; Hauser and Fleming, 2021; Jurgaitis, 2020; Matlock et al., 2017). They examine the novel metaphors from different perspectives. To illustrate, Matlock et al. (2017) and Hauser and Fleming (2021) conduct a survey-based study on the impact of climate disaster metaphors on the reader's perception and attitude. While Matlock et al. (2017) focuses on the WILDFIRES ARE MONSTER metaphor, Hauser and Fleming (2021) use antagonist frames, including “monster” and “beast”. The findings of these two studies are consistent concerning the fear, anxiety, and danger those metaphors evoked. While Matlock et al. (2017) interpret the MONSTER metaphor as an attention-grabbing and action motivator, Hauser and Fleming (2021) note that people's response to these negative connoting metaphors is to move to other safer places.

Similarly, Jurgaitis (2020) challenges Matlock et al.'s (2017) concept that SUPERNATURAL BEING-related metaphors contribute to decisive action to solve the climate crisis. In his contrastive study on the conceptual metaphors of climate change in Lithuanian and German news from 2010 to 2019 using Steen's (2013) Three-dimensional

model, Jurgaitis (2020) finds that the SUPERNATURAL BEING conceptualization in both languages intensifies fear of the climate crisis, creating a perception that the issue is unsolvable. This is due to its framing of climate change as a “demonic figure” and “ghost” against whom any action would be in vain.

Considering that metaphors are context-dependent, Augé (2023) moves the study of climate change metaphors from conventional ones like WAR to novel ones and from news discourse to an international environmental organization. Adopting corpus-based and qualitative analysis, the study aims to reveal the impact of COVID-19 in motivating the ECOSYSTEM HEALTH in ecological publications from the “Extinction Rebellion” website in 2020. The findings highlighted that ENVIRONMENT is conceptualized as A BODY, POLLUTION as A DISEASE, CLIMATE EVENTS as SYMPTOMS, and CLIMATE SOLUTION as A TREATMENT, emphasizing the urgency of climate action.

The previous studies reviewed in this section have provided important insights into the role of conceptual metaphors in climate change discourse. However, the limitations of these studies lie in focusing on data from a certain country, most notably the UK. Hence, it is unclear whether the prevalence of WAR metaphors in the findings is culturally based or whether they are generalized in climate change discourse. Studies that used data from cross-national sources are on political discourse only. Furthermore, the analysis of these studies relied too heavily on one approach, either CMA, CMT, or ecolinguistics, narrowing the analysis to one function of conceptual metaphors rather than another. While the literature on climate change conceptualization has revealed the emergence of several metaphors, the focus remained on the conventional ones. Little attention has been given to novel metaphors. To fill this gap, this study combined CMA and ecolinguistics to analyze the novel SUPERNATURAL BEING metaphor in the online climate crisis news reports. The significance of this metaphor lies in drawing attention to the change in news ideology on the one hand and influencing the reader’s risk perception on the other hand. The study also provides an extensive examination by analyzing

news reports from several countries to reflect the global coverage of the climate crisis. The timeframe of these news reports is from 2019 to 2023, a period signaled by the change in the climate crisis news ideology and the public increasing attention to the issue.

4. Data and Methodology

This study adopts a descriptive research design using a mixed-method approach to analyze the role of the SUPERNATURAL BEING metaphor in English online news reports on the climate crisis from 2019 to 2023. The analysis begins with the quantitative examination of the frequency and context of the SUPERNATURAL metaphor linguistic realizations using AntConc Software. Then, the quantitative findings are interpreted and evaluated qualitatively in the light of CMA and EMA frameworks and the use of the “Onelook” online dictionary and a reference corpus, i.e., the Corpus of the Contemporary American (COCA).

4.1. Data

This study analyzes online news reports on the climate crisis. The choice of analyzing news reports, rather than editorials or opinion articles, stems from their communicative purpose of informing the public about current events without any explicit viewpoint. The selection of the data is based on that the articles are centered on the climate crisis, issued from 2019 to 2023, and published in English from several official news websites. Therefore, the terms “climate change/ crisis/ emergency/ breakdown/ disasters/ anxiety”, “global warming/heating”, “greenhouse gas”, “carbon dioxide emissions” and “climate *” are used as keywords in the search query of Google News. The Time Tools and Custom Year range functions in Google News are limited to 2019-2023. To determine if the main topic of the articles is climate change, the search function “Ctrl+F” on the keyboard is pressed to type “climate change” or any of the above terms on the navigation pane. If the word is found in the headline, lead, or body of the article, I closely read it. The articles mentioning the climate crisis in different contexts, like countries’ preparation for COP and receiving presidents, are excluded.

Table 1.
The number of news report articles and tokens

<i>Year</i>	<i>English News Reports</i>	<i>Number of tokens</i>
2019	20	16900
2020	16	13615
2021	20	17501
2022	20	17675
2023	20	17581
Total	96	83, 272

Such criteria yield 96 English news reports on the climate crisis issued from 2019 to 2023. As shown in Table 1, 20 articles are selected for each year, except for 2020 with only 16 due to the spread of COVID-19 which was more newsworthy than the climate crisis. These articles are from various countries’ news websites, including, but not limited to four reports from the *BBC* (UK), three from *CNN* (The United States of America), three from *El Pais* (Spain), four from *China Daily* (China), four from *France 24* (France), four from *Sydney Morning Herald* (Australia), four from *Portugal Resident* (Portugal), three from *Albanian Daily News* (Albania), five from *Al-Jazeera* (Qatar), three from *Anadolu* (Turkey), one from *Daily Trust* (Nigeria), four from *DW* (Germany), three from *Egypt Today* (Egypt), two from *Tehran Times* (Iran), one from *The Nation* (The United Arab of Emirates), and one from *The Moscow Times* (Russia). These articles go through a filtering process using the “Textise” online website to clean the data from images and advertisements. Another cleaning is carried out manually to erase unnecessary vocabulary, such as “Read more” and “subscribe”. Then, each article is copied, pasted, and saved into a separate Word Document File and as plain text files (*.txt) to be processed by AntConc.

4.1.1. Corpus Tools. Since this study does not analyze a ready-made corpus, AntConc (4.2.0) offline software (Anthony, 2022) is utilized to upload the cleaned articles. AntConc (4.2.0) is one of the widely-used tools in corpus analysis owing to its significance in

building a corpus, identifying keywords, measuring frequency, and examining collocates and concordance lines, i.e. the context. Using this software, the ENGLISH CLIMATE CRISIS NEWS Corpus (ECCN henceforth) is built as a target corpus with 83,272 tokens and 8,191 types. This corpus is divided into five-year-based corpora to trace the salience of keywords over the five years. This tracing is effective for the qualitative analysis, particularly in explaining the social and ideological factors that have motivated the metaphor. Another instrumental aspect of metaphor explanation is the reference corpus to which the keywords of the target corpus are compared. This study uses the Corpus of the Contemporary American (COCA) as a reference corpus owing to its large-scale data with one billion tokens and different genres, including news. Moreover, the study tagged the target corpus, i.e., assigned part-of-speech (POS) tags to the texts via TagAnt Software (Anthony, 2022) to identify the lexico-grammatical function of the metaphorical keywords.

After the corpus building and tagging, the quantitative analysis is carried out. The nodes for this study, the words investigated, are “climate”, “global warming/heating”, “greenhouse gas”, “carbon”, and disaster corresponding lexis, e.g., “wildfire” and “flood”. Their collocates are examined to generate the lexical fields of the SUPERNATURAL metaphor. The collocation analysis is not confined to adjacent collocates but extended to a five-word span to detect other neighboring lexis. Once the lexical fields are identified qualitatively, their frequency, collocates, and contexts are illustrated to answer the first research sub-question.

4.2. Methodology

The methodology of the qualitative metaphor analysis proceeds in four steps. Following the CMA analytical framework outlined by Charteris Black (2004), the first three steps are the Metaphor identification, Metaphor Interpretation, and Metaphor Explanation. Firstly, metaphorical expression identification involves a close reading of the text contexts to establish the contextual meaning of the lexical units. Then, the “Onelook” online dictionary is used to search for their basic meanings. If they cause a semantic tension, they are marked as

metaphorical. Secondly, these metaphorical expressions undergo the interpretation stage by determining their cognitive and pragmatic features. In this stage, the identified metaphorical keywords are categorized under conceptual metaphors to demonstrate the attributes of the source domain mapped into the target domain. These conceptual metaphors are subcategorized under the CLIMATE CRISIS IS A SUPERNATURAL BEING conceptual key. After this interpretation, the metaphor explanation reflects the reason for this SUPERNATURAL BEING metaphor choice, answering the second sub-question.

Finally, the last step in analyzing the SUPERNATURAL BEING metaphor is its evaluation from the perspective of ecosophy. That is, based on the elements of the SUPERNATURAL BEING mapped onto the climate crisis, the metaphorical reasoning is defined. This reasoning determines whether this metaphor is beneficial, destructive, or ambivalent according to the ecosophy. The beneficial metaphors contribute to pro-environmental awareness and taking action to solve the climate crisis and save the planet from destruction. In contrast, the destructive metaphors downplay the gravity of the climate crisis, dissuade the world from solving the crisis, and justify human exploitation of nature. However, the ambivalent metaphors intermediate between both, appears beneficial with destructive implications.

5. Analysis

The quantitative analysis of the ECCN corpus yields several keywords related to the SUPERNATURAL BEING domain. Examples are “zombie”, “monster”, “haunt”, “conjure”, “loom”, and “ghost” as Table 2 illustrates. Examining the concordance lines, it is noted that these metaphorical keywords trigger semantic tension due to their co-occurrences with climate events, inferring three conceptual metaphors: IMPACTS OF CLIMATE CRISIS ARE GHOSTS, WILDFIRES ARE ZOMBIES, and IMPACTS OF CLIMATE CRISIS ARE MONSTERS. It is also apparent in the table that the conceptual metaphor IMPACTS OF CLIMATE CRISIS ARE GHOSTS ranked the first subcategory of CLIMATE CRISIS IS A SUPERNATURAL BEING conceptual key

with the highest frequency of occurrences. This high frequency stems from its several realizations, e.g., “haunt”, “ghost”, and “spectrum”. In contrast, WILDFIRES ARE ZOMBIES is realized by only one keyword, “zombie”, ranked the second, whereas IMPACTS OF CLIMATE CRISIS ARE MONSTERS, which is also realized by one keyword “monster”, ranked the last. It is also remarkably noted that these occurrences of these conceptual metaphors are found over the five-year corpus IMPACTS OF CLIMATE CRISIS ARE GHOSTS is used in news reports issued in 2019, 2021, and 2023, compared to WILDFIRES ARE ZOMBIES which appears in news reports published in 2020, 2022, and 2023, and to IMPACTS OF CLIMATE CRISIS ARE MONSTERS which is found in 2020 and 2022 news reports.

Table 2.
The Hierarchical Conceptualization of CLIMATE CRISIS IS A SUPERNATURAL BEING

Conceptual Key	CLIMATE CRISIS IS A SUPERNATURAL BEING			
	<i>Conceptual Metaphors</i>	<i>Metaphors</i>	<i>Frequency</i>	<i>Percentage</i>
	IMPACTS OF CLIMATE CRISIS ARE GHOSTS	Ghost	10	56%
		Haunt	6	
		Loom	4	
		Conjure	1	
		Spectrum	1	
	FIRES ARE ZOMBIES	Zombie	14	36%
	IMPACTS OF CLIMATE CRISIS ARE A MONSTER	Monster	3	8%
<i>Total</i>	3	7	39	

IMPACTS OF CLIMATE CRISIS ARE GHOSTS

As Table 2 shows, this conceptual metaphor, appears in 22 instances, is realized by several keywords, with “ghost” as the most frequent keyword, accounting for 10 times. GHOST is one of the

elements of the SUPERNATURAL BEING domain applied to the CLIMATE CRISIS. The word “ghost” refers to the spirit of a dead person that appears in the form of a shadow to specific people, while being invisible to others. It is also stereotypically related to horror movies and superstitions, depicting its physical appearance as intangible, scary, unpredictable, and disturbing people’s lives (OneLook, n.d.). These attributes of GHOST are mapped onto IMPACTS OF CLIMATE CRISIS in the reader’s mind when reading the following phrases in news reports (the metaphorical keywords are in **bold** and *italicized*).

Rising seas often *conjure* the threat to faraway
(ECCN, 2021)

While smoke from wildfires might be climate
change’s most obvious impact in Washington, other
threats still *loom*. (ECCN, 2019)

Recent floods *haunted* 28 out of 31 provinces on
March 19, (ECCN, 2019)

In other words, the co-occurrences of the above metaphorical expressions with climate-related lexis cause semantic tension as the former belongs to the GHOST domain, which is distinct from the IMPACTS OF CLIMATE CRISIS domain. This semantic tension plays a vital role in grabbing the reader’s attention, stirring an emotion of fear and anxiety, and presenting climate events with a negative evaluation. This negativity stems on the one hand from the semantic prosody of “ghost” that is prototypically associated with unfavorable events. On the other hand, the above ghost-related verbs appear with climate events playing the agentive role, i.e., the doers of the action. For instance, in the first phrase, the verb “conjure” signifies an action of calling upon a ghost to come. The “rising seas” are framed in this phrase as the main participant of such conjuring. Similarly, the verbs “loom” and “haunt” in the last two phrases typify the appearance of a ghost, with “threat” and “floods” as the agents of this action. This agency of IMPACTS OF CLIMATE CRISIS tacitly mystifies human ecologically detrimental

acts, making the reader think that the causes of the climate crisis are unknown.

Not only do the verbs realizing this conceptual metaphor manipulate the climate crisis perception, but other parts of speech contributed to the erasure of anthropogenic climate change as the following two headlines illustrate.

This winter, *haunting* signs of climate change were everywhere (ECCN, 2023)

Ghost forests, an indicator of climate change (ECCN, 2021)

In the first headline, the adjective gerund “haunting” qualifies the nominal group “signs of climate change” with ghost-related features. This physical identification underlies an autonomous manifestation of the climate crisis. Likewise, the noun “ghost” premodifies the word “forest” eight times, two of which are in the headlines, forming a novel metaphor revitalized from the domain of science. In other words, “ghost forest” is a scientific metaphor that first appeared in the early 1900s to draw attention to the death of tree forests due to the climate crisis-related sea-level rise (Kirwan & Geden, 2019). Despite its heuristic purpose, this metaphorical expression has recently been popularized in the climate crisis reporting. This is evidenced by its occurrences in only two news reports published in 2021 and 2023. Furthermore, this metaphor is found in COCA across magazines and fiction genres, from the 1990s to 2000s. No instances of “ghost forest” in the news genre are detected.

In this sense, the IMPACTS OF CLIMATE CRISIS ARE GHOSTS conceptual metaphor is used purposefully to make the dire consequences of the climate crisis intelligible to the reader on the one hand. On the other hand, it frames climate events as a new participant whose appearance and disappearance are not only unpredictable, but also unknown. This framing contributes to climate skepticism as it maps an unreal creature onto a real phenomenon on the one hand. On the other, hand, the conceptual frame of GHOST denotes a past-present-future link as it involves the resurrection of a dead person from the past to the present and future reappearance. This link distracts the reader

from anthropocentrism, i.e., prioritizing human interests at the expense of the environment, as the initial trigger of the climate crisis. Moreover, it implies accepting the climate crisis as a phenomenon beyond human capacity to control. Consequently, this conceptual metaphor is ecolinguistically destructive as it draws the public attention to the dire consequences of the climate crisis without identifying the causes. Hence, it provides no space for solving the climate crisis.

WILDFIRES ARE ZOMBIES

Another negative presentation of the climate crisis and its impacts is revealed in this conceptual metaphor, which conceptualizes WILDFIRES in terms of ZOMBIES in 14 instances. ZOMBIE is another element of the SUPERNATURAL BEING that entails risk and jeopardy to human lives. Such risk stems from the negative connotation of the word “zombie” that typifies a flesh-eating reanimated corpse (OneLook, n.d.). Although “ghost” and “zombie” are salient in horror movies as scary creatures, a “zombie” differs from “ghost” in terms of the destruction and changes it causes. In other words, a “zombie” is associated with its infection of normal people, turning them into zombies infecting others (Charteris-Black, 2021). Mapping these qualities of ZOMBIES onto WILDFIRES contributes to attracting the reader’s attention, shaping and reshaping the climate crisis perception, and evoking anxiety and fear. This can be illustrated in the following (the metaphorical keywords are **bold** and *italicized*).

‘Zombie’ Wildfires Threaten Arctic Russia,
Scientists Warn (ECCN, 2020)

Zombie fires and soaring temperatures: What
happens when it gets to 100°F in Siberia (ECCN,
2022)

They’re known as **zombie fires** (ECCN, 2023)

As shown above, the co-occurrence of “zombie” and “(wild)fires”, which accounts for eight times, three of which are in the headlines, triggers an obvious semantic tension. This is because each belongs to a different semantic category as, unlike “zombie”, “fire” is associated

with burning, lighting, or heating, and has positive and negative connotations. Like “ghost forest”, this cross-domain mapping revitalizes an old metaphor that dates back to the 1942 Alaska wildfire described as “zombie fires” (Jandt & Thoman, 2020). This novel metaphor appears in only three articles in the target corpus, while being absent in the reference corpus. The novelty of this metaphor in news reports is shown by its appearance in the 2020 news report in inverted commas in the headline (the first phrase) and the content.

Upon a close examination of the concordance line, it is noted that this cross-domain mapping gives prominence to the negative scenario of WILDFIRES that resembles ZOMBIES. To illustrate, heat is the initial phase of wildfire. In this stage, the flames are small and manageable. However, once a tree is burnt, the fire spreads to other trees, causing massive destruction by turning forests to ashes. Activating this scenario in the reader’s mind simplifies the complexity of this scientific phenomenon, while reshaping the conceptual system of WILDFIRES. This is due to the fact that the unreality of zombies hides human agency in the climate crisis while presenting the climate impacts as the causal agent. This erasure of human responsibility for the climate crisis inspires the public to adopt ecologically devastating behavior rather than motivating them to protect the ecosystem. This is because it mirrors the danger of the climate crisis as unpredictable and unmanageable, leading to climate inaction rather than tackling the issue

IMPACTS OF CLIMATE CRISIS ARE A MONSTER

Similarly, mapping A MONSTER onto IMPACTS OF CLIMATE CRISIS foregrounds the current events the world experiences due to the climate crisis. This foregrounding plays a vital role in triggering an emotion of fear, anxiety, and uncertainty. This is because a monster is stereotypically envisioned as a scary, imaginative creature, whose behavior is characterized by cruel (OneLook, n.d.). Such cruelty is embedded in the co-occurrence of the metaphorical keyword “monster” and the climate-related disasters as follows.

flood events and now the *monster* monsoon of the decade is wreaking non-stop havoc (ECCN, 2022)

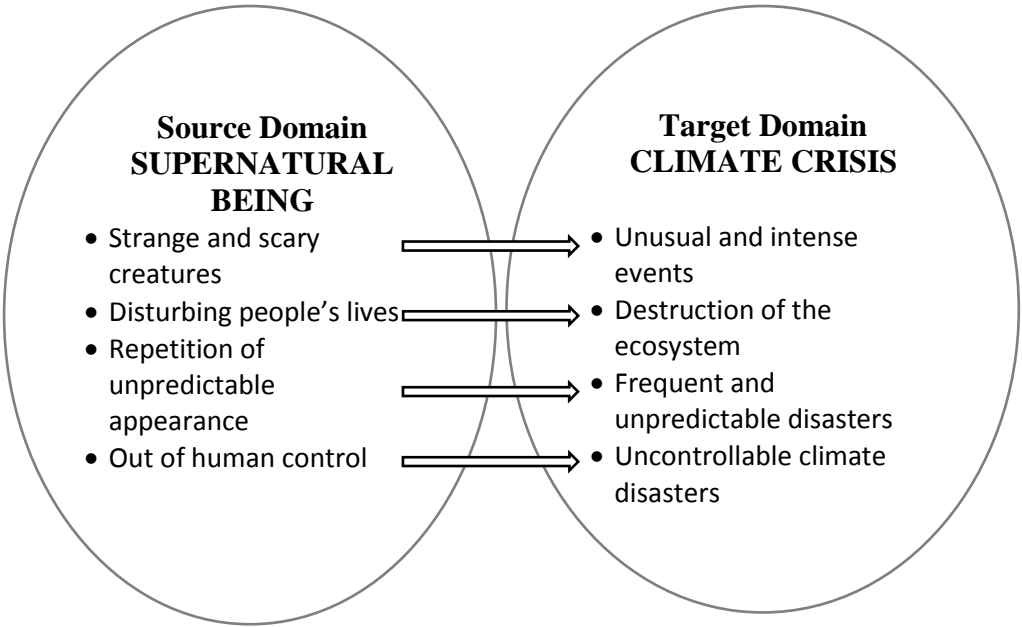
Pakistan reeled under the effects of a *monster* monsoon (ECCN, 2022)

It was just a small part of a *monster* heat wave (ECCN, 2020)

Although Matlock et al. (2017) analyzed the WILDFIRE IS A MONSTER metaphor, the target corpus of this study shows that the MONSTER metaphor represents other climate-related disasters, such as “monsoon” and “heat wave”. In the light of the frequency, the metaphorical lexis “monster” appears only three times in three different news reports. None of these instances are headlines, indicating that “monster” is not as attention-grabbing as “ghost” and “zombie”. Despite this meager frequency, the MONSTER metaphor presents a vivid frame of IMPACTS OF CLIMATE CRISIS. That is, encountering this metaphor leads the reader conceptually and unconsciously to activate a scenario of a monster that totally destroys everything it passes through. In consequence, this conceptual metaphor contributes to framing the gravity of the climate crisis owing to the emotion of fear that engages the reader in the events. Nonetheless, this framing manipulates reality by deviating the reader from the causes and solutions of the climate crisis. This deviation stems from presenting the magnitude of the threat as an unreal creature, which is beyond human’s ability to face. Hence, this conceptualization is destructive as it narrows the scope of perceiving the climate crisis to its events rather than framing human ecologically detrimental behavior as the causal agents of the crisis. This blurring of the problem identification mystifies any possibility to tackle the issue.

Based on the above, the three conceptual elements of the SUPERNATURAL BEING integrate a set of cognitive schemata used to frame the CLIMATE CRISIS as demonstrated in Figure 1.

Figure 1.
Conceptual mapping of the SUPERNATURAL BEING metaphor



The mapping in this figure shows the correspondence between the conceptual system of SUPERNATURAL BEING and the one of CLIMATE CRISIS. A supernatural being is an undesired creature whose appearance is associated with destruction and terror and is beyond human ability to explain. This is the same as the accentuation of the climate crisis that results in unusual disasters that the public cannot make sense of or adapt to. Although this mapping might work rhetorically at gaining the public attention by provoking negative emotions and providing a negative image, it entails that the climate crisis is unsolvable and that there are no alternatives for the destruction that the public experiences.

6. Discussion

This study analyzes the function of the SUPERNATURAL BEING conceptual key in the climate crisis online news reports from 2019 to 2023 in the light of CMA and ecolinguistics. With respect to the first research sub-question, which is concerned with the elements of SUPERNATURAL BEING and their frequency, the investigation

shows that the conceptual key CLIMATE CRISIS IS A SUPERNATURAL BEING has three subcategories: IMPACTS OF CLIMATE CRISIS ARE GHOSTS, WILDFIRES ARE ZOMBIES, and IMPACTS OF CLIMATE CRISIS ARE MONSTERS. The GHOSTS element is found to be the most predominant in the SUPERNATURAL BEING domain (56%), followed by ZOMBIES (36%), and then MONSTERS (8%).

The second sub-question is about the ideological significance of the SUPERNATURAL BEING metaphor in reporting on the climate crisis. Data analysis finds that viewing the climate crisis from this lens contributes to emphasizing its gravity on the one hand and de-emphasizing human intervention on the other hand. In other words, a supernatural being is stereotypically associated with horror movies, where spirits of dead people appear to the living. Their appearance is deemed scary and causes some disturbance to others' normal lives. Nevertheless, the reason for their appearance is unknown to the living people. As a result, this cross-domain mapping focuses on the dire consequences of the climate crisis rather than its causes and ways of its solution. This finding supports evidence from previous studies (Hauser & Fleming, 2021; Jurgaitis, 2020), while it is inconsistent with Matlock et al.'s (2019) concept of MONSTER as an action-motivator.

On the question of the SUPERNATURAL BEING metaphor evaluation from the perspective of EMA (last research sub-question), it is illustrated that this metaphorical framing of the climate crisis is destructive for many reasons. Most notably, it supports climate scepticism as it frames the gravity of the crisis through aliens whose appearance is confined to science fiction and horror movies. Furthermore, it downplays any human responsibility for the climate crisis, entailing that the unusual climate events appear autonomously without any human intervention. Finally, it limits the framing of the climate crisis to its events, making the reader perceive the crisis as a static fact, and hence, taking action to solve the crisis is in vain. In this view, this finding is consistent with Charteris-Black's (2021) argument that "[t]he scenario of a climate change catastrophe by flooding of coastal cities would cause much greater destruction than a zombie

attack” (p.97). Therefore, the SUPERNATURAL BEING frame contradicts the ecosophy although its tacit choice contributes to echoing the public fear.

7. Conclusion

This study highlights the importance of integrating CMA with ecolinguistics. This integration shows that the ideological purpose of the conceptual metaphors in framing the climate crisis in news reports can underlie destructive impacts on the environment. Focusing on the SUPERNATURAL BEING metaphor, it is found that this metaphor contributes to highlighting the accentuation of climate events, while manipulating the social reality as it backgrounds humans as the crisis causal agents on the one hand and implies that the climate crisis is obscure and beyond human ability to define on the other hand. Hence, this ideologically chosen metaphor can give rise to the deterioration of the climate crisis as the conclusion drawn from may indicate that there may not be a need to take climate action, which would hinder efforts addressing climate change. These findings shed new light on the influence of conceptual metaphors on crisis perception. Nevertheless, the study is limited to a small scale of data. Further studies can analyze the SUPERNATURAL BEING metaphor in a large-scale corpus to identify more elements than those found in this study. Analyzing this metaphor in non-Anglophone news discourse is worthwhile in order to examine it from the perspective of cross-cultural variation.

References

- Adam, M. & Wahyuni, W. (2020). The image of climate crisis in media: A conceptual metaphor analysis. *Journal of Language and Literature*, 20, 10 – 24. <https://doi.org/10.24071/joll.v20i1.2413>.
- Ahmed, M. (2022). Conceptual metaphors in climate change discourse in the speeches of African vs. European political leaders: A cognitive approach. *Transcultural Journal of Humanities and Social Sciences*, 3(2), 17 – 30. <https://doi.org/10.21608/tjhs.2022.233093>.
- Anthony, L. (2022). AntConc (Version 4.2.0) [Computer Software]. Waseda University. <https://www.laurenceanthony.net/software/antconc/>.
- Anthony, L. (2022). TagAnt (Version 2.0.5) [Computer Software]. Waseda University. <https://www.laurenceanthony.net/software/tagant/>.
- Aristotle (1954). *Rhetoric*. Translated by. W. Rhys Roberts. The Modern Library.
- Atanasova, D. & Koteyko. (2017). Metaphors in Guardian Online and Mail Online opinion-page content on climate change: War, religion, and politics. *Environmental Communication*, 11 (4), 452 – 469. <https://doi.org/10.1080/17524032.2015.1024705>.
- Augé, A. (2023). COVID-19 as a framing device for environmental protest: The ECOSYSTEM HEALTH metaphor. *Environmental Communication*, 17(3), 230-244. <https://doi.org/10.1080/17524032.2021.1890174>.
- Bouman, T., Verschoor, M., Albers, C. J., et al. (2020). When worry about climate change leads to climate action: How values, worry and personal responsibility relate to various climate actions. *Global Environmental Change*, 62(102061). <https://doi.org/10.1016/j.gloenvcha.2020.102061>.
- Charteris-Black, J. (2004). *Corpus approach to critical metaphor analysis*. Palgrave.
- Charteris-Black, J. (2005). *Politicians and rhetoric: The persuasive power of metaphor*. Palgrave.

- Charteris-Black, J. (2012). Forensic deliberations on ‘purposeful metaphor’. *Metaphor and the Social World*, 2(1): 1-21. <https://doi.org/10.1075/msw.2.1.01cha>.
- Charteris-Black, J. (2019). *Metaphors of Brexit: No cherries on the cake?* Palgrave.
- Charteris-Black, J. (2021). *Metaphors of Coronavirus: Invisible enemy or zombie apocalypse?* Palgrave
- Currie, J. S.G. & Clarke, B. (2022). The use of the conceptual metaphor CLIMATE CHANGE IS CONFLICT in the UK Houses of Parliament, 2015–2019. *Journal of Language and Politics*, 21(4), 589-612. <https://doi.org/10.1075/jlp.21052.cur>.
- Davies, M. (2008). *The Corpus of Contemporary American English (COCA)*. <https://www.english-corpora.org/coca/>.
- Feldman, L. & Hart, P. S. (2021). Upping the ante? The effects of “emergency” and “crisis” framing in climate change news. *Climate Change*, 169(1), 1 – 20. <https://doi.org/10.1007/s10584-021-03219-5>.
- Fill, A. (2001). Ecolinguistics: State of the art 1998. In A. Fill and P. Mühlhäusler (eds). *The Ecolinguistics reader: Language, ecology and environment*. (pp. 43-53). Continuum.
- Forgács, B. & Pléh, C. (2022). The fluffy metaphors of climate science. In S. Wuppuluri, and A.C. Grayling (eds). *Metaphors and Analogies in Sciences and Humanities*. (pp. 447 – 477). Springer.
- Gibbs, R. W. (1998). The fight over metaphor in thought and language. In A. N. Katz, C. Cacciari, R.W. Gibbs, and M. Turner (eds). *Figurative language and thought*. (pp. 88 – 118). Oxford University Press.
- Gilder, L. (2023, November 22). Climate change: Rise in Google searches around ‘anxiety’. *BBC news*. <https://www.bbc.com/news/science-environment-67473829>.
- Gillings, M. & Dayrell, C. (2023). Climate change in the UK press: Examining discourse fluctuation over time. *Applied Linguistics*, 20(20), 1 – 4. <https://doi.org/10.1093/applin/amad007>.
- Goatly, A. (2001). Green grammar and grammatical metaphor, or language and myth of power or metaphors we die by. In A. Fill and

- P. Mühlhäusler (eds). *The Ecolinguistics reader: Language, ecology and environment*. (pp. 203 – 225). Continuum.
- Grady, J. (2017). Using metaphor to influence public perceptions and policy: How metaphors can save the world. In E. Semino and Z. Demjén (eds). *The Routledge handbook of metaphor and language*. 443 – 454. Routledge.
- Halliday, M. (2001). New ways of meaning: The challenge to applied linguistics. In A. Fill and P. Mühlhäusler. *The Ecolinguistics reader: Language, ecology and environment*. (pp. 175 – 202). Continuum.
- Hansen, J. (2004). Defusing the global warming time bomb. *Scientific American*, 290(3), 68–77.
<https://doi.org/10.1038/scientificamerican0304-68>.
- Harre, R., Brockmeier, J., & Mühlhäusler, P. (1999). *Greenspeak: A study of environmental discourse*. Routledge.
- Hauser, D. J. & Fleming, M. E. (2021). Mother nature's fury: Antagonist metaphors for natural disasters increase forecasts of their severity and encourage evacuation, *Science Communication*, 00(0), 1 – 27.
<https://doi.org/10.1177/10755470211031246>.
- Hornsey, M. J. & Fielding, K. S. (2016). A cautionary note about messages of hope: focusing on progress in reducing carbon emissions weakens mitigation motivation. *Global Environmental Change*, 39, 26 – 34.
<https://doi.org/10.1016/j.gloenvcha.2016.04.003>.
- Jandt, R. & Thoman, R. (2020). The “Zombie” Fires of 1942. *Alaska Fire Science Consortium*. https://akfiresciencehighlights.com/wp-content/uploads/2020/07/afsc_rb_2020_1.pdf.
- Jurgaitis, N. 2020. “Metaphern im Diskurs des Klimawandels: eine vergleichende Analyse” (Metaphors in climate change discourse: A contrastive analysis). *Vārds un tā pētīšanas aspekti*, 24, 314 – 324.
<https://doi.org/10.37384/vtpa.2020.24.314>.
- Kirwan, M. L. & Gedan, K. B. (2019). Sea-level driven land conversion and the formation of ghost forests. *Nature Climate Change*, 9, 450 – 457 <https://doi.org/10.1038/s41558-019-0488-7>.

- Kövecses, Z. (2002). *Metaphor: A practical introduction*. Oxford University Press.
- Lakoff, G. 1987. *Women, fire, and dangerous things: What categories reveal about the mind*. University of Chicago Press.
- Lakoff, G. & Johnson, M. (1980). *Metaphors we live by*. University of Chicago Press.
- Matlock, T., Coe, C., and Westerling, A. L. (2017). Monster wildfires and metaphor in risk communication. *Metaphor and Symbol*, 32, 250-261. <https://doi.org/10.1080/10926488.2017.1384273>.
- Moench, M. (2023, November, 22). New Data Shows a Global Surge in Searches Related to ‘Climate Anxiety’. *The Times*. <https://time.com/6338759/climate-change-anxiety-google-search-trend/>
- Negrea-Busuioc, E. (2017). Leading the war at home and winning the race abroad: Metaphors used by President Obama to frame the fight against climate change. In *Metaphor in Communication, Science and Education*, edited by F. Ervas, E. Gola, and M. G. Rossi. De Gruyter Mouton.
- Norton, C. & Hulme, M. (2019). Telling one story, or many? An ecolinguistic analysis of climate change stories in UK national newspaper editorials. *Geoforum*, 104, 114-136. <https://doi.org/10.1016/j.geoforum.2019.01.017>.
- OneLook. (n.d.). Ghost. In OneLook online dictionary. Retrieved October 1, 2024, from https://www.onelook.com/?w=ghost&loc=home_ac_ghost.
- OneLook. (n.d.). Monster. In OneLook online dictionary. Retrieved October 1, 2024, from https://www.onelook.com/?w=monster&loc=home_ac_monster.
- OneLook. (n.d.). Zombie. In OneLook online dictionary. Retrieved October 1, 2024, from https://www.onelook.com/?w=zombie&loc=home_ac_zombie.
- Reddy, M. J. (1993). The conduit metaphor. A case of frame conflict in our language about language. In A. Ortony (ed) *Metaphor and thought*. (pp.164 – 201). University Press.

- Shakespeare, W. (1902). *As You Like It*, Charles Robert Gaston (ed). Library of Congress. <https://www.loc.gov/item/02023092/>.
- Steen, J. G. (2008). The paradox of metaphor: Why we need a three-dimensional model of metaphor. *Metaphor and Symbol*, 23(4), 213–241. <http://dx.doi.org/10.1080/10926480802426753>.
- Stibbe, A. (2015). *Ecolinguistics: Language, ecology and the stories we live by*. Routledge.
- Thibodeau, P. H. & Boroditsky, L. (2011). Metaphors we think with: The role of metaphor in reasoning. *PLoS ONE*, 6(2) 1 – 11. <http://doi.org/10.1371/journal.pone.0016782>.
- Wang, S, Leviston, Z., Hurlstone, M., Lawrence, C., and Walker, I. (2018). Emotions predict policy support: Why it matters how people feel about climate change. *Global Environmental Change*, 50, 25 – 40. <https://doi.org/10.1016/j.gloenvcha.2018.03.002>.
- Wang, Y. & Habil, H. (2024). Critical metaphor analysis of climate change in cop28 speeches: An ecolinguistic perspective. *World Journal of English Language*. 14(5), 49-62. <https://doi.org/10.5430/wjel.v14n5p49>.
- Zeldin-O'Neill, S. (2019, October, 16). 'It's a Crisis, Not a Change': The six guardian language changes on climate matters. *The Guardian*. <https://www.theguardian.com/environment/2019/oct/16/guardian-language-changes-climate-environment>.