A corpus-based study of metaphor and metonymy in climate change awareness advertising discourse

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Abstract

This paper uses a mixed method approach to investigate the use of metaphor and metonymy in a corpus of 94 advertisements designed to raise public awareness about climate change. The main theoretical frameworks adopted are Conceptual metaphor theory and Multimodal metaphor theory, with a focus on their application to advertising discourse. The paper is also informed by recent scholarship on the challenges related to effectively communicating the climate crisis. The results and analyses reveal that metaphor is used to convey particularly emotive and persuasive messages about climate change in terms of the potentially devastating consequences it could lead to. The uses of multimodality and of metonymy develop the complexity of the messages conveyed and increase their emotive and persuasive effect on the viewer in order to raise awareness and call the public to take climate action.

Keywords: Climate change, advertising discourse, metaphor, multimodality, non-commercial

Contents

1. Introduction

"Our house is on fire. I am here to say, our house is on fire."
(Thunberg, 2019, para. 1)

Greta Thunberg set the tone for one of her speeches in 2019 with the metaphor "our house is on fire," urging a roomful of global leaders to abandon "business as usual" (Thunberg, 2019, para. 12) and instead to take "transformational action" (Thunberg, 2019, para. 1) to save the planet and the human race. She opened her speech with vehemence and closed it with the same passion; "our house is on fire" was repeated at both the beginning and end, bracketing her plea for the world to react towards climate change with the same urgency and panic as though our own houses were burning down.

Metaphor is often understood in linguistic scholarship as a resource for communicating troubling or complex emotions and issues that are difficult to share or express (Semino, 2010). Recently, climate change has been identified as a major source of anxiety among the public, especially among young people. Terms such as *eco-anxiety* and *climate grief* (Castello y Tickell & Migne, 2020) have been coined to reflect the acute concern for the planet that individuals are experiencing. Indeed, the topic of climate change has grown in importance among political and media discourses over the last two decades. However, it also represents a sore point of contention in these spheres, since many governments and citizens are still ignoring the urgency of the situation. As with many complex or emotionally-charged issues that people find difficult to address in plain speech, climate change discourses are a fertile ground for metaphor use, but there are few papers that examine how metaphor theory can enlighten our understanding of the way in which climate change is discussed and understood today.

This study investigates and examines how metaphor emerges in advertisements that raise awareness about change and how metonymy is recruited as an additional conceptual and figurative device for making meaning. For this paper, these advertisements are termed 'climate change awareness advertisements.'

Today, vast areas of land and vast populations of wildlife species are at risk of extinction due to climate change. That risk is only increasing, which puts the longevity of the human race at stake. Some places on earth are already experiencing the life-threatening consequences. In California and Australia, for example, wildfires are rampant. Elsewhere, in low-lying countries such as Bangladesh, inhabitants' lives continue to be severely threatened by floods. For these parts of the world, the impacts of climate change are already visible. However, in other areas, particularly in the developed north-western hemisphere, climate change continues to represent an immaterial threat for a significant number of people. Although awareness is slowly increasing, the urgency and gravity of the situation is not generally reflected in governmental policies or public attitudes. As such, there is a need to match social and political action with the extremity of the threat of climate change. It is also often argued that communication on climate change is complex and not always effective (Fløttum, 2010; Molek-Kozakowska, 2017). Therefore, understanding how climate change communication is characterised, is an important step in addressing the gap between social and political estimations of what it represents and how we should tackle it.

Theoretical frameworks such as Conceptual metaphor theory (Lakoff and Johnson, 1980) and Multimodal metaphor theory (Forceville, 2009) help us to understand how and to what extent metaphor shapes modern discourse. They also allow us to recognise that it is instrumental in structuring our thoughts and potentially even in creating reality (Kövecses, 2017). Since the pervasiveness of metaphor in language and the centrality of its role in human thought and experience is now widely acknowledged among scholars, we must use it for examining how we understand, discuss, and ultimately how we can properly address issues as dangerous, complex, yet as real as climate change.

There is a developing body of literature around the visual communication of climate change, which complements pre-existing research about its verbal communication. Studies that address how the visual and verbal modes can combine, however, are still in short supply. As a result, the motivation for this paper is a combination of the seriousness that is the climate change debate, the fruitfulness of advertising discourse for studies on multimodal metaphor and metonymy, and the lack of studies which address this in the context of climate change discourse.

I hope to achieve an initial understanding of how the climate change awareness advertising genre is characterised primarily in terms of metaphor, and how metonymy and multimodality also contribute to its aims and effects.

1.1. Research questions and paper structure:

RQ1. How many of the metaphors in the corpus are multimodal and how many are monomodal? How are they characterised in terms of their source and target domains?
RQ2. What is the distribution and frequency of the different modalities (i.e. visual and verbal) across conceptual domains? Are there any relationships between mode and meaning?
RQ3. Are there any key metonymies linked to the target/source domains or embedded within the mappings? If so, what is their distribution and frequency across the corpus?
RQ4. How can we understand the relationship between metaphor and metonymy in the advertisements in the context of climate change awareness communication?

The structure of the paper follows a review of the literature on climate change communication, advertising discourse and the relevant linguistic frameworks developed around metaphor and metonymy. The following section describes the corpus and the methodology employed. Next, the quantitative results are presented, which are then discussed in the style of a close analysis with a three-part structure: metaphor, metonymy and the metaphor-metonymy relationship. The conclusion summarises the main findings and presents some ideas for further research.

2. Literature Review and Theoretical Framework

2.1. Introduction to climate change and climate change communication research

The climate change phenomenon is one of the most pressing and defining of 21st Century discourse. Oxford Dictionaries chose "climate emergency" as their word of the year 2019, remarking that the term started out in "relative obscurity" and has become "one of the most prominent – and prominently debated – terms of 2019" (Zhou, 2019). Statistics show that nineteen of the twenty warmest years on record have all occurred since 2001, with the exception of 1998 (Nasa, n.d.). In 2020, media discourse across the world has been greatly dominated by the Covid-19 pandemic, but discourse around the pandemic has often come hand in hand with articles and publications on its relationship to climate change or climate change policy and public awareness (see, for example, where the BBC termed the pandemic "a 'mass experiment' for the climate" (Kasriel, 2020) and The Economist, declared that countries should see the pandemic as an opportunity to "seize the moment to flatten the climate curve" (The Economist, 2020).

Researching climate change communication is interesting because of the cross-disciplinary nature of studying a strongly politicised but essentially scientific phenomenon in the context of language and discourse. Moreover, it is a global phenomenon – one that affects every corner of the planet. It is therefore relevant on an infinite number of social and political wavelengths. Linguists are recognising both the challenges and the importance of understanding how it is communicated and framed, arguing for the complex yet crucial pursuit of understanding "how climate knowledge, which has its origin in 'objective' scientific discourse, is transmitted to public and political argumentative or action-oriented discourse" (Fløttum, 2010, p. 2). More and more, the role that language plays in the global climate change debate is falling into the limelight of academic research. Scholars are taking it to task in the Applied Linguistics field (see Fløttum Ed., 2017) and also in multiple other disciplines including International Relations, Visual Communication, Neuroscience and Media Studies (see, for example, Leal Filho, Manolas, Azul, Azeiteiro and McGhie Eds., 2018; Hansen and Machin, 2008; O'Neill, 2016, 2019 and Molek-Kozakowska, 2018). George Lakoff (2010), one of the founders of the field of Cognitive Science and of Conceptual metaphor theory, even wrote a paper on the importance of how we frame the climate crisis in modern discourse. He argues that in order to solve the crisis we need to understand it, and in order to understand it we must put the correct system of frames (both visual and verbal) in place so that we can properly communicate about it (p. 74).

Other metaphor scholars such as Elena Semino and Alice Deignan have also published recent work on how metaphor is being used in the context of climate change (Deignan, Semino and Paul, 2019 and Deignan, 2017), with a particular emphasis on how young people understand and interpret the phenomenon thanks to texts created for young audiences and educational contexts. Moreover, in their (2020) article, Deignan and Semino investigate how "metaphors used to discuss climate change in a range of educational materials and in interviews with secondary school students in the UK" (p. 369) perform the role of translating scientific knowledge in terms that are accessible for young learners. However, the authors also reveal that some of the drawbacks of this mediation function of metaphor in scientific contexts can occasionally lead students to misinterpret the facts.

2.2. Climate change and visual culture

The visual, not merely the verbal, side to climate change communication also represents a key avenue for applied linguistic investigation and is essential to the present research paper. Images can be highly evocative and vivid sources of representation (O'Neill, 2013). Images are used to speak to the public about climate change, whether it be through the media, advertising, through databases such as Getty Images that are used as visual marketing resources (Hansen and Machin, 2008) or other communication platforms and discourse types. Research shows that images play a central role in framing the climate change issue to the general public (O'Neill, 2013). Moreover, that it is important to understand the nature of the role that images play because they "actively shap[e] the cultural politics of climate change" (O'Neill, 2013, p. 10) and have an influence on the avenues of interpretation by means of which the public interacts and engages with the issue (O'Neill, 2019). O'Neill's sustained research into visual frames in climate change communication has been illuminating in showing that "particular types of climate imagery appear to have gained dominance" (O'Neill and Smith, 2014, p. 73) in visual communication contexts such as in the media, scientific reports and NGO and governmental campaigns. The effect of the emergence of this visual language used to frame climate change is one of "promoting particular ways of knowing about climate change (and marginalizing others)" (O'Neill and Smith, 2014, p. 73). This has significant repercussions from the point of view of how public engagement is shaped and influenced and how images perform rhetorical functions (Barthes, 1977; Forceville, 1996), especially in contexts such as advertising. Thanks to the emotive and contextually embedded quality of images, advertising is renowned for capitalising on visual effects as a marketing technique, often in combination with metaphor to captivate audiences and persuade them towards their product (Caballero, 2014) or brand image (Koller, 2009). This is usually achieved via the arousal of positive feelings towards their product or brand (Forceville, 1996). Indeed, the question of how metaphor emerges and operates in visual form in the context of climate change communication is of central importance to this paper because of the dominant role that visuals play in advertising.

2.3. Climate change awareness advertising as non-commercial advertising

Research argues that one of the problems of effectively communicating the climate crisis stems from the fact that it is a "complex and multidisciplinary issue" (Molek-Kozakowska, 2017, p. 73) which airs "a multitude of voices" (Fløttum, 2017, p. 2). Many of these voices come from opposing ideological standpoints and raise conflicting opinions, which makes successful communication of the facts and solutions particularly tricky (Rayner, 2018). Climate change awareness advertising represents one strand of the many discourse genres concerning climate change. It is an interesting strand because not only is it at the intersect of scientific, political, environmental and socio-economic discourses, but because it belongs to the discourse genre of advertising, which is usually a commercial one. However, climate change awareness advertising is prototypically non-commercial. This adds to its heterogeneity and complexity as a discourse genre and makes it a rich, albeit difficult, one to study. Notwithstanding, it is arguably due to its heterogeneity and complexity that it is so creative and prolific in its use of figurative language.

Indeed, scholars have observed that linguistic creativity comes from the ability to "appropriate and assemble the voices of others, to mix them in strategic ways, and to adapt them to particular circumstances and particular goals" (Jones, 2016, p. 66). Meanwhile, that some of the most creative acts can be "the result of complex processes of production, interaction and negotiation" (Hidalgo Downing,

2020, p. 3). Moreover, researchers have identified metaphor and metonymy in both multimodal and monomodal form as resources for creativity (see Forceville 2012; Forceville and Urio Aparisi, 2009; Hidalgo Downing and Kraljevic Mujic, 2011; Pérez Sobrino, 2016; Semino 2008). This study bears in mind that the non-commercial function of the data and the complex nature of the task of communicating on climate change could result in particularly creative uses of multimodal and monomodal metaphor and metonymy.

Climate change awareness campaigns clearly have an awareness raising function, which is what defines them as non-commercial and makes them distinct from conventional commercial advertisements. Nevertheless, one of their shared functions with commercial advertisements is the function of persuasion. Scholars have noted that the functions of persuasion and creativity often overlap in discourse and that metaphor can be a vehicle for this (Hidalgo Downing, 2020, p. 15). Indeed, Hidalgo Downing (2020) suggests that creative uses of metaphor can have the "ability to create complex discourse patters…to evoke emotions in the audience and…to invoke social action and change" (Hidalgo Downing, 2020, p.15). It is important to acknowledge that the corpus of advertisements constituting this study indeed has a strong social, environmental and political dimension, which is coupled with high charges of creativity and emotion in order to persuade audiences. The reader must note that each advertisement in this corpus assumes that raising awareness around climate change is essential for the protection of the environment. In some cases, that it is also urgent. Therefore, it is important to recognise that this particular evaluative stance is at the heart of the data. The extent to which the metaphors and metonymies are considered 'creative' as such will not be explicitly examined, but the creative nature of the advertisements' overall effects is assumed and has been borne in mind throughout the design and compilation of this study. How the uses of metaphor and metonymy are linked to the advertisements' non-commercial function of awareness raising is, on the other hand, a key element of investigation of the present study.

2.4. Conceptual metaphor theory

According to Conceptual metaphor theory (CMT), founded by Lakoff and Johnson (1980), metaphor is a conceptual process whereby we understand one domain of experience in terms of another. In their seminal (1980) work, Lakoff and Johnson argue that a large portion of our most basic thought processes are in fact metaphorical. They contend that not only do we use metaphor in language to talk about (typically abstract) concepts such as 'argument' and 'time,' but that the way in which we actually think about or conceptualise them is inherently metaphoric. Thus, they coined the term 'conceptual metaphor' in order to explain the underlying conceptual roots of some of the metaphors which they observed pervade everyday language – comparatively termed 'linguistic metaphors.' Indeed, linguistic metaphors have since been observed by scholars to be so embedded in our everyday speech and thought processes that they are generally thought to form a part of "native speakers' mental lexicon" (Kövecses, 2017, p. 14). The examples below show some of the most typical linguistic metaphors and their corresponding conceptual metaphor.

| Linguistic metaphor	Conceptual metaphor
Your claims are *indefensible*	ARGUMENT IS WAR
You're *wasting* my time How do you *spend* your time these days?	TIME IS MONEY
Is that the *foundation* of your theory? The theory needs more *support*	THEORIES ARE BUILDINGS

Developments in metaphor theory proposed that the structure of conceptual metaphors is explained by a series of unidirectional *mappings,* otherwise termed correspondences or a set of "rich inferences" (Evans and Green, 2006, p. 298), between two distinct concepts or domains. In CMT, the *source domain* (a typically concrete concept) is mapped onto the *target domain* (a typically abstract concept). In the example of ARGUMENT IS WAR shown above, ARGUMENT is the target domain and WAR is the source domain. Our conceptual system systematically maps some of the attributes associated with the more concrete concept of WAR onto the more abstract ARGUMENT. Lakoff and Johnson use such examples to demonstrate that metaphors are not just a phenomenon of speech, but that indeed "most of our ordinary conceptual system is metaphoric in nature" (p. 4). As such, metaphor has been argued to provide an intrinsic and unique insight into how the human conceptual system functions.

Although the mapping process previously mentioned is elaborate and can be highly creative (Kövecses, 2010), it is important to note that it is also limited because, as scholars theorise, not all features of the source concept are always mapped onto the target. What largely defines which features of a source concept are appropriate for mapping depends on context. However, to explain this in conceptual terms, cognitive linguists tend to argue that there is a "set of constraints regulating which correspondences are eligible for mapping from a source concept onto a chosen target concept" (Ungerer and Schmid, 2013, p. 119), and this has commonly been termed a metaphor's *mapping scope*. The mapping scope, linguists contend, reflects our knowledge of the world around us inasmuch as that it is defined by our conceptual experiences of the world (Ungerer and Schmid, 2013, p. 119). It is also this mapping process that underpins and helps explain the process of understanding one domain of experience in terms of another (Kövecses, 2017, p. 14). Figure 1 below illustrates this conceptual process.

Figure 1.
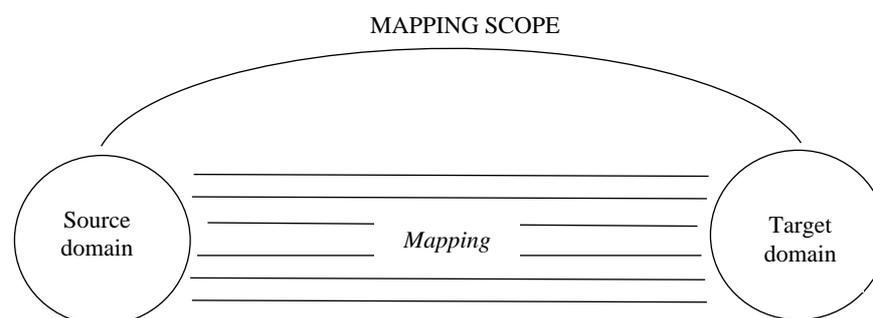
(As seen in Ungerer & Schmid, 2013, p. 119.)

CMT has triggered a plethora of research into metaphor among cognitive scientists and linguists (see, for example, Lakoff, 1990; Gibbs, 1994; Gibbs & Steen, 1999; Lakoff & Johnson, 1999), including into applications of metaphor (for example, Charteris-Black, 2004; Tay, 2013). It has also acted as the spring board for research into fields such as metaphor and creativity, non-verbal and multimodal metaphor (as discussed in section 2.5) and has provided the grounds for further research into other figurative conceptual operations such as metonymy (although metonymy also features in Lakoff and Johnson (1980)). Research on metonymy has recently been expanded on and notable attention has been paid to the creative possibilities that metonymy affords alongside or in combination with metaphor. Such research forms part of a burgeoning body of work in figurative and creative language in general. Advertising is a key discourse genre in which metaphor and metonymy are being thoroughly investigated, and climate science is a growing area of investigation for metaphor theory too.

2.5. Multimodal metaphor theory

Multimodal metaphor theory, introduced by Charles Forceville (2006; 2009), began with the premise belonging to conceptual metaphor theory that the nature of human thought is largely metaphorical. If so

much is true, Forceville argued, then "metaphor should manifest itself not just in language but also via other modes of communication such as pictures, music, sounds, and gestures" (Forceville and Urios-Aparisi, 2009, p. 19). Based on the principle that metaphoric conceptual processes (traditionally only acknowledged in verbal metaphors) are also found in non-verbal discourse, then both modes are equally capable, either independently or in combination, of "cueing" (Forceville, 2009) metaphorical sources and targets. In this case, Forceville argues that "a full-blown theory of metaphor cannot be based on its verbal manifestations alone, since this may result in a biased view of what constitutes metaphor" (Forceville, 2009, pp. 21-22).

Firstly, a 'mode' has been defined by Forceville as "a sign system interpretable because of a specific perception process" (2009, p. 22). It can be an image (visual mode), written or spoken language (verbal mode), non-verbal sound (sonic mode), gesture, taste and more. Subsequently, Forceville distinguishes between "monomodal" and "multimodal" metaphor: monomodal metaphor being where the source and target domain are represented in the same mode and multimodal metaphors where the "target and source are each represented exclusively or predominantly in different modes" (2009, p. 24). This theory has since been applied to a variety of contexts by numerous scholars, of which Forceville and Urios-Aparisi's (2009) edited volume, *Multimodal Metaphor,* presents significant findings on where and how multimodal metaphor appears. These findings span, for example, the genres of advertising, gesture, cartoons, music and TV commercials. The same research has sparked investigations into the creative possibilities that multimodal and non-verbal metaphor afford in comparison to monomodal verbal metaphor, by Forceville himself and others.

A significant argument that has emerged from these investigations is that the choice of modes used to represent source and target domains is particularly significant in terms of the meaning-making process (Forceville, 2012). The use of non-verbal modes, or a combination of verbal and non-verbal, can be exploited through triggering relevant metaphoric mappings, and help to determine how creative that metaphor is. In other words, multimodal *form* is meaningful. Moreover, it has the function, according to Forceville (2012), of dictating how successfully "the fusion of…two objects, phenomena, or perspectives" (p. 12) takes place across conceptual domains. Forceville calls this the "metaphorical bisociation" (p. 12). This is because the very modality or modalities chosen to express conceptual domains "may (help) (a) identify the source domain; (b) create similarity between target (usually: the product) and source; and (c) cue the features to be mapped from source to target" (p. 13). As a result, the success of a multimodal metaphor does not only depend on what the meaning of the message behind the metaphor is – what the source, target and mappings are – but on how the message is conveyed in terms of the choice and distribution of modes.

With this in mind, we might consider how 21st Century discourse and communication has become increasingly characterised by non-verbal modes. We live in a "visually literate society" (Forceville, 2009, p.30) where access to devices such as smart phones, tablets, laptops and smart watches is essential in order to access content. The main asset of such devices is their screen, and therefore pride of place is given to the visual mode in particular. Advertisements, which have always heavily relied on the use of visuals, perfectly slot into contemporary culture in this way. It is important, then, that Applied Linguistics research investigates how discourse emerges in non-verbal form as much as in verbal form.

A tendency that Forceville (1996) observes among multimodal and non-verbal metaphors and which distinguishes them from the traditional verbal metaphor is that they are often characterised by the mapping of a concrete source domain onto a concrete target domain. Whereas CMT proposes that metaphor is a conceptual strategy that (generally) helps us to better understand intangible, abstract concepts (target domains) through conceptualising them in terms of more concrete and tangible source concepts, Forceville (1996) notes that paradoxically, multimodal and non-verbal metaphors are often conceptualised via CONCRETE IS CONCRETE metaphors[1] (p. 27). In the visual mode this may especially be the case because "only a target that is *concrete* is, for instance, *depictable*" (Forceville & Urios-Aparisi, 2009, p. 11). In commercial advertising this is relevant because of the need to depict a product. In the present study, however, the effect of CONCRETE IS CONCRETE metaphors will be discussed in the light of how they operate on the basis of incongruity in order to depict the potentially cataclysmic effects of climate change.

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[1] Although Lakoff and Johnson do recognise that the concrete can also be conceptualised in terms of the concrete.

The notion of metaphorical incongruity has been deemed a process by which individuals attempt to find a creative and "coherent solution to an apparently incongruous" metaphoric scenario (Hidalgo Downing, 2016, p. 113). The presence of two incongruous metaphoric domains is often a characteristic of creative metaphors due to their tendency for novelty and unpredictability, their capacity for contextual adaptation and their need for "higher level resolution" (Hidalgo Downing, 2016, p. 109). The analysis section will discuss how the presence of incongruity in non-verbal and multimodal metaphoric domains is an effective technique for the purpose of climate change awareness raising, in particular for the way in which it highlights how unnatural and destructive the effects of climate change are.

2.6. Metonymy

In the Introduction to their (2009) volume, Forceville and Urios-Aparisi state that "*[i]t is impossible to study metaphor without addressing metonymy*" (p. 12, original italics). Metonymy has been identified by scholars as a figurative device that takes place on the level of the conceptual system, and as a "central [characteristic] of advertisements" (Semino, 2008, p. 168) along with metaphor. This study views both metonymy and metaphor as intrinsic features of the figurative operations that exist in the corpus and will be examined as such.

Metonymy is a cognitive and linguistic process in which one concept is used to stand for another. A typical example of metonymy is, "I'm reading Shakespeare" to mean "I'm reading the works written by Shakespeare." The metonymy is 'Shakespeare for the works by Shakespeare', or in conceptual terms, AUTHOR FOR WORK. Whereas, according to CMT, metaphor involves the mapping of one schematic structure belonging to a source domain onto a different schematic structure, the target domain, (Lakoff and Johnson, 1980), metonymy is "used primarily for reference: we refer to an entity by means of another entity" (Ruiz de Mendoza and Díez Velasco, 2002, p. 493). Moreover, with regards to the highlighting and hiding function of metaphor that Lakoff and Johnson (1980) point out, metonymy does this to greater strength of effect. As described by Barcelona (2002), "the metonymic source projects its conceptual structure onto that of the target, not by means of a systematic matching of counterparts, but by conceptually *foregrounding* the source and *backgrounding* the target" (p. 226, original italics). Figure 2 below illustrates the conceptual structure of metonymy.

Figure 2.
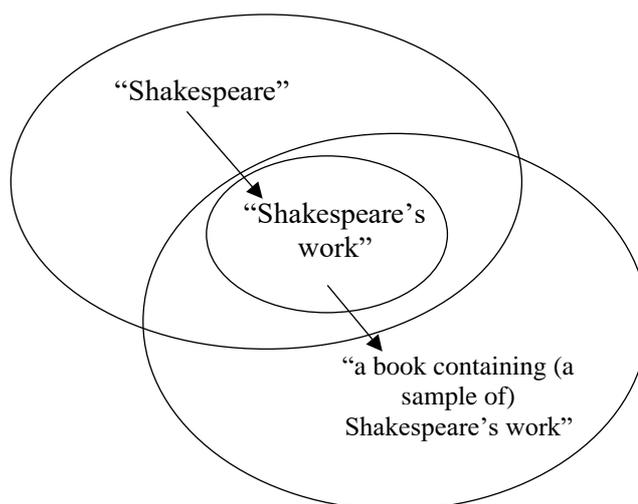
(As seen in Ruiz de Mendoza & Pérez Hernández, 2003, p. 39).

Applied studies of metonymy have shown that this highlighting or foregrounding effect is particularly useful in advertising discourses because it can be used to activate or make prominent

specific ideas related to a product, which links to its rhetorical function (Forceville, 2008). Scholars have also revealed that metonymy can be used to promote a specific aspect or attribute of a commercial product in such a way that "the product's particular feature can be recognized by the audience most easily" (Urios-Aparisi, 2009, p. 111).

Pertinently to this study, scholars have found many similarities and differences between metaphor and metonymy and observed that they frequently co-occur. Such research has led to studies that examine them hand in hand. Hidalgo Downing (2016), for example, observes the simultaneously "paradoxical and collaborative nature of metaphor and metonymy in real discourse" (p. 113), which has also proven interesting from the perspective of creativity and the construction of complex meaning. In a study of multimodal metonymy and metaphor in advertising, Hidalgo Downing and Kraljevic Mujic (2011) identify the interaction between multimodal metonymy and metaphor in specific combinations as a rich and complex resource for creativity. In their (2017) study, Littlemore and Pérez Sobrino also found that combining metaphor and metonymy can make emerge increasingly complex and creative meanings, which is yet augmented in multimodal format.

2.7. The relationship between multimodal metaphor and metonymy in advertising

Given the premise that a metaphor consists of a mapping of features belonging to a source domain onto a separate concept, the target domain, it makes logical sense that "each property or feature that is mapped from a source to a target must first have been metonymically related to that source." (Forceville & Urios-Aparisi, 2009, p. 12). Given the increasing focus that scholarship has attributed to the relationship between metaphor and metonymy over the last two decades and more recent inquiries into their creative interactions, with a particular focus on advertising discourse, the present study follows suit. It places particular emphasis on how metaphor occurs in the data, however, it recognises that the co-occurrence of metaphor and metonymy, including possible ways in which they interact, are highly significant to the way in which the advertisements convey meaning.

Urios-Aparisi's (2009) analysis of the interaction of multimodal metaphor and metonymy in TV commercials shows that metonymy "has an important role in motivating metaphor" (p. 96). This is due to the findings that "metonymical mappings…can link the product to domains which can be relevant for the product's promotion: expanding or constraining the interpretation of metaphorical mappings" (p. 110). In a commercial context, this is important for generating sales. Although the data representing this study is a corpus of primarily non-commercial advertisements (i.e. there is no 'product,' as such, to promote) this piece of theory is relevant for investigating how metaphoric and metonymic relations emerge in contrast or comparison with the non-commercial context. Interestingly, Urios-Aprisi also finds that whilst metonymy has the above effect on metaphor, metaphor found in his data also has a reverse effect on metonymy:

> "Metaphor, on the other hand, can also make the metonymy progress towards mappings that go beyond the presence of the product and try to convey additional meanings such as emotional representation…It creates further imagery that can trigger more emotional or intellectual associations with the product" (pp. 110-111).

From the point of view of environmental awareness raising which entails ecological and socio-political endeavours, the notion of evoking additional emotional or intellectual representations or associations is fascinating. Given the urgency of the climate crisis, the danger that the consequences of exceeding 2 °C in global temperatures entails, yet also the complexity of the issue and the difficulty of effectively communicating the facts and the solutions (Rayner, 2018), intellectual and emotional engagement with the issue seems a natural, logical and important step towards understanding and reacting to it. Indeed, authors such as Salama and Aboukoura (2018) show that emotions have a pivotal role in influencing public attitudes towards climate change. For example, empirical studies have revealed that emotions directly impact judgment and choice, shape public perceptions of risk, prompt engagement, and predispose the public for action (Salama and Aboukoura, 2018, p. 137). Moreover, positive emotions can "expand individual awareness of their connections to Earth's living systems" (p. 138), whilst "negative emotions have the potential to transform apathy or indifference into perceived importance and behavourial action" (p. 138). In this case, it is important to consider metaphor-metonymy combinations as potential triggers for emotional and intellectual engagement with the advertisements in this corpus. The discussion section (see section 5.3) analyses how some of the advertisements have particularly

strong emotional appeals, which the effects of metaphor-metonymy combinations emphasise, and how this is connected to the advertisements' awareness raising function.

Next, studies have underlined the creative possibilities that metaphor-metonymy interactions can afford, especially in multimodal advertising contexts. In Hidalgo Downing's and Kraljevic Mujic's (2011) investigation into metaphor and metonymy as resources for creative meaning construction in a corpus of ICT advertisements, they find recurring and elaborate cases of interaction between metonymy and metaphor. They claim that the process of creating meaning that arises out of these interactions is both complex and staged, and "takes place mainly by means of a link at the source domains, which are typically represented visually" (p. 175). Although the authors' identification and analysis of metaphor-metonymy complexes goes further than the present paper will examine, their study is essential in demonstrating that metaphoric and metonymic interactions can be intrinsic to the complex and creative processes of meaning-making in multimodal advertising discourse.

Finally, in her 2016 study, Pérez Sobrino found that metaphor-metonymy compounds constitute the majority of conceptual operations in a corpus of 210 advertisements. In advertising discourse, at least, research indeed indicates that there is a strong tendency for metaphor and metonymy to interact in ways that communicate the advertiser's message through evermore creative and complex processes of meaning construction. Pérez Sobrino (2016; 2018) goes into depth to explore the extent of conceptual complexity in multimodal metaphoric and metonymic relations and to identify new kinds of conceptual interactions between the two. Although the scope of the present study is not broad enough to investigate how metaphor and metonymy interact at their fullest, it is interested in what the key metaphors in the corpus are, how they are communicated multimodally, and how the role that metonymy plays in the elaboration of the advertisements' messages is characterised.

2.8. Summary

To summarise the literature and theoretical frameworks, climate change is an urgent and highly subversive phenomenon that is affecting – and threatening to affect with yet greater force – the entire global population. Visual discourses around climate change can be evocative and captivating with a strong rhetorical function, illustrated by their ability to influence public perception. Owing to the danger that the climate crisis represents and the plethora of discourses currently debating it, communication around climate change can be complex and problematic. Climate change awareness campaigns have to navigate the multidisciplinary nature of these various discourses which translate the issue on different levels. These include scientific, political, economic, social and environmental. As supported by metaphor scholars, the challenges of such a task could contribute towards increased use of metaphor. Numerous modal combinations (of the verbal and non-verbal modes) in advertising can complement or augment the communicative potential of metaphors to convey complex meaning in creative ways. The effects of multimodality and metonymy can also be exploited for their rhetorical and persuasive functions. Moreover, interactions between multimodal metaphor and metonymy could be employed for persuading audiences about climate change more effectively and for engaging them on an intellectual and deeply emotional level. The specific aim of the present study is to find out what the messages are that metaphor and metonymy convey in the context of climate change awareness advertising, how they are conveyed and to what communicative and rhetorical ends they are employed.

3. Data and methodology

3.1. Data collection and description of corpus

I initially collected a corpus of 114 print advertisements containing metaphor designed to raise awareness about climate change or to campaign against the effects of climate change. I only collected advertisements used by legitimate companies or organisations with public profiles. For this, I carried out searches using the advertising database https://www.adsoftheworld.com/, Pinterest and Google Images. The corpus represents advertisements from different countries across the globe. If text was involved, only those with text in English or Spanish were retained. I left out any advertisements that belonged to the same campaign unless the metaphors they contained had a different conceptual structure

(i.e. different source/target domains) and therefore transmitted a different message. This was in order to avoid duplication and to maintain a corpus representative of climate change awareness advertising in general.

Given the high figurative content of some of the advertisements and the liminality of some of the content represented (such as blends, Forceville, 1996; 2016) which can make metaphorical identification difficult, I carried out an initial procedure to identify first and foremost the central conceptual metaphor behind each advertisement. This was done in order to ensure that I retained only those featuring climate change as the metaphorical target domain (or a subdomain of climate change, e.g. melting icecaps/the planet/pollution/wildlife). The final corpus consists of 94 advertisements in which the main conceptual metaphor is related to climate change by means of the target domain.

Out of this final corpus, 88 of the advertisements are non-commercial (from NGOS, charities or not-for-profit organisations such as WWWF, Greenpeace and Surfers Against Sewage) and the final 6 belong to commercial companies such as Coca-Cola and Bosch. The difference in the commercial and non-commercial functions of the advertisements is considered from a qualitative perspective but they are not separated for quantitative analysis. This is due to the fact that only advertisements which have the objective of climate change awareness raising or activism, and which prioritise this objective, were retained. Each of the commercial companies were investigated to ensure that sustainable development is part of their commercial identity and objectives, which validates the authenticity and integrity of the messages and meanings communicated. As such, any metaphor solely related to commercial activity which does arise in the mappings is not quantified in this specific study. However, in qualitative terms it is important to bear in mind their separate function of promoting a product or brand.

Finally, 9 of the 88 non-commercial advertisements belong to the global environmental movement Extinction Rebellion (XR). These advertisements are not official advertisements in the sense that they do not belong to a funded campaign or official organisation. However, XR (founded in October 2018 in the UK) have been key players in driving the surge of climate change awareness and activism across the world over the last two years, despite being a relatively nascent organisation. Their protests were so widely supported and numerous, particularly in the UK, that they led the UK government to officially declare a climate emergency in 2019 (https://www.bbc.co.uk/news/uk-politics-48126677). Furthermore, press coverage of XR's activity has been abundant. As such, this study considers XR's influence as having been equally significant, if not more so in recent years, as that of NGOs such as WWF.

In order to perform their "planet-saving" activity (https://rebellion.global/), XR relies on their followers and supporters. To this end, they create 'posters' and make them available online for free download (see https://extinctionrebellion.uk/act-now/resources/art-group/), which this study examines in the same way as advertisements. The following summarises the main reasons why I have included them in the corpus: 1. Extinction Rebellion are a global environmental movement with international recognition. 2. They are not a charity or NGO but they receive donations and financial support in the same fashion. 3. Their posters are intended for the same purposes as an official advertising campaign with the same communicative functions and strategies as non-commercial advertisements. The key difference is that they rely on the public to disseminate them. For these reasons they have been retained.

3.2. Metaphor/metonymy identification and labelling

Since it is still not possible to identify metaphoric and metonymic images by means of automated corpus searches and neither is there yet "a reliable procedure to detect and label conceptual operations in multimodal settings" (Pérez Sobrino, 2016, p. 76), this study followed Forceville (2016) which provides an updated example on his 1996 publication of how to identify and analyse five kinds of pictorial and multimodal metaphorical operations. I complemented this procedure with the annotation scheme provided by the project Vismet (http://www.vismet.org/). I noted the key conceptual metaphor, target and source domains and the mode of expression (verbal, visual or both, in the case of this study). I referred to Kövecses & Benczes' (2010) Metaphor and Metonymy Index to aid the identification of conceptual metaphors and basic metonymies. Having once carried out this procedure, the results were checked by an expert in the field of metaphor. Any disagreements were discussed and resolved so that we ended up with a 100% agreement rate on the conceptual metaphors and their modes.

The metonymy that is of particular interest to this study is RESULT FOR ACTION, identified by Kövecses & Benczes, 2010 (p. 181). Through the analysis process, I identified the need to adapt this metonymy to RESULT FOR (IN)ACTION in order to more accurately reflect the advertisements' rhetoric and their negative evaluative stances towards climate change. In a few cases, I assigned variations of this metonymy, which were: ACTION FOR RESULT, the metonymic chains ACTION FOR ACTION FOR RESULT and RESULT FOR RESULT FOR (IN)ACTION and in one specific case, LACK OF RESULT FOR INACTION. Any other metaphors or metonymies identified as part of the mappings or that formed part of a staged process of arrival at the conceptual metaphor or the above metonymies were noted separately.

3.3. Corpus annotation

I annotated all 94 advertisements to allow for the quantitative analysis of the entire corpus. I also made qualitative remarks and observations on each in order to identify the most interesting examples for discussion. I grouped all target and source domains into suitable categories and logged the mode or modes in which they occur. This enabled quantification of the messages they convey and how the meaning of those messages is distributed across modes and conceptual domains.

At the conceptual level, I am interested in the distribution of metaphoric operations across modes and the occurrence of the metonymy RESULT FOR (IN)ACTION. On a discursive level, I am interested in how the modes function – whether they trigger certain meanings or types of metaphor more than others – and how they affect how climate change is represented and communicated. On a communicative level, I am aware of the separate function of commercial and non-commercial advertisements that represent the corpus and this will be taken into consideration in the qualitative analysis. However, owing to the scarcity of commercial advertisements included ($n=6$), and their objective, which mirrors that of the non-commercial advertisements (raising climate change awareness), they will not be considered representative of commercial advertisements in general.

As for logging the occurrences of the RESULT FOR (IN)ACTION metonymy, I have only quantified this metonymy if it was directly linked to either the source or target domain of the metaphor it co-occurs with. This was in order to ensure objectivity in the collection of quantitative data and to prevent any confusion that can sometimes occur due to the richness of the mapping scopes. This provided me with a clear criterion when counting the occurrences of the metonymy RESULT FOR (IN)ACTION. As for any other metonymies that arose in the mappings, they will be analysed qualitatively in the discussion (section 5).

4. Results

This section will respond methodologically to the research questions (up to RQ3) to provide a quantitative perspective on the frequency and distribution of metaphor and metonymy across the corpus. Research question 4 will be responded to from a qualitative perspective only in the discussion that follows.

In response to the first research question, the results (displayed in Figures 2 and 3 below) show that multimodal metaphor pervades 84% of the corpus ($n=79$) in comparison to monomodal metaphor, which only represents 16% in total ($n=15$). Of the monomodal metaphors, 3% are monomodal verbal metaphors ($n=3$) and 13% are monomodal visual metaphors ($n=12$).

Distribution of multimodal and monomodal metaphor in the corpus

Figure 2.   **Figure 3.**
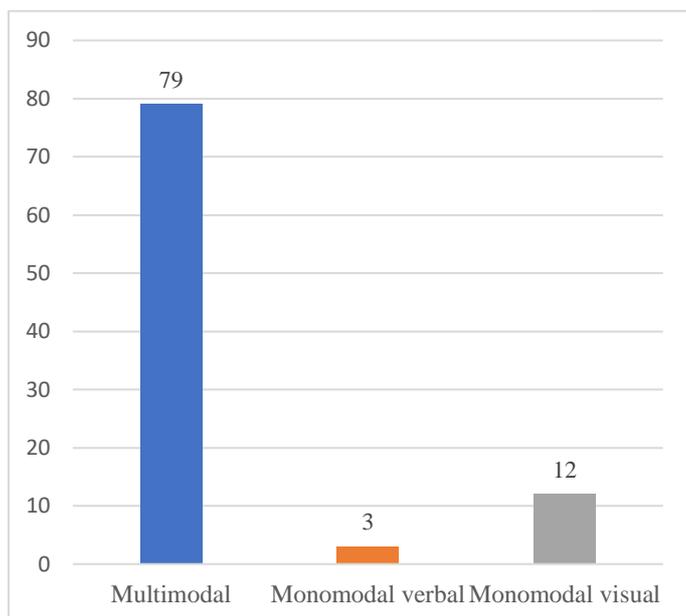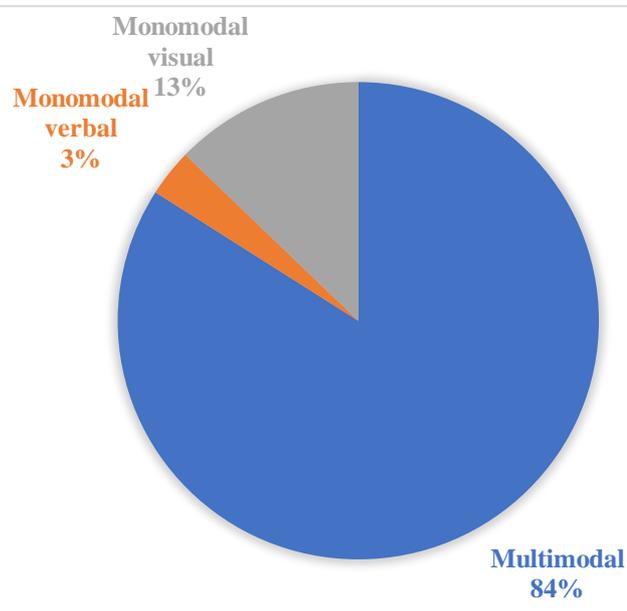

We can therefore gather that multimodal metaphor is strongly present in this corpus of climate change awareness advertisements, and that among the few monomodal metaphors present, non-verbal metaphors are the most prominent.

Next, Tables 1 and 2 below show the composition of the metaphors in terms of conceptual domains. Categorization is used in both tables and subcategorization is used in Table 1 to further classify the target domains, but all metaphors were collected on the basis that their target domains are in some way related to the matrix category of climate change.

Table 1. Target domain frequencies

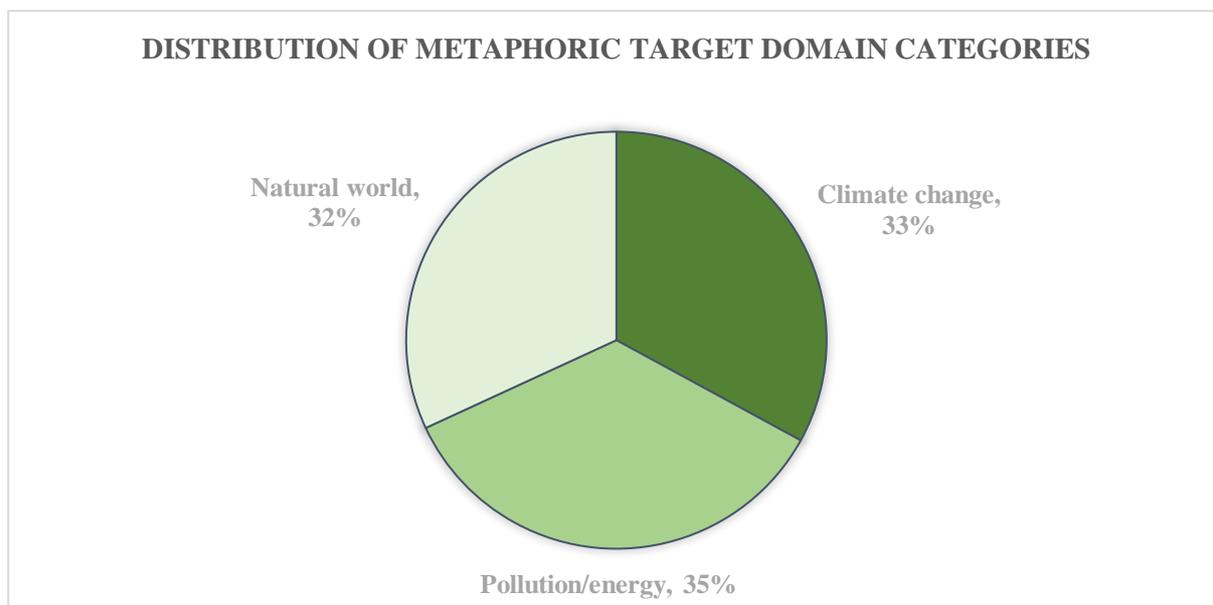| Target domain categories	Subcategories	Examples	Total Frequency (*n=*)	Visual (*n=*)	Verbal (*n=*)	Visual & verbal (*n=*)	SD*
Climate change	Global warming/climate change		19	1	**16**	2	8.386
	Hope for the climate crisis		1	0	1	0	0.577
	Climate change activism/activists		8	0	6	2	3.055
	Climate change awareness		1	1	0	0	0.577
	Icecaps	Melting icecaps	2	0	1	1	0.577
Total			31	2	24	5	11.930
Pollution/energy	Plastic pollution	Plastic bag, plate, straws, bottle (etc.)	14	**7**	2	5	2.517
	Air pollution	Car pollution	7	0	2	5	2.517
	Marine pollution		3	2	0	1	1.000
	Waste	Failure to dispose of e-waste, beach litter (etc.)	5	3	1	1	1.155
	Energy consumption	Fossil fuel factory, central heating, saving energy	4	1	1	2	0.577
Total			33	13	6	14	4.359
Natural world	Wildlife	Birds, bees, extinction of wildlife (etc.)	6	5	0	1	2.646
	The planet/Earth	World	8	**6**	1	1	2.887
	Nature	Coral reefs, Amazon rainforest, grapevine (etc.)	12	3	5	4	1.000
	Environmental damage	Deforestation, awareness towards environmental damage	4	0	3	1	1.528
Total			30	14	9	7	3.606
Total			**94**	**29** (30.9%)	**39** (41.5%)	**26** (27.7%)	6.807

* SD = standard deviation

Table 2. Source domain frequencies

Source domain categories	Examples	Total Frequency (*n*=)	Visual (*n*=)	Verbal (*n*=)	Visual & verbal (*n*=)	SD*
Natural disasters	Flood, hurricane, tsunami, drought (etc.)	12	9	0	3	4.583
Arctic-related concepts	Melting icecaps, iceberg (etc.)	4	1	1	2	0.577
Wildlife	Dead/extinct wildlife, birds, fish, polar bears (etc.)	**15**	8	1	6	3.606
Humans	Dead humans/children, pregnant mother, hand (etc.)	**15**	7	3	5	2.000
War on nature	Weapon of mass destruction, invading army (etc.)	8	1	3	4	1.528
Objects	Football, folding fan, water dispenser (etc.)	8	5	0	3	2.517
Things changing state or shape	Melting ice-cream, burning candle, toppling Jenga tower (etc.)	5	4	0	1	2.082
Other	Underwater traffic jam, flying pineapple (etc.)	9	6	0	3	3.000
Abstract forces	Force that causes mutation (etc.)	2	0	0	2	1.155
Intangible concepts	Diet, extinction, legacy, fashion collection (etc.)	7	3	2	2	0.577
Actions	Turning off the light switch, opening your eyes (etc.)	9	4	0	5	2.646
Total		**94**	**48 (51.1%)**	**10 (10.6%)**	**36 (38.3%)**	19.425

* SD = standard deviation

Beginning with target domains, there is little variation observed between the frequencies and distribution of the three main categories. The POLLUTION/ENERGY category is marginally the most frequent overall ($n=33$), followed by CLIMATE CHANGE ($n=31$), followed by the NATURAL WORLD ($n=30$), but each one represents approximately one third of the corpus. Figure 4 below illustrates this distribution in a pie chart.

Figure 4.

DISTRIBUTION OF METAPHORIC TARGET DOMAIN CATEGORIES

In terms of target domain subcategories, Table 1 shows that GLOBAL WARMING/CLIMATE CHANGE is the most frequently occurring subcategory ($n=19$). This is followed by PLASTIC POLLUTION ($n=14$), which is followed by NATURE ($n=12$). Subcategorization reveals, then, that although the POLLUTION/ENERGY category represents slightly more metaphors overall than either the CLIMATE CHANGE or NATURAL WORLD categories, the most frequent target domain subcategory (GLOBAL WARMING/CLIMATE CHANGE) actually belongs to the CLIMATE CHANGE category.

As for source domains, the WILDLIFE and HUMANS categories are jointly the most frequent, collectively representing one third of the corpus approximately (about one sixth individually). The distribution of source domains is also shown in the form of a pie chart in Figure 5 below.

Figure 5.

DISTRIBUTION OF METAPHORIC SOURCE DOMAIN CATEGORIES
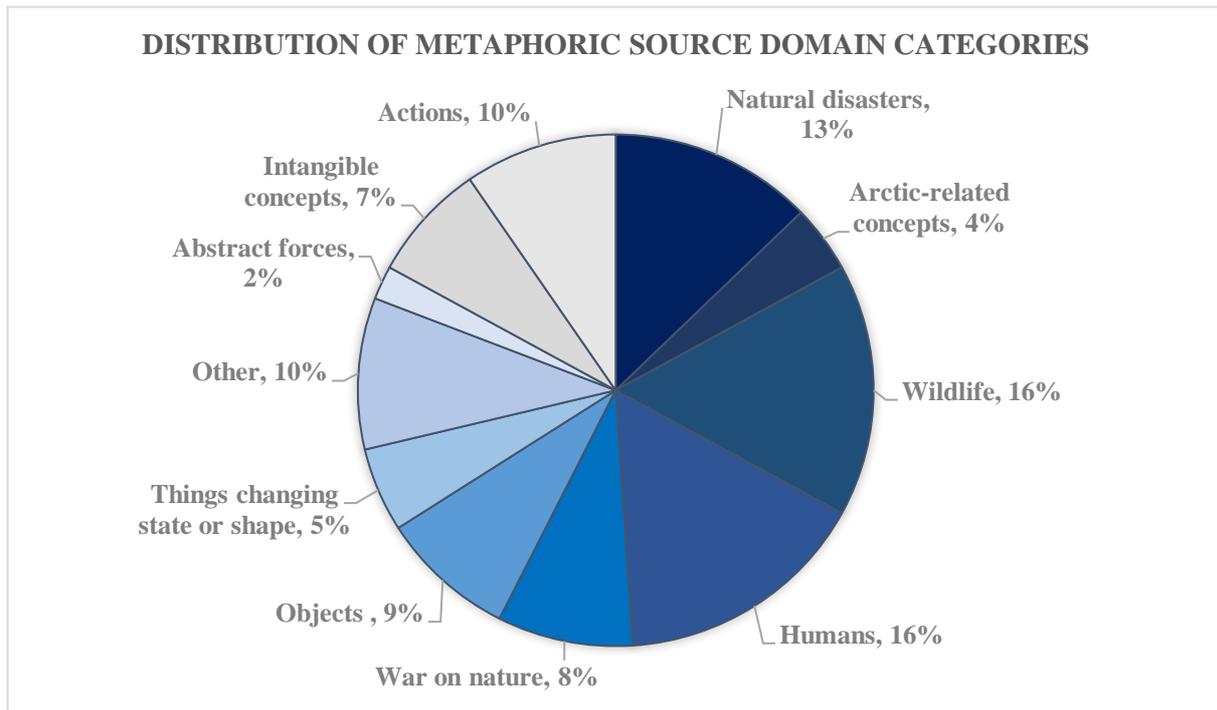
Considering the statistics, it can be assumed that a prototypical conceptual metaphor found in this corpus would involve a target domain related to POLLUTION/ENERGY and a source domain related to the concepts of either WILDLIFE or HUMANS. However, the concept of GLOBAL WARMING/CLIMATE CHANGE is in fact the most frequent target domain if we look closer and consider the data from the more precise angle of subcategories.

We turn to the distribution and frequency of modalities across the corpus. Table 1 and 2 above show the frequencies and Figure 6 below illustrates their distribution across target and source domains.
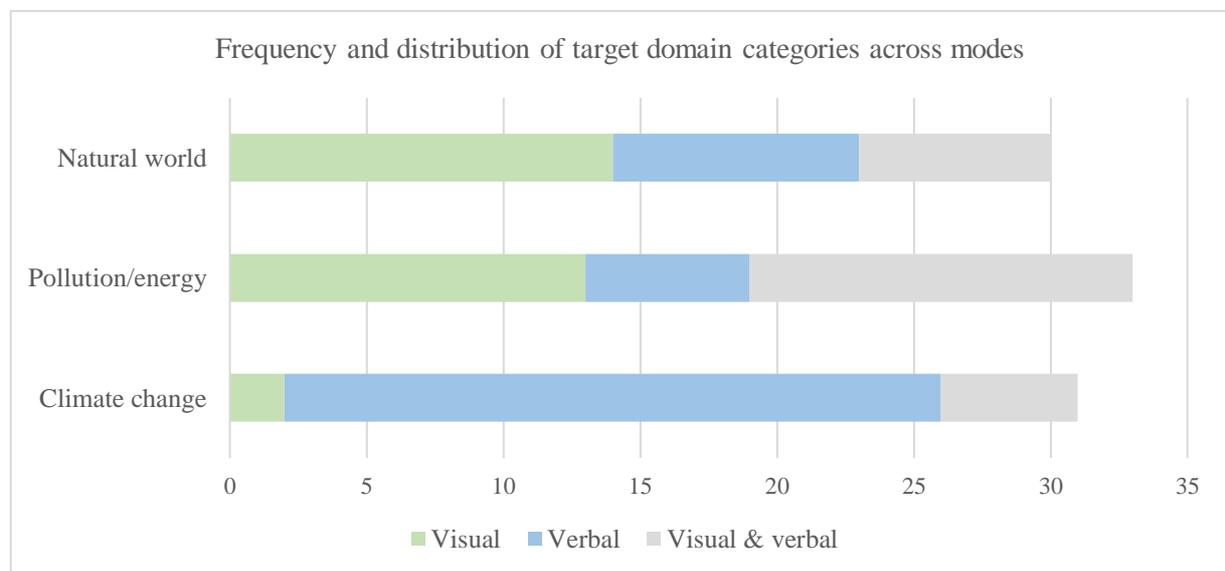
Figure 6.

Distribution of modes in metaphoric target & source domains
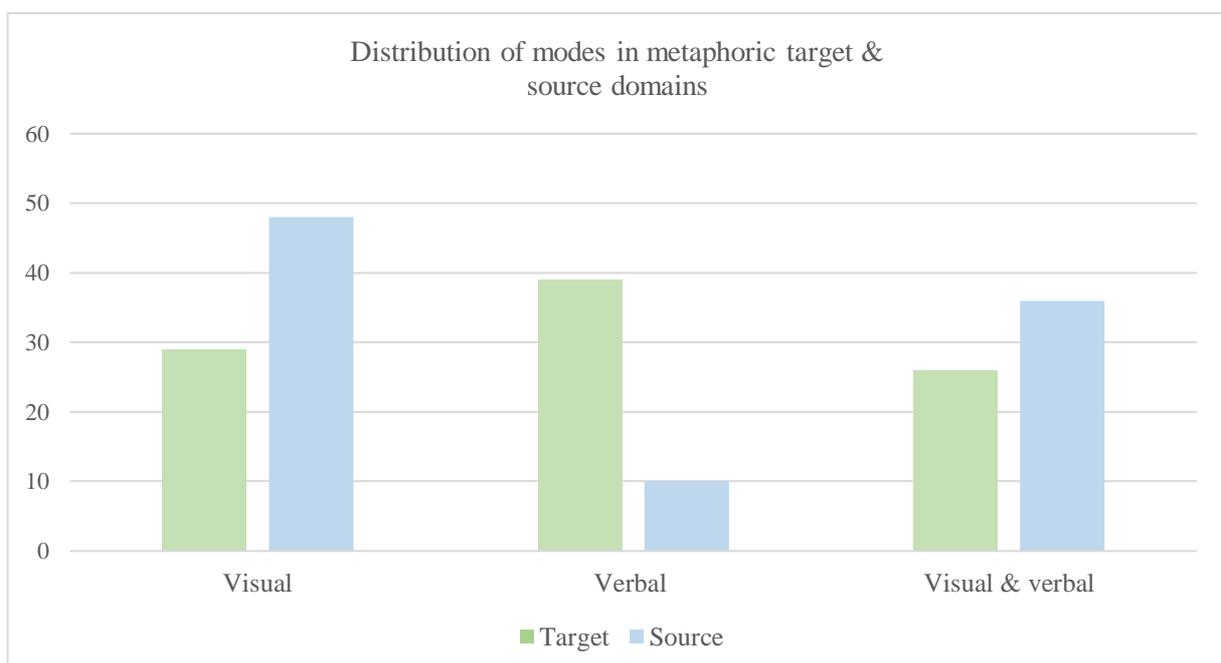
If we consider target domain subcategories rather than categories, however, the frequencies in Table 1 show that the GLOBAL WARMING/CLIMATE CHANGE subcategory is particularly outstanding in terms of modal representation. It is dominated by the verbal mode (*n*=24) and has a standard deviation of (*SD*=8.386). This is a significantly greater standard deviation than for any other subcategory. Moreover, this high frequency is also reflected in GLOBAL WARMING/CLIMATE CHANGE's overarching category, CLIMATE CHANGE (*SD*=11.930), which is also mostly represented by the verbal mode (*n*=24) and also has a greater standard deviation for modality distribution in comparison to the POLLUTION/ENERGY (*SD*=4.359) and NATURAL WORLD (*SD*=3.606) categories, which are mostly represented by the visual and verbal (*n*=14) and the visual mode (*n*=14) respectively.

Figures 7 and 8 below illustrate the modal distribution across target and source domain categories.

Figure 7.

Figure 8.
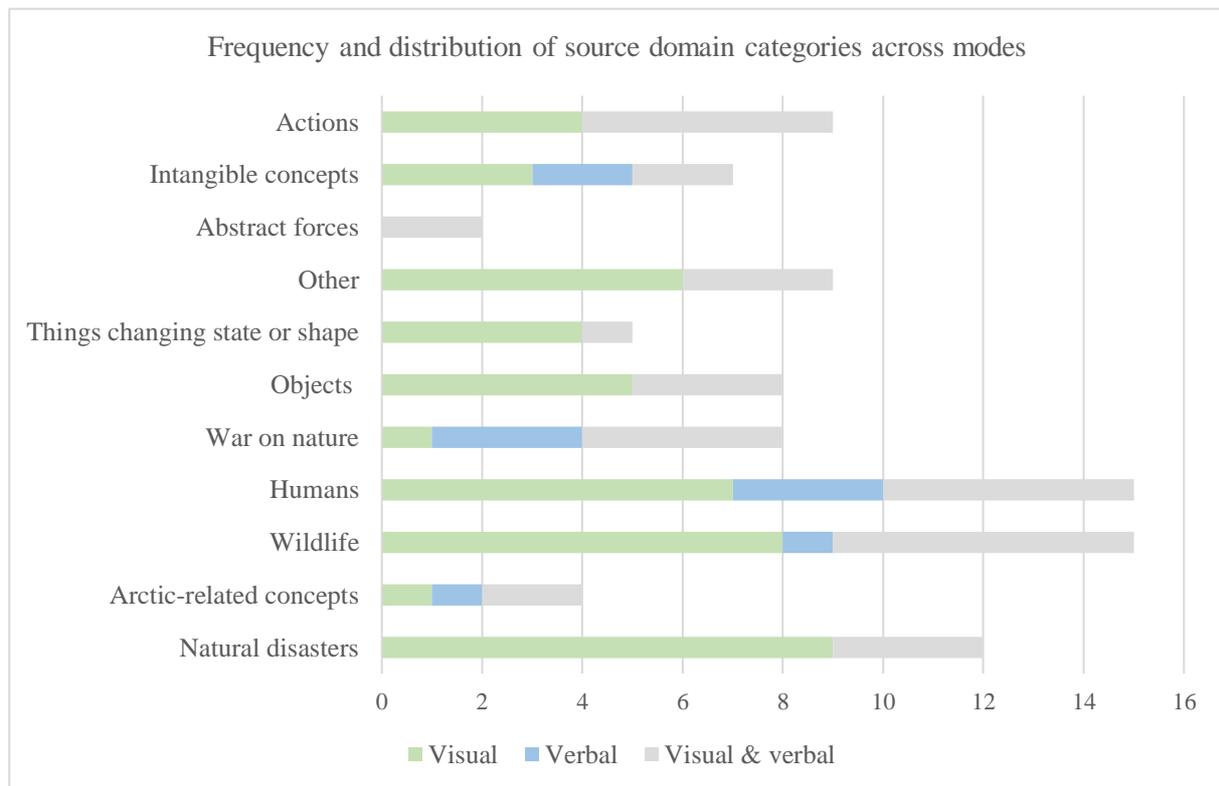
In Figure 8, we can see the prevalence of the visual mode to express metaphoric source domains, particularly in the case of using the source concept NATURAL DISASTERS. The verbal mode is sparsely used in comparison. Recent academic research on multimodality to create meaning in advertising discourse can possibly shed some light on these results.

Pérez Sobrino (2016) observes that the visual and "verbopictorial" (p. 79) modes were the most common among target domains in her corpus, sharing almost equal representation, whilst source domains were mostly communicated visually. Interestingly, and in a somewhat contradictory fashion, she also noticed that 49% of the products or services that the advertisements were promoting were referred to through the verbal mode, which she posits "ties up with the difficulty (or even impossibility) of depicting some services and NGOs' messages" (p. 79). Since the voices behind the advertisements promoting climate change awareness are mostly environmental organisations and NGOs, Pérez Sobrino's argument could explain why, in the present study, the verbal mode is dominant among target domains (representing 41.5% in comparison to 30.9% for visual and 27.7% for visual and verbal). Instead of promoting a product, they promote ethical ideas and environmental values relating to climate change, which are undepictable in visual form because they are complex and abstract. Verbal expression might therefore appear the most effective alternative.

That said, the results of this study are not necessarily so simple. The visual mode is the most frequent representative of target domains belonging to the NATURAL WORLD category, whilst those belonging to the POLLUTION/ENERGY category are almost evenly distributed among the visual and visual and verbal modes. Moreover, the visual mode represents 30.9% of target domains overall, which alongside 41.5% in the verbal mode and 27.7% in the visual and verbal mode, the visual mode is in fact far from scarce among target domains in this corpus. How the effect of metonymy might explain this is discussed in the section (5.1.2).

We now move on to research question number 3, which concerns the quantification and emergence of metonymies in the corpus. The quantitative analysis revealed that the metonymy RESULT FOR (IN)ACTION (or variation of), frequently occurs in the data. The variations of RESULT FOR (IN)ACTION identified are:

- ACTION FOR RESULT
- ACTION FOR ACTION FOR RESULT
- RESULT FOR RESULT FOR (IN)ACTION
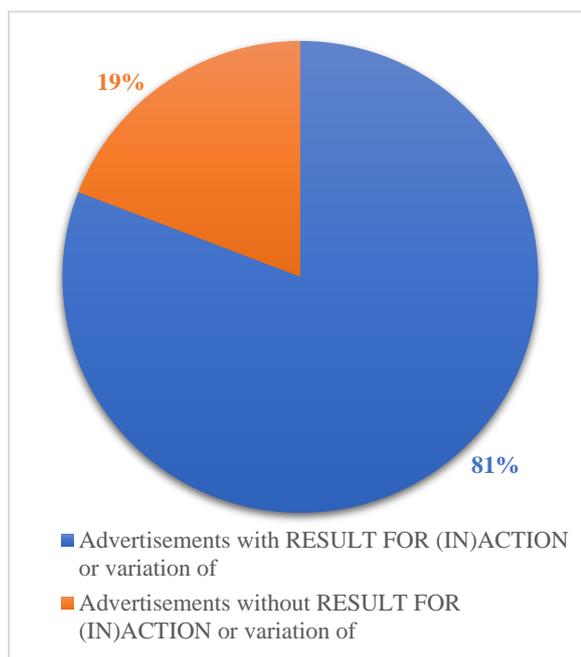- LACK OF RESULT FOR INACTION

As explained in the Methodology section, these variations are not separately quantified in the present study. Instead, their frequency was included in that of RESULT FOR (IN)ACTION. Figures 9 and 10 below show the distribution of RESULT FOR (IN)ACTION and its variations across the corpus. Since all of the advertisements in the corpus contain metaphor, the metonymies either necessarily co-occur with metaphor or do not occur at all.

Distribution of RESULT FOR (IN)ACTION metonymy or variation of across corpus
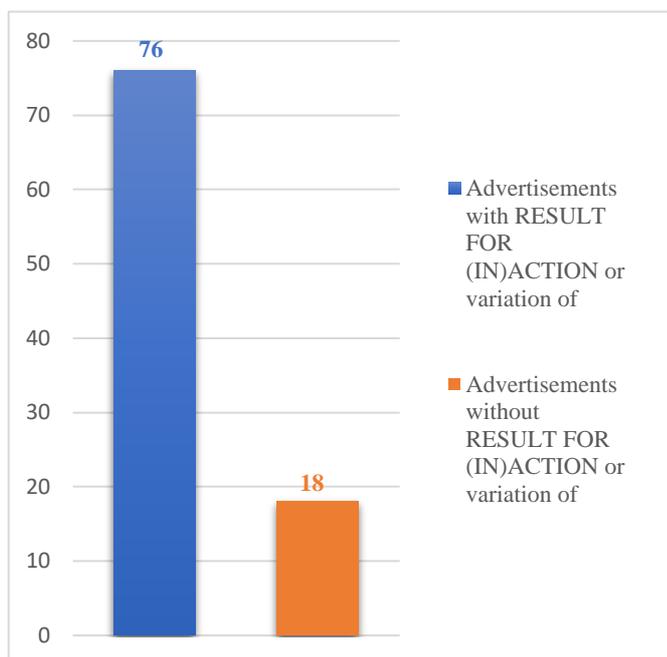
Figure 9.   **Figure 10.**

As the graphs show, the RESULT FOR (IN)ACTION metonymy is pervasive across the data, occurring in 81% (*n*=76) of the corpus of metaphoric advertisements designed to raise awareness or promote activism about climate change. A qualitative analysis will attempt to examine why it occurs as frequently as it does and how it interacts with metaphor in the corpus.

5. Discussion

The ensuing discussion takes examples from the corpus and closely analyses some details that are overlooked in categorisation and quantification. We will begin with discussing the findings about metaphor, then move on to those of metonymy, and finally discuss some ways in which metaphor and metonymy interact in the corpus.

5.1. Metaphor

5.1.1. The use of conceptual domains and modalities

As directed by the quantitative results, the first two examples are typical of the type of metaphors identified in this study in terms of conceptual domains and the modalities used to express them.

Image 1.

(Caption: "Act now against climate change. Visit greenpeace.org.tr")

Upon first glance at Image 1, the viewer sees melting ice caps, which, to their horror, turn out to be dead polar bears. Next, the viewer reads the logo, then the caption. This is the order in which they come to understand the advertisement's overall message. The conceptual metaphor underpinning the advertisement is CLIMATE CHANGE IS DROWNED POLAR BEARS, which emerges as a result of this process of interpretation and of the effect of the visual and verbal modes.

This advertisement is interesting for a variety of reasons. First of all, it employs the most frequent target domain subcategory in the corpus, GLOBAL WARMING/CLIMATE CHANGE (belonging to the CLIMATE CHANGE category), and its source domain, DROWNED POLAR BEARS, belongs to one of the two most frequent source domains categories (WIDLIFE). The source domain is clearly displayed in the visual mode by the image and the target domain is communicated verbally via the caption and logo. This is the most common structure in terms of modal distribution observed across the corpus. The use of both the visual and verbal modes makes this metaphor truly multimodal (Forceville, 2009). Next, this advertisement also reflects the traditional structure of conceptual metaphor as proposed by Lakoff and Johnson (1980) to the extent that it conceptualises an abstract target domain in terms of a concrete source domain. CMT posits this structure as the most common to conceptual metaphors because of the argument that our conceptual system is embodied. As a result, through metaphor we conceptualise phenomena which are abstract and difficult to explain in terms of concrete phenomena, which are easier to understand because they are perceptible. In multimodal metaphor, this abstract-concrete mapping can be made more evident thanks to the use of modes. As Forceville (2012) argues, non-verbal modes in particular can help to make the source concept more concrete and identifiable because of the way in which they appeal to our senses and render phenomena perceptible. The target domain, meanwhile,

remains abstract and undepictable. In the case of Image 1, the image conveys the source concept of DROWNED POLAR BEARS. Therefore, it provides the viewer with a concrete, visually perceptible reference through which to conceptualise the abstract and undepictable concept of CLIMATE CHANGE.

Forceville (2012) states that the mode representing the source domain can help to cue which features of the source are mapped onto the target. In Image 8, those features of the source include countless polar bears floating dead in the sea. They are designed to resemble melting ice caps. The advertisement therefore suggests that the polar bears drowned due to rising sea levels. The other key features are the colour scheme and landscape. The dark bluey-grey and white landscape with stormy clouds gathering overhead suggests desolation and bleakness. These visual effects are evocative on an emotive level. They recruit our capacity to feel moved by an image of so much death amidst such a harsh and unforgiving climate. The image plays a role in the metaphorical mappings to cause the viewer to associate the potentially vague and unrelatable concept of climate change with the notion of the death of innocent creatures, including the feelings of suffering and loss that accompany it. This is a powerful and deliberate technique created by the mappings between conceptual domains and the use of modalities to convey them.

The next example is Image 2 below. The conceptual metaphor is CLIMATE CHANGE IS AN AIRPORT DESTROYED BY A TORNADO, which again represents the target domain category of CLIMATE CHANGE (conveyed verbally, through the caption) but this time the source domain category of NATURAL DISASTERS (conveyed visually, through the image).

Image 2.
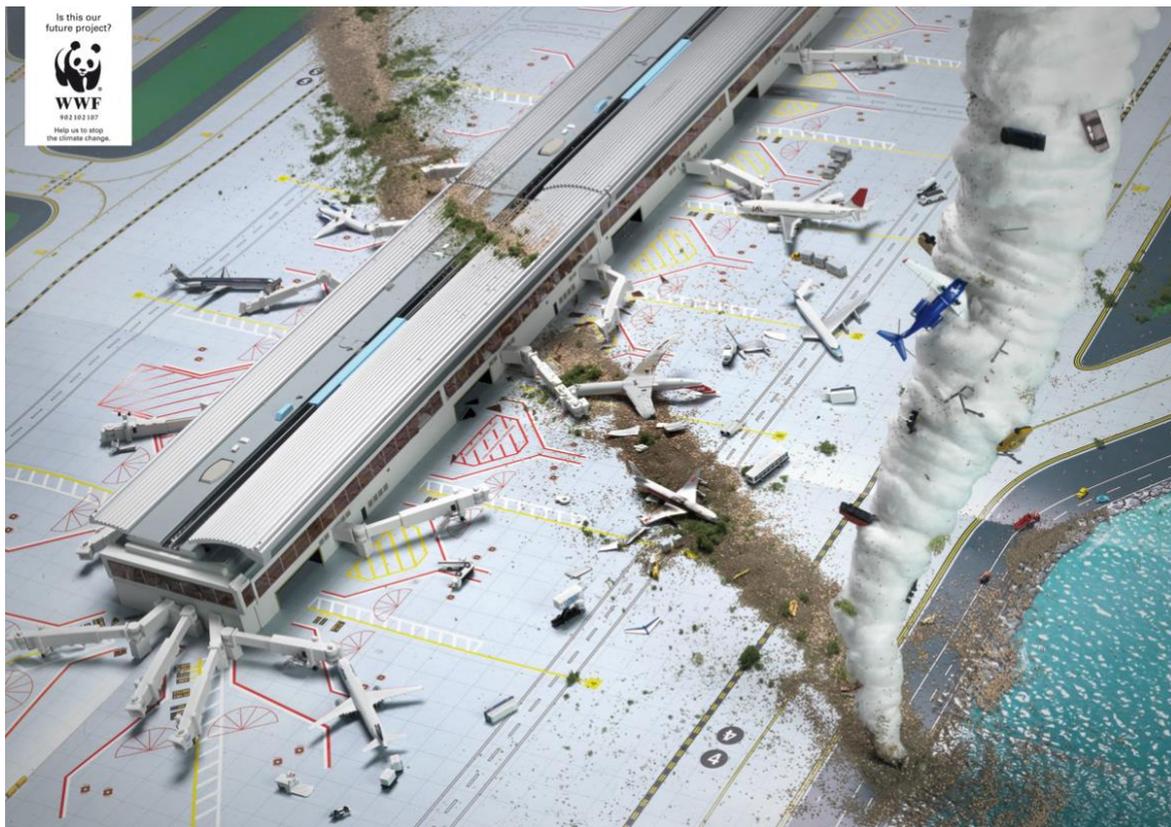
(Caption: Is this our future project? Help us to stop climate change.)

In a similar way to Image 1, the visual mode in Image 2 uses the precise and harrowing source domain of AN AIRPORT DESTROYED BY A TORNADO to conceptualise the comparatively abstract target domain of CLIMATE CHANGE. It shows yet again how specific and emotive source domains are used in the corpus in order to better understand the abstract and complex phenomenon of climate change. The

notion of a tornado striking an airport is threatening and panic-inducing, especially because of the knowledge we have of airports as highly frequented places and ones that many of us have first-hand experience of. The advertisement gives precedence to the visual mode, which is also a trend across the corpus. The image causes the viewer to take stock of such a devastating scenario and of the emotions that it evokes. The mappings are therefore characterised by this sense of devastation conveyed by the image, leading the viewer to understand climate change more clearly and through their emotional capacities.

5.1.2. The use of modalities to create complex meaning

I now move on to a more in-depth discussion of the use of modalities to create complex meaning. We begin with an analysis of how a monomodal visual metaphor operates, then move on to how the visual and verbal modes can work together to develop the complexity of that meaning in multimodal metaphors. This can involve resolving incongruity and increasing the emotional effect of the advertisement on the viewer. I also consider how the use of modes, especially the visual mode, is supported by the use of metonymy.

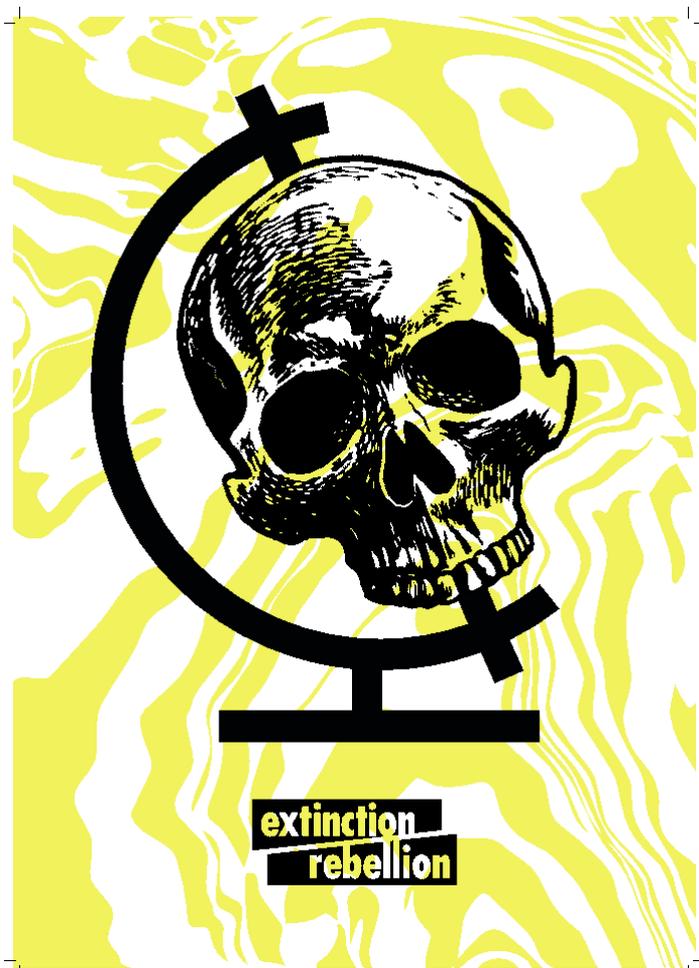**Image 3.**

Image 3 conveys the monomodal visual metaphor THE EARTH IS A DEAD HUMAN. The image is striking because of its simplicity, yet the underlying meaning is elaborate. The target concept, THE EARTH, is conveyed (metonymically) via the image of the globe stand. THE EARTH is in turn an arguably metonymical term through which climate change tends to be discussed in society. As for the source

concept, the image of the skull also metonymically refers to the broader concept of the death of humans. The viewer can therefore unlock the overall message that climate change will lead to the death of humans in very few conceptual steps. Both target and source concepts are concrete concepts, which is why they are visually depictable, but they are also concrete because they are metonymically related to the more abstract concepts of climate change and the death of humans. Use of the visual mode to convey conceptual domains is intertwined with metonymy in this way.

If we contrast this analysis of Image 3 with that of Images 1 and 2 above (seen in section 5.1.1), which use the verbal mode and abstract concept of GLOBAL WARMING/CLIMATE CHANGE as the target, it could be suggested that the choice of mode for the target domain relates to how abstract or concrete the target concept is. Applying a theoretical understanding of multimodality and metonymy can help to explain why the visual mode is adept at encapsulating concepts metonymically linked to more abstract conceptual domains, particularly target domains, and how this can explain a significant portion of the corpus underpinning the present study.

In this corpus, the concepts characterising those target domain subcategories which are mostly expressed in the visual mode (see Table 1), such as THE EARTH (as in Image 3), PLASTIC POLLUTION (e.g. plastic bags, straws etc.) and WILDLIFE, are generally specific, concrete concepts with a strong metonymical connection to the more abstract concept of climate change. Forceville and Urios-Aparisi (2009) make the logical observation that, "only a target that is *concrete* is…depictable" (p. 11). Indeed, for something to be represented visually it must have concrete form. Therefore, whilst some advertisements choose to communicate the concept of CLIMATE CHANGE in all its broadness and abstractness, others choose to take an angle of greater precision through which to metonymically capture one aspect that represents or symbolises climate change, and which can be illustrated in a clear and concise way to the eye. This is a great advantage of metonymy and of the visual mode. Metonymy "affords access to a wider and more complex situation in an economic way" (Pérez Sobrino, 2016, p. 86), and as Image 3 demonstrates, the visual mode is the perfect vehicle for economy and specificity. Meanwhile, the results of this study also show that the visual mode is the most common among source domains. This result concurs with both the traditional argument originating in CMT that source concepts are more concrete and perceptible than target concepts and the results of various multimodal metaphor studies, including those by Pérez Sobrino (2016) and Hidalgo Downing and Kraljevic Mujic (2011).

However, an analysis of further examples shows that this explanation does not necessarily stand for the whole corpus. Indeed, modalities can be used in more creative and unpredictable ways such as to underline and help resolve incongruity between metaphorical conceptual domains.

Image 4.

(Caption: You buy, the sea pays. 26 million tons of plastic packaging waste ends up in the oceans every year.)
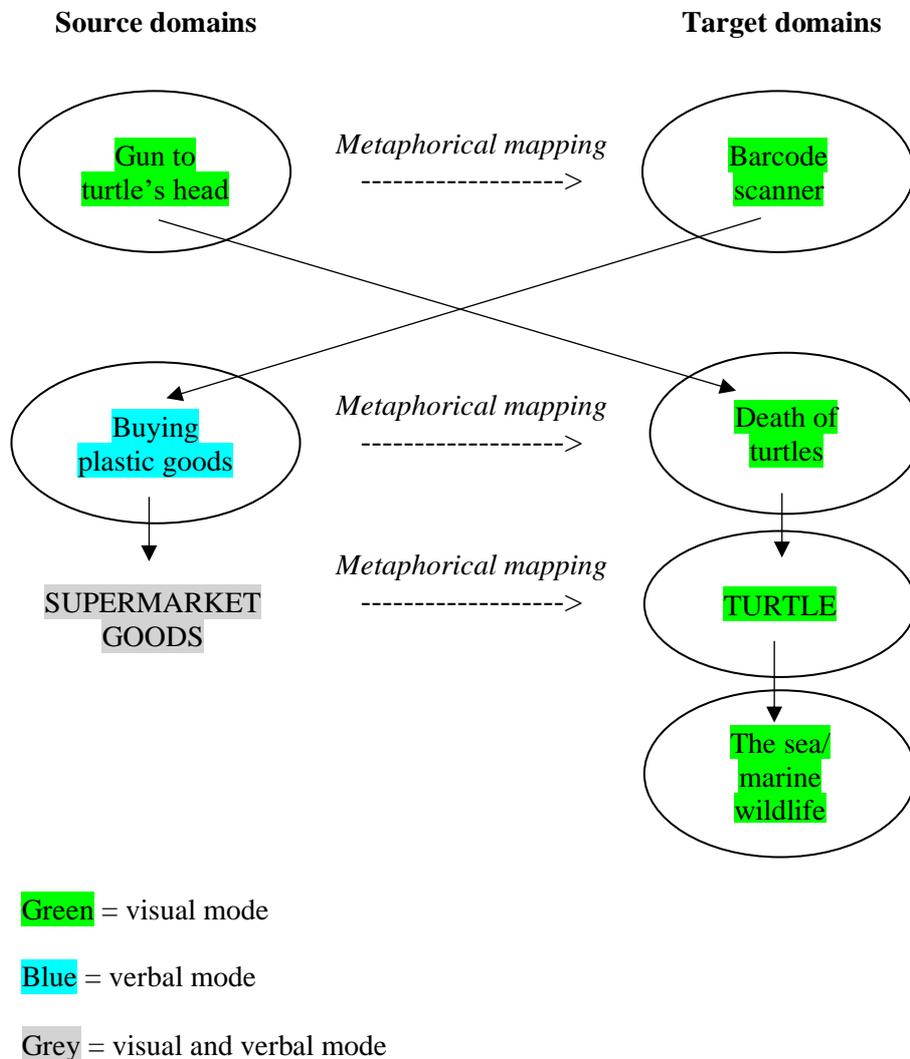
The conceptual metaphor behind this advertisement is A TURTLE IS SUPERMARKET GOODS. On one hand it is conveyed visually through the image of a barcode scanner scanning a turtle's head. On the other hand, it is conveyed verbally, through the message written on the receipt (the caption). This caption supports the interpretation of the overall message, helping the viewer to grasp the idea that people are effectively buying the lives of marine animals by investing in goods that contain excessive amounts of plastic packaging. The alignment of the concept, A TURTLE, against SUPERMARKET GOODS, is highly incongruous. Moreover, the barcode scanner, which is deliberately depicted as though it were a gun pointing at the turtle's head, emphasises the notion that marine animals' lives are at risk, but why this is the case is not totally clear from the image alone. The image is designed to draw attention towards such incongruity and does not provide an explanation for it.

In recent years, there has been a strong emphasis in media discourse on society's need to reduce plastic consumption due to the amount that ends up in the sea and damages marine habitats. Therefore, the verbal reference to buying plastic that is written on the receipt helps the viewer to connect the concept that purchasing products containing plastic packaging is harmful to marine life, such as turtles. This information is central to the communication of the advertisement's overall message. Although the visuals are powerful in this advertisement, the verbal information that forms part of the visual and verbal source domain is essential.

It is not always a straightforward task identifying the precise ways in which the modalities affect the meaning-making process. How they function can also be a matter of subjective interpretation. However, it is important to consider them in their functional and linguistic context, as one feature of a complex web of conceptual operations and mappings that give rise to various levels of meaning. The task of unpicking this meaning-making process and identifying the conceptual structure of an advertisement can be difficult as a result, but nevertheless important to understanding the overall

discursive and communicative effect (Pérez Sobrino, 2017). Figure 11 below attempts to illustrate the overall conceptual structure of this advertisement in Image 4.

Figure 11.

Source domains   **Target domains**

Gun to turtle's head — *Metaphorical mapping* ------------------> Barcode scanner

Buying plastic goods — *Metaphorical mapping* ------------------> Death of turtles

SUPERMARKET GOODS — *Metaphorical mapping* ------------------> TURTLE

The sea/ marine wildlife

Green = visual mode

Blue = verbal mode

Grey = visual and verbal mode

In the diagram, metonymies are illustrated with an oval shape and arrows illustrates the way they feed into the metaphors' conceptual domains. As seen in the key, the modalities used to represent the source and target domains and/or metonymies are represented through a colour scheme. The visual mode is clearly dominant, but the verbal mode is key in articulating the notion of buying (plastic) goods, as thus of explaining the full message and resolving the incongruousness of the image. This an example of an advertisement in which the modalities are subtly but effectively employed for clarification purposes. Its configuration is more complex than the quantitative results of this study can effectively explain and shows how meaning can be compiled in interesting ways across an array of conceptual operations and patterns of modal distribution.

The emotive and incongruous nature of images and of how they can work in combination with words to increase the emotional and intellectual value of climate change awareness advertisements is another key observation of this study. Pérez Sobrino (2017) reports that visuals are "likely to trigger an emotional response in the viewer" (p. 127) in advertising. Rayner (2018) also finds that "emotional responses to hazards and events," such as climate change, "shape people's perception of risk" (p. 138). Meanwhile, metaphor scholars such as Kövecses (2008) tell us that the expression of emotions lends

itself to metaphoric language, and Forceville (2012) has suggested that non-verbal modes in metaphoric advertisements "communicate on a more directly emotional level than words do" (p. 13). Tying into these arguments is the notion of incongruity and how it can be exploited for its emotional impact through the use of modalities. This study finds that in climate change awareness advertising, the emotional impact is usually negatively driven. In contrast to most commercial advertising campaigns, which usually aim to arouse positive feelings towards a specific product or brand and target a specific type of consumer, there is a conspicuous lack of a consumer in climate change awareness advertising and an accompanying lack of positive feelings created about the messages they communicate. Instead, they arouse feelings related to anxiety, fear and anger. They appeal to the audience's moral compass and sense of values, potentially to their existential awareness too, including their sense of mortality. As will be discussed in detail further on, the highlighting of an 'undesirable result' is often a significant part of the message they convey. Rather than to sell a product, the aim of climate change awareness advertising is more to do with changing the public's habits and inciting the viewer's awareness of risk or danger. In the majority of advertisements underpinning this study there is nothing to buy and there is nothing to sell. The focus is on the longevity of the planet, wildlife species and the human race. Throw-away culture and promises of instant gratification delivered by marketable products and brands is explicitly undermined rather than promoted.

With this in mind, Image 5 below is an example of how negative emotions are rife in climate change awareness advertising. The use of various modal combinations to resolve incongruity whilst simultaneously maximising emotional effect is a key feature of metaphor in this genre.

Image 5.

The sheer visceral impact of this advertisement is both repellent and troubling. The image prompts the "hybrid metaphor" (Forceville, 1996; 2016) or blend, HUMAN IS FISH / FISH IS HUMAN. The source of its power comes from the incongruity of the image and the sincerity with which it is negatively portrayed. It evokes emotions of disgust and horror, emphasised by the ugliness of its murky green-brown background and the slimy skin of the fish's head with its upturned mouth and bewildered gaze. Incongruous and metaphorical, it requires reconciliation in order to achieve any real significance for the viewer beyond evoking feelings of repulsion. Thanks to the caption, this is afforded by the verbal mode, which conceptualises climate change as a malevolent force possessing powers of mutation. To explain how the reconciliation effect operates, we start with the conceptual metaphor, which is delivered by a combination of verbal and visual modes: CLIMATE CHANGE IS A FORCE THAT CAUSES MUTATION. Interestingly, since these source and target domains are both abstract concepts, this metaphor remains hard to understand or pin any real context to. Thanks to the image, the viewer can picture (and feel) what 'a force that causes mutation' actually represents. Likewise, without the text, the metaphoric blend conveyed by the image is disturbing but not sufficiently contextualised in order to make clear that climate change is the true threat. The reconciliation process of the two modes and messages probably happens in stages whereby the viewer recognises that the image is incongruous and disturbing. Next, they read the caption and WWF logo and therefore connect the advertisement to the concept of climate change. Finally, thanks to the caption, they make the connection that reconciles the image that the kind of "change" that climate change will cause will be the (albeit hyperbolic) one depicted by the image, of humans mutating. This realisation could evoke a sense of horror and potentially panic in the viewer. The verbal reference causes us to project the disgust evoked by the image of a human/fish mutation onto the concept of climate change. As a result, it asks us to understand climate change in a negative light and possibly to consider the danger of neglecting our responsibility to prevent it from taking place.

5.2. Metonymy

We now move on to examine the significance of the RESULT FOR (IN)ACTION metonymy and how it emerges in the data. Before beginning, however, it is important to acknowledge that there are other frequently occurring metonymies in the data, as discussed above, such as TURTLE FOR WILDLIFE (as seen in Figure 11 in section 5.1.2), PLASTIC BAG FOR PLASTIC POLLUTION, or TREE FOR NATURE, besides that of RESULT FOR (IN)ACTION. At the level of metaphorical source/target domains, this is also how categorisation functions (see Table 1 and 2) because metonymy provides a shortcut to metaphor and its broader context (Littlemore, 2015). Pérez Sobrino (2017) finds that metonymy in occurrence with metaphor (named *metaphtonymy*) is the most frequent conceptual interaction in her corpus, arguing that this "is so because of the especially situational character of advertising" (p. 125). In other words, advertisements are highly dependent on the specific context they promote. "The metonymy in the source of verbal metaphors," she argues, "has the role of providing an economic point of access to a more complex scenario that will map onto a target situation" (p. 125).

Indeed, the analysis reveals that the RESULT FOR (IN)ACTION metonymy is of particular importance to our understanding of how metonymy is used in the corpus to communicate about climate change. The main effect of RESULT FOR (IN)ACTION is that it provides an extremely economic point of access to the articulation of a more complex hypothetical scenario in the data, which is consistently intended to highlight the future consequences of climate change. Close analysis shows that this is often achieved through hyperbole (as briefly mentioned in the earlier analysis of Image 5). Although this discussion does not go into detail on hyperbole, it does focus on explaining how RESULT FOR (IN)ACTION is employed, and how through this device the advertisements highlight the drastic results of a scenario in which the planet is destroyed by climate change. This is also a key technique through which the advertisements morally evaluate humans' responsibility towards the climate crisis. Discussion of Image 6 below describes how a variation of the RESULT FOR (IN)ACTION metonymy forms part of the advertisement's conceptual structure.

Image 6.

(Caption: Beaches: Cleaning days. From 20th to 23rd March.)

Image 6 displays the conceptual metaphor THE BEACH IS A CLEAN MAT/RUG. The notion of CLEAN in the metaphorical source domain stands for both the RESULT of having cleaned the beach and the ACTION of cleaning it. This is one of the few positively evaluated advertisements in the corpus, which foregrounds a positively evaluated RESULT through metonymy (Barcelona, 2002). The colourful image of a clean mat hanging on a line evokes the desirability of that RESULT. The ACTION of cleaning is delivered verbally through the caption. It is backgrounded in comparison but is nevertheless an important part of the message that maintaining our beaches clean is necessary. Therefore, the notion of ACTION is more relevant than that of INACTION in the case of this particular advertisement. In other advertisements, we will see that the notion of INACTION is more relevant because the RESULT is portrayed as undesirable and implies humans' complacency towards protecting the environment in a negatively evaluated way. The below diagram illustrates the conceptual structure of Image 6.

Figure 12.

Source domain   **Target domain**

Metaphorical mapping
---------------->

A CLEAN MAT/RUG

Result (clean)

Action (cleaning)

THE BEACH

Green = visual mode

Blue = verbal mode

The next example, Image 7 (below), is subtler in terms of the RESULT FOR (IN)ACTION metonymy, which is more deeply embedded in the source domain, and therefore requires a more detailed explanation of the advertisement's conceptual structure.

Image 7.

(Caption: Once it's thrown away it turns into a weapon. Stop the war!)

The message behind the advertisement is that a war threatening mass environmental destruction is currently taking place between plastic pollution and marine habitats. The conceptual metaphor underpinning the advertisement is PLASTIC POLLUTION IS A WEAPON OF MASS DESTRUCTION. Metonymically speaking, the image of a plastic bottle in the shape of a hand grenade stands for a weapon of mass destruction, which stands for war (also verbally referenced). The plastic bottle itself stands for plastic pollution, particularly that of marine habitats, which is metonymically referred to through the image of sand. The RESULT FOR (IN)ACTION metonymy is a basic explanation of how the scenario of a hand grenade explosion due to war is articulated: the RESULT is the exploding hand grenade (and its implications of destruction), meanwhile, the ACTION is that of endangering nature (or the INACTION of not protecting it out of complacency). The imperative in the caption, "stop the war!", adds another element, because it is a direct call to action to save nature. The above metonymies (which in fact form a metonymic chain, Ruiz de Mendoza & Díaz Velasco, 2002) are embedded within the metaphoric source domain and supply the source with a great deal of conceptual richness and complexity that is then projected onto the target domain. As such, the RESULT FOR (IN)ACTION metonymy contributes towards the metaphoric mappings and helps formulate the full extent of the advertisement's meaning in the viewer's mind. That full meaning being that polluting the environment with plastic is destructive and that the consequences will be drastic if we do not end it. Moreover, the highlighting function of the metonymy makes the moral implications of plastic pollution clear by foregrounding the concepts of war and mass destruction. It helps the viewer to articulate this cause and effect relationship between plastic pollution and environmental damage in a succinct way.

5.3. The metaphor-metonymy relationship

We have so far discussed how metaphor plays an essential role in the corpus, how the visual and verbal modes contribute towards creating meaning and how the articulation of the RESULT FOR (IN)ACTION metonymy operates within that meaning-making process. In this section, we will analyse in more detail the strength of the RESULT FOR (IN)ACTION metonymy's highlighting function in contributing towards conveying metaphor's emotional impact and driving the advertisements' awareness-raising function. The relationship between metonymy and metaphor is, in these advertisements, made more evident by the way in which they individually highlight and resolve incongruity between metaphorical domains and, through this, invite the audience to realise the importance of taking environmental action.

There are a few instances in the data where the emphasis on taking environmental ACTION is foregrounded by metonymy, rather than hidden, and thus particularly strong. This can be seen in Image 8 below.

Image 8.

(Caption: Fight for the last slice. Pizza & Love. We make pizza not global warming. 100% recycled boxes.)

Whereas in most of the advertisements, the metonymy RESULT FOR (IN)ACTION occurs, which has the effect of foregrounding the terrible RESULT of the effects of climate change, in the above example, the ACTION of saving the planet is foregrounded. This is conceptualised through the metonymic chain ACTION FOR ACTION FOR RESULT. As for its occurrence alongside metaphor, this metonymy is linked to the source domain of the conceptual metaphor CLIMATE CHANGE ACTIVISM IS FIGHTING FOR THE LAST SLICE OF PIZZA. Besides this conceptual metaphor, additional metaphors such as THE PLANET IS A PIZZA and CLIMATE CHANGE IS THE DISAPPEARING OF A PIZZA SLICE BY SLICE arise amidst the advertisement's verbopictorial context and the audience's cognitive environment. They underpin the conceptual metaphor to the extent that they provide the necessary conceptual content in the viewer's mind for the viewer to arrive at the conceptual metaphor.

Upon the strength of this multi-metaphoric context, the source concept FIGHTING FOR THE LAST SLICE OF PIZZA also stands for the first metonym in the chain, ACTION, which stands for the ACTION of saving the planet, which in turn stands for the RESULT of a saved planet. Through this metonymy-metaphor conceptual structure, the advertisement places increased emphasis on the importance of acting in favour of the planet, in order to protect it from climate change. The way in which the source domain is conveyed verbally, through the imperative, "fight for the last slice," also emphasises the notion of taking action. The ACTION FOR ACTION FOR RESULT metonymic chain is supported by the context created by the metaphors which conceptualise the planet in terms of a pizza and by the wider communicative context of the advertisement that concerns climate change awareness raising. In this context, the metonymies highlight the importance of taking environmental action in order to save the planet, which is a particularly direct strategy, and a less frequent one among the data, of raising awareness towards climate change.

The highlighting function of this RESULT FOR (IN)ACTION metonymy can also be exploited in the advertisements for increasing their emotive quality through drawing the viewer's attention to the

danger or horror of the RESULT(S) of a climate change-related event. Image 5 in section 4.1 above, for example, which conceptualises climate change as a force that turns humans into fish, is a key example of how the RESULT FOR (IN)ACTION metonymy enhances the emotive value conveyed by metaphor. The metonymy causes the disgusting image of a human-turned-fish to stand out as the drastic RESULT of an implicit lack of action (or INACTION) related to protecting the environment. Given that the image is so repulsive and incongruous, the fact that the metonymy causes it to stand out to an even greater degree makes the advertisement even more powerful on an emotional level. The direness of the consequence of not preventing the result (i.e. to prevent climate change) is further exaggerated by the metonymy. The metaphoric target domain (CLIMATE CHANGE), which provides an explanation for the incongruity of the image, explains how the illustrated scenario could arise, by conceptualising climate change as the cause of a dreadful effect. The resonance of the metonymy that resides in the metaphorical source domain, highlighting that the man-turned-fish is a drastic RESULT of an implicit lack of action – that of not having acted to prevent climate change – is incredibly unsettling. Through this metonymical highlighting of the metaphorical source domain in terms of an undesirable RESULT, the advertisement subtly hints to the audience at the importance of acting on behalf of the planet in order to avoid that result. Subtly and persuasively, then, the advertisement calls the audience to environmental action through drawing increased attention to the undesirable RESULT of climate change through effectively employing the highlighting and hiding function of metonymy alongside the metaphor.

A final example (Image 9) shows the way in which the RESULT FOR (IN)ACTION metonymy can again highlight the undesirability of a particular event present in the metaphorical source domain, negatively evaluating its consequences. However, this example discusses how in the case of a blended image this negative evaluation also brings an emotive element to the effect and simultaneously helps to resolve the incongruity underpinning it.

Image 9.

(Caption: Help us keep the ocean clean.)

       This advertisement, which employs the effect of a visual blend (Forceville, 2012), triggers the monomodal (visual) conceptual metaphor PLASTIC BAGS ARE JELLY FISH, or JELLY FISH ARE PLASTIC BAGS. Given the CONCRETE IS CONCRETE nature of the metaphor, the mappings can go in either direction[2] (Forceville, 1996; 2009). The distinction between the concepts of jelly fish and plastic bags is deliberately blurred, however, they are also entirely incongruous if aligned with one another in an objective and decontextualized context. The effect of the visual blend, however, is that it depicts them in a particular context in which some kind of semblance, however far-fetched, can be justified. That context is climate change or plastic pollution (metonymically referred to via the plastic bags, the caption "help us keep the ocean clean" and the logo) and the damage it does to nature (referred to via the conspicuous absence of fish in the sea). As a result, the metaphor, PLASTIC POLLUTION IS THE

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[2] I have analysed this example with the conceptual structure PLASTIC BAGS ARE JELLY FISH because the image shows plastic bags in the sea and a conspicuous lack of jelly fish. I interpret this effect as inviting the viewer to project some of the attributes relating to jelly fish (such as their natural habitat) onto the concept of plastic bags.

EXTINCTION OF JELLY FISH, or CLIMATE CHANGE IS THE REPLACEMENT OF JELLYFISH WITH PLASTIC BAGS, are others that arise from the context. This metaphor simultaneously resolves the incongruity whilst conveying the metonymy RESULT FOR (IN)ACTION in a negatively evaluated light. It converts the incongruity in the image into the shocking credibility of the idea that soon, the only things resembling jelly fish left in the ocean could be plastic bags if we do not act in order to prevent this from taking place. This effect both underscores the undesirability of the RESULT with a strongly negative evaluative stance and implicitly underlines the danger of acting complacently towards the plastic crisis.

The examples discussed here show that metonymy is used in the data alongside or in interaction with metaphor in order to highlight to audiences that the consequences of climate change are extremely undesirable and are in fact a dangerous result of climate INACTION. This is a subtly persuasive technique which calls audiences to recognise the importance of taking environmental action. There are some instances in the data in which the advertisements are more explicit about the need to act than others by metonymically highlighting the notion of ACTION and by backgrounding that of the RESULT. However, in general, the consequences are highlighted more explicitly than the actions.

6. Conclusion

The conclusion will summarise the findings of this study in response to the research questions and then provide suggestions for further research.

RQ1 & 2: The characterisation and composition of metaphor in the corpus. The corpus is mainly characterised by multimodal metaphors which use combinations of the visual and verbal modes. The advertisements mainly use target domains relating to a) CLIMATE CHANGE, b) POLLUTION/ENERGY and c) THE NATURAL WORLD. Most target domains are verbally delivered, especially if CLIMATE CHANGE or GLOBAL WARMING is the target. That said, neither is it uncommon to find that the target domain contains a visual element, especially when the target is a concrete object or thing such as the earth, bees, plastic bag, plastic straw, which are metonymically related to climate change. It appears that this is to do with the abstract nature of the concept of climate change or global warming. Whereas plastic bags and wildlife are easy to depict in images, climate change is a scientific phenomenon taking place on a grand scale across the planet, rather than a tangible living thing or concrete object. Moreover, its effects are not even yet visible in all parts of the world. Therefore, it is not easy to visually depict climate change without the help of metonymy. As for the cases in which the advertisement does indeed use the concept of CLIMATE CHANGE as the target, verbal mode is chosen in nearly every case.

Source domains used to communicate on climate change are eclectic in the data. They are mostly characterised by concepts such as HUMANS, WILDLIFE and NATURAL DISASTERS, but also take the form of concepts such as WAR ON NATURE. They are mostly communicated through visual form. This appears to be the case because they are, in general (although with a few exceptions), concrete concepts that can be effectively captured in a photo or image. This follows the original Conceptual metaphor theory (Lakoff and Johnson, 1980), which states that we tend to conceptualise abstract target concepts through concrete source concepts. Forceville (1996; 2009; 2012) also notes that non-verbal modes can be adept for representing concrete source domains because they have a perceptible quality, which makes them more tangible. The findings of the present study show that the visual mode is indeed particularly common for communicating source domains. In the case where the target domain is also communicated visually (usually due to a metonymic relation to climate change), CONCRETE IS CONCRETE metaphors also emerge. This concurs with Forceville's (2012) observations that non-verbal or multimodal metaphors are often articulated in the CONCRETE IS CONCRETE format rather than in the traditional ABSTRACT IS CONCRETE format common to monomodal verbal metaphors.

Next, the visual mode is observed as particularly effective for conveying messages with an emotional sting. It appears that visual depiction of some of the source domains is powerful in the sense that images have the capacity to recruit the viewer's emotions, making them feel sad, moved or even horrified by some of the messages that the metaphors communicate. This is especially true of those advertisements that communicate ideas such as the extinction of wildlife or the vulnerability of humans in the face of climate change.

The emotional effect is further augmented by the way in which some advertisements select particularly incongruous images or ideas to characterise the conceptual domains of their metaphors.

Whilst at first sight this incongruity can appear troubling or at best confusing, the visual and verbal mode are observed to help the viewer find the explanation that resolves the incongruity. This reveals the communicative potential of the visual and verbal modes and how they increase the effect of the metaphoric content to evoke feelings of shock and horror in relation to climate change.

RQ3: The use of metonymy in the corpus. As the use of modes already indicate, metonymy is a strategy frequently used in the data in order to access the complex and abstract issue of climate change in a more concise and economic way, such as referring to wildlife or plastic bags. This supports findings that effective communication of climate change is a legitimate challenge because it can be easier and more effective for audiences to refer to one thing about climate change through metonymy than mention climate change itself. One of the key findings of this study on climate change awareness advertisements is that metonymy is used to highlight the devastating results of a hypothetical scenario invented by an advertisement in which humans have neglected their responsibility to protect the planet. As a result, the natural world is on the brink of destruction and/or extinction. This particular metonymy is RESULT FOR (IN)ACTION.

RESULT FOR (IN)ACTION underscores the 'undesirable result' brought about by a situation in which climate change has an irreversible effect on the planet, thereby conveying the extremity of its consequences and the significance of neglecting to prevent it from taking place. The analysis shows that the visual mode is instrumental in communicating the RESULT, particularly for its emotive effect. It seems that the devastating nature of some of the consequences illustrated are emphasised by the power of the images used.

RQ4: The relationship between metonymy and metaphor in the corpus. The RESULT FOR (IN)ACTION metonymy occurs alongside metaphor in the data and effectively highlights the emotive effects of metaphor. It also foregrounds one side of a specific metaphors' incongruity through foregrounding with increased emphasis the 'undesirable result' embedded in the metaphoric source domain. Foregrounding a hypothetical and emotionally-charged RESULT of climate change increases the persuasive effect of metaphor, implicitly placing emphasis and urgency on the need to take environmental ACTION to counteract the dangerous consequences that climate change entails.

In some cases, the sense of ACTION is more emphasised than that of the RESULT. This is a more direct strategy of invoking the public to take environmental action. The way in which RESULT FOR (IN)ACTION tends to foreground the strongly negatively evaluated source domain of the metaphor has a significant role in making the metaphor even more persuasive and emotionally impactful, which can be exploited to the point of evoking distress or disturbance.

6.1. Further research

Future research should investigate to what extent these advertisements truly affect their audiences. Do the various conceptual operations and emotionally compelling techniques the advertisements employ truly convince the public change their attitude towards protecting the planet? Future research could provide empirical evidence for the extent to which they succeed in raising public awareness or even in inspiring the public into activism.

Finally, further investigation into the relationship and interaction between metaphor and metonymy in the data would be valuable. This should include the extent of their combined figurative complexity and whether increased figurative complexity has an effect on viewers' responses. Achieving some clarity in this regard would help to improve our understanding of how environmental awareness advertisements operate. It could also help to inform on how to convince the greatest number of people to take climate action. The extent to which the advertisements can be considered 'creative' and whether the more creative the advert the more persuasive it is or not would also prove a fruitful research aim.

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Appendix

Please go to the link below to view the contents of the appendix:
https://docs.google.com/spreadsheets/d/17rihINCnVg5lUvdu7VgwAAXQR3ZYUIqfCkg7TX7aS30/edit?usp=sharing