

An Empirical Qualitative Study on Multi-Level Metaphors with Climate-Change Frames

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Abstract:

This article applies an empirical qualitative study to examine the conceptual metaphors interpreted on the multi-levels of the schematicity in terms of the climate change frames. Based on the five climate change frames of the discourses suggested by Moernaut et al. (2018), consisting of Cycles of nature, Economic challenge, Environmental justice, Human rights and Inscrutable ways of nature, the article identifies the ideologies, which are based on the moral basis and the solution that human should do and interact with the nature, for each climate change frames and the examine the metaphorical expressions in 13 discourses. Totally, one hundred and fifty-five (155) metaphorical expressions were identified, of which twenty-seven metaphorical expressions have the referential meaning out of the sense of the relevant ideologies of the climate change frame and are considered to be used not deliberately, leaving the remaining 128 metaphorical expressions to be taken into consideration. These metaphorical expressions provoke the researcher to interpret seven conceptual metaphors for the frame of Cycles of nature, four for the frame of Economic challenge, six for the frame of Environmental justice, five for the frame of Human rights, and five for the frame of Inscrutable ways of nature.

Keywords: *climate change frames; climate change ideologies; conceptual metaphors; climate action; climate change; climate crisis metaphors*

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1. Introduction

These days, climate change is more and more increasing the danger of our green planet day after day and turns to be the threat of the 21st century. Even, the term “climate change”, which was used very popularly one or two decades ago, now is replaced by the term “climate crisis” to respond to the phenomenon threat. According to Google Book Ngram Viewer, since 1995, there has been a dramatic increase up to over 380% of the climate change discourse number. To accord with the rise, climate change communication is increasingly becoming a topical issue in discussions relating to climate change (Ockwell et al., 2009), focusing on all disciplines as scientific findings, synthesis reports and at times proceedings from high-level conferences and policy meetings (Weart, 2003). The aim of these climate change communications is nothing but to provoke readers to think and act with the environment protection movement. In Lakoff and Johnson’s (1980) language, these communications transfer conceptual metaphors to the information receivers based on the ideologies that the discourse senders possess. Moreover, conceptual metaphor, on the way people think and act, not only simply expresses the point of view but also states the attitudes human beings think about and deal with the concept in the conceptual metaphors (Lakoff & Johnson, 1980). In other words, conceptual metaphor constitutes and expresses human perceptions, emotions, and behaviour in different situations (Landau, 2017). In response to such psychologies, the number of studies relating to conceptual metaphors on media representations of climate change has been dramatically expanding. However, many, if not most, studies usually consider climate change as a general topic and provide the conceptual metaphors interpreted from such a general topic regardless of the large scale of the topic. By taking a broad range of sources into account, one may draw a more comprehensive picture of available frames rather than a concept that is appropriate with the sources taken into account.

The article, in line with Moernaut et al.’s (2018) classification of climate change frames, focuses on providing conceptual metaphors according to the climate change frames of Cycles of nature, Economic challenge, Environmental Justice, Human rights, and Inscrutable ways of nature. Based on the ideologies relevant to every climate change frame, the conceptual metaphors interpreted from the metaphorical expressions identified in 12 discourses used as the data for the study partly give readers the human perceptions, emotions, and behaviour in different climate change frames.

2. Literature Review

2.1. Conceptual Metaphor Theories (CMTs)

In 1980, with *Metaphors We Live By*, Lakoff and Johnson introduced Conceptual Metaphor Theory (CMT, hereafter) and revolutionized the study of metaphor by reconceptualizing the term “metaphor”. Before *Metaphors We Live By* (1980), the term “metaphor” was considered an isolated, seldom-occurring poetic or rhetorical quirk (Steen, 2014: 119). Lakoff and Johnson (1980; 2003) claim that “in most of the little things we do every day, we simply think and act more or less automatically along certain lines” (p. 04). Unfortunately, these lines are by no means obvious and the only way to find these lines out is by looking at the language used in our communication. “Since communication is based on the same conceptual system in terms of which we think and act” (Lakoff & Johnson, 1980, 2003: 04), language, therefore, is an important source of evidence for what that system is like. Moreover, metaphor is not just an aspect of language, it is a fundamental part of our thought and metaphorical language arises from preexisting patterns of metaphorical thought which is called conceptual metaphors (Gibbs, 1994). With CMT, metaphor in language turns to be “the systematic and frequently visible tips ... underlying conceptual structures of metaphor in thought” and “a fundamental

cornerstone in cognition” (Steen, 2014: 119). CMT has so far been applied in countless research, of which not a few numbers are on the scope of climate change. Over forty years came into existence, many other conceptual metaphor researchers have contributed different theories to CMT, making the conceptual metaphors interpreted clearer and really a fundamental cornerstone in human cognition. Among those theories, the most remarkable ones are the Deliberate Metaphor Theory (DMT, hereafter) and the four-dimensional model of DMT suggested by Steen (2008, 2023, 2023a), and the metaphor conceptualization process onto four levels of schematicity suggested by Kövecses (2010, 2017b).

Steen (2008) introduced Deliberate Metaphor Theory (DMT, hereafter) "aims at accounting for variation in the phenomenon and its theoretical modelling, ... allows for considering new paradigmatic cases; and ... may affect the definition of metaphor in language use and discourse” (Steen, 2023a: 02). With DMT, metaphorical expressions used in the discourse only provoke the conceptual metaphors when they are used deliberately rather than conventionally or habitually. Steen (2023, 2023a) advances the four-dimensional model of DMT, which refers to Language, Thought, Communication and Reference to resolve the paradox of metaphor when some metaphorical expressions do not actually express the ideologies of the senders. In DMT, potential metaphorical expressions are counted as metaphors in communication when the expressions get comprehended metaphorically by means of some form of cross-domain mapping or analogy between the language use sense and the sender’s intention (Steen 2003: 02). In 2018, Reijnierse et al. (including Gerald Steen) introduce Deliberate Metaphor Identification Procedure (DMIP, hereafter) a step-by-step method for the identification of potentially deliberate metaphor in language use. Upon the definition "a metaphor is potentially deliberate when the source domain of the metaphor is part of the referential meaning of the utterance in which it is used" (Reijnierse et al., 2018: 136), Reijnierse et al. (2018) suggest a potential metaphorical expression be taken into account as a metaphorical expression to interpret conceptual metaphor when its source domain is part of the referential meaning of the utterance in which it is used.

Kövecses (2010, 2017b) elaborates that the metaphor conceptualization process has four levels on the schematicity, namely mental spaces, frames, domains, and image schemata, in which frames constitute domains, domains constitute image schemata, while mental spaces, which can be seen as the scenarios and scenes of the metaphorical expression, are contextualized online elaborations, modifications specifications, and fusions of frames. Among those levels, the image schemata have the target domains refer to the entities of the concept, the domains take the qualities or parts of an entity of the concept, the frames take a function of a part of an entity of the concept or the purposes that the source domains do or someone can do to (or in) the source domains. The conceptual metaphors used at the least schematic level should take on pragmatic functions of concrete situations in which both the senders and attendees are required to be involved (Kövecses, 2017c).

2.2. Ideologies and conceptual metaphors

CMT claims “that all metaphors in language are expressions of underlying metaphors in thought” (Reijnierse et al., 2018: 131). Conceptual metaphor, therefore, is highly determined and influenced by the author’s ideologies relating to the discourse delivered (Imani, 2022: 10). Conceptual metaphors play a crucial role in fostering and reinforcing certain language ideologies while language ideologies use conceptual metaphors to portray the central tenets. Therefore, language ideologies are conceptualized as complex constructs always intertwined with conceptual metaphors in which the two concepts mutually shape each other (Albarni, 2023: 300). The term "ideology" comprises more than one sense; however, the term, related to the Conceptual Metaphor Theories, can be seen as a system of thought that can be taken in an

implicit or explicit set of norms and values which provide patterns of acting and/or patterns of living within a given social community when related to conceptual metaphor theories (Driven, 1990). In such a sense, Carvalho (2007) considers ideology as “a system of values, norms and political preferences, linked to a program of action vis-à-vis a given social and political order” (p. 225). Van Dijk (1998) indicates that “ideologies allow people, as group members, to organize the multitude of social beliefs about what is the case, what is good or bad, right or wrong, for them, and act accordingly” (p. 08). Stibbe (2021), an ecologist, highlights that ideologies are cognitive, existing in the minds of members in a certain group, and also have a linguistic manifestation in characteristic ways of speaking and writing used by those members (Stibbe, 2021: 19). The ecologist also portrays ideologies as “systems about how the world was, is, will be or should be which are shared by members of particular groups in society” (Stibbe, 2021: 21). To a certain extent, ideologies always involve a vision of an ideal world with which lived existence is confronted (Carvalho, 2007: 225). Regarding the interpretation of conceptual metaphor, Macy and Johnstone (2012) propose that “when people are able to tell the truth about what they know, see and feel is happening to their world, a transformation occurs ... to increase the determination to act and a renewed appetite for life” (p. 70). Taylor (1995) and Hart (2011) share the idea, stating that the use of certain linguistic expressions with a metaphorical meaning reflects, on the surface of the text, the process in which the sender engaged in order to conceptualize a situation in terms of “something more” (Taylor, 1995: 05) and the linguistic elements selected by the speaker impose a certain conceptualization (Hart, 2011: 271). Similarly, studying the ideological semantics underlying conceptual structures and conceptual content, Diaz-Peralta (2018) finds that all the samples of linguistic metaphors found lead readers to construct the same interpretation of the meaning of conceptual metaphors. Thus, ideologies inspire the senders' use of metaphorical expressions, and then the metaphorical expressions provoke conceptual metaphors. On another dimension, researchers also elaborate that the ideologies relating to certain climate change frames will inspire the senders to use certain metaphorical expressions. On the opposite dimension, as a cognitive device, conceptual metaphor provides in-depth insights into ideologies (Imani, 2022: 02).

2.3. Climate change frames in discourses

A frame is an immanent structuring idea which gives coherence and meaning to a verbal-visual text (Moernaut et al., 2018: 216). Considered by many scholars, “frame packages” comprise a – latent – central organizing idea (often a generally shared motif, key event, or narrative), and are made immanent by (manifest/latent) reasoning devices such as causal responsibility, moral evaluation, problem definition, and/or treatment recommendation as well as verbal or visual framing devices (Van Gorp, 2006; Pan & Kosicki, 1993; Gamson & Modigliani, 1989). Framing, then, is applying a particular frame to structure an area of life to naturalize and justify ideologies (Moernaut et al., 2018). Since framing and ideology are tightly interwoven (Moernaut et al., 2018: 217) and climate change discourse comprises a very large scale of aspects, frame packages need to be done to structure different areas of the discourse which are appropriate to certain ideologies. Applying an inductive-deductive qualitative framing analysis and employing a computer search tool with the keywords and an additional manual search, Moernaut et al. (2018), based on a framing analysis of 1,256 climate change articles published in five Flemish (i.e., northern Belgian) outlets from 28 February 2012 to 28 February 2014, as well as the climate change and environmental fields mentioned in the literature, consisting of uncertainty/conflict, economics/technology, alarmism/disaster, human-induced climate change responsible actors, morality and ethics, health and safety, and transformation (p. 218 - 219), categorizes the climate change articles in the media into alphabetically five frames of ...

- i. ***The frame of Cycles of nature***, with two sub-frames of Scala naturae and Natural web, refers to the multiple cycles in nature which (non-)living beings are part of (e.g., life cycles). This climate frame usually mentions that the natural system is seriously affected in – potentially – dangerous ways which are chiefly caused by humans when humans show contempt for nature as well as the characteristics of nature. On another dimension, interacting with nature, humans, ordinary, is also a secondary victim. The repetition of the terms like "nature" and "the world", and the juxtaposition of humans and nature can be seen as the typical devices for categorizing this sort of climate change frame.
- ii. ***The frame of Economic challenge***, with two sub-frames of Rights of the free market and Human wealth, argues that as human is primarily an economic consumer and producers in the natural system, the wealth and development of humans are under threat when climate change sets in motion major changes to put certain impacts on human wealth and development. In such a situation, the response of certain elite groups, paradoxically and sarcastically, economically not beneficial or, even, dangerous. The typical devices for categorizing this sort of climate change frames encompass a focus on economic terminology, numbers, comparatives and superlatives indicating economic loss or gain, and intertextual references to stock market reports and the like.
- iii. ***The frame of Environmental justice***, with two sub-frames of Unequal vulnerability and Unequal attribution, denounces the unequal distribution of environmental benefits and burdens, stating that some socio-economic, ethnic, cultural gender, etc. groups, who are more sensitive and lack coping abilities, are less responsible for climate change but have to unequally pay for the bill. Devices framing this sort of climate change frame are the contrast between groups or the reference to disasters.
- iv. ***The frame of Human rights***, with two sub-frames of Consumer rights and Civil rights, highlights the fate of the human species, whose rights, freedom, well-being and ways of living are being threatened; remarkably, bottom-up groups of people on the planet, who currently are unable to act for themselves, are chiefly the ones affected most severely. Characteristic devices for categorizing this frame are the strong focus on the human world or intertextual references to the Universal Declaration of Human Rights.
- v. ***The frame of Inscrutable ways of nature***, with two sub-frames of Nature is a machine and Gaia², evoking an idea which can be found in ideologies and religious: "Human ought to respect nature, which he cannot entirely understand" but human's intervention to the natural system is very important when developments are due to human beings and processes in such system. Typical devices for categorizing this frame are the exclusive focus on entirely natural environments and the backgrounding/deleting of human responsibility.

The sub-frames, which are less stable than frames and shaped by the available frames, are constituted based on the aspects of problem definition, causal responsibility, solution/action perspective, moral basis, and framing devices. The realization of sub-frames depends on the frames that the senders abide by as well as the ideologies forming the conceptual metaphors of these sub-frames are shaped by the ideologies of the frames. Fig. 01 below visualizes an overview of the climate change frames and sub-frames suggested by Moernaut et al. (2018).

² Gaia means "Mother Earth" in Greek mythology, a goddess of Earth, mother of all lives, proposing a hypothesis that life on Earth self-regulates its environment to create optimum conditions for the additional advancement of life

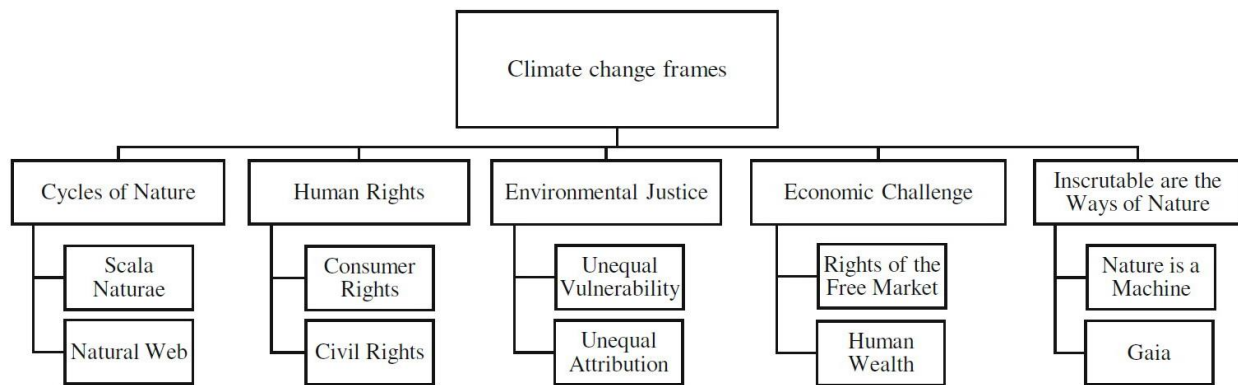


Fig. 01: Overview of the climate change frames and subframes

(source of image: Moernaut et al., 2018: 223)

3. Research Questions

1. What are ideologies forming the conceptual metaphor interpretation in terms of the climate change frames?
2. What are the conceptual metaphors interpreted in terms of the ideologies relating to the climate change frames?
3. How are the conceptual metaphors in terms of the climate change frames conceptualized on the level of schematicity?

4. Methodology

This empirical study was conducted using a qualitative analysis method focusing on interpreting conceptual metaphors in line with the ideologies in terms of the climate change frames from the metaphorical expressions identified. Based on the Deliberate Metaphor Theory suggested by Steen (2008, 2003b), and Deliberate Metaphor Identification Procedures (DMIP) by Reijnierse et al. (2018), the study identified metaphorical expressions when considering such metaphorical expressions were used deliberately. DMIP first applied the Metaphor Identification Procedure at Vrije University (MIPVU) by Steen to identify a "metaphor-related word" (MRW) as a direct metaphor (MRW "direct"), indirect metaphor (MRW "indirect") or metaphor with a flag (MRW "flag"). Then the following question is put to every MRW namely "Is the source domain of the MRW part of the referential meaning of the utterance in which the MRW is used?". The next activity is to answer the question. If the answer is "NO", the MRW is ignored when the metaphorical expression is used non-deliberately and the process moves to the next MRW; if the answer is "YES" to mark the MRW to be used deliberately. The next step of the process is to analyze the contrast between the basic meaning and the context meaning to interpret the conceptual metaphor. In the process of interpreting conceptual metaphors, the study based on the ideologies for each climate change frame to have appropriate conceptual metaphors. Any MRW that are out of the ideological sense of the relevant climate change frame will be marked "no" to interpret the conceptual metaphor. Then, the conceptual metaphors interpreted would be put onto the four levels of schematicity under the mapping procedure suggested by Ahrens (2010) and Kövecses (2010, 2017b, 2017c).

5. Data

The data takes into consideration for analyzing the conceptual metaphors from the ideologies of the five climate change frames, are 13 discourses in the field, consisting of speeches delivered by top leaders, reports made by the authorized officers, and articles on the British Guardian newspapers.

i. ***The frame of Cycles of nature***: two discourses of 1) the UN Secretary-General's message on World Meteorological Day (The UN, Secretary-General, 23 March 2024), and 2) the UN Secretary-General's address at Columbia University: "The State of the Planet" (The UN, Secretary-General, 02 Dec 2022); these discourses are chosen when there is a remarkable recurrent occurrence of the terms "nature" and "the world", and the juxtaposition of human and nature in the discourses.

ii. ***The frame of Economic challenge***: two discourses of 1) US greenhouse gas emissions fell 10% in 2020 as Covid curbed travel (The Guardian, Oliver Milman, 12 Jan 2021), and 2) Climate Change Is a Challenge For Sustainable Development (World Bank Group, Rachel Kyte, 15 Jan 2014). Focusing on economic terminology, using comparatives and superlatives indicating economic loss or gain, and having intertextual references to stock market reports and the like are the reasons these two discourses are categorized into the frame of Economic challenge.

iii. ***The frame of Environmental justice***: four discourses of 1) Interview Asad Rehman on climate justice: 'Now we are seeing these arguments cut through (The Guardian, 27 Dec 2021), 2) Remark on Climate Change (The UN, Secretary-General, 10 Sep 2018), 3) Environmental Justice and Climate Change (Centre for Climate Change Economics and Policy, Nicholas Stern, 11 Sep 2015), and 4) UN Secretary-General's press encounter at COP28 (The UN, Secretary-General, 11 Dec 2023). These discourses are framed as Environmental justice when they mention the contrast between groups or the reference to disasters.

iv. ***The frame of Human rights***: two discourses of 1) Murders of environment and land defenders hit record high (The Guardian, Jonathan Watts, 13 Sep 2021), and 2) Climate protection as a human right (The UN, Volker Türk, 05 Jun 2023). The two discourses characteristically are the strong focus on the human world or intertextual references to the Universal Declaration of Human Rights; and

v. ***The frame of Inscrutable ways of nature***: three discourses of 1) Secretary-General's special address on climate action "A Moment of Truth" (The UN, Secretary-General, 11 Dec 2023), 2) Speech - Climate change: too true to be good (Environment Agency, Sir James Bevan, 24 Sep 2018), and 3) The facts on climate and energy (The UN, Climate action, retrieved in May 2024). These discourses are categorized into the frame of Inscrutable ways of nature when the discourses exclusively focus on entirely natural environments and/or on the background of human responsibility.

6. Discussion

As already mentioned, ideology can be defined as "(...) a system of values, norms and political preferences, linked to a program of action vis-à-vis a given social and political order" (Carvalho, 2007: 225). The article puts forward the ideologies for each climate change frame based on the moral basis, which can be seen as "(...) a system of values, norms and political preferences, ...", linking to the solution that humans should do to deal with the climate crisis, which can be seen as "... a program of action vis-à-vis a given social and political order." Ideology, in such a way, is the combination of the moral basis and the solution that members

of certain groups should do to the situation. As a moral basis, it allows people, as group members, to organize the multitude of social beliefs about what is the case, what is right or wrong, what is good or bad; and as the solutions, it encourages such people to act accordingly.

•***Ideologies for the frame of Cycles of nature:*** People living on the Earth have currently acted immorally towards the natural system, by producing and consuming too much fossil fuels, having no plan to transition from fossil fuels to clean energy, advertising for products that harm human health – like tobacco, taking fossil fuel advertising, having no ambition on reducing drastic greenhouse gas emissions, hesitate to transition from coal to renewable energy. Instead of recognizing certain values of the natural system are meaningful to humans, contemporary people turn to be addicted to the natural system resources even being warned that "fossil fuels are not only poisoning our planet, they are toxic for your brand" (António Guterres, UN Secretary-General, 2024). Sarcastically, humans now turn out to be the secondary victims of their development. More floods, windstorms, heat waves, forest fires, and the melting of permafrost have recently reacted to the human's development. From such a moral basis, ideologically, people living on the planet need to rethink and change the way to act and interact with other (non-)living beings and the natural system to re-constructing the planet; those actions, moreover, have to be done immediately to stop the process of damaging the planet of the climate crisis.

•***Ideologies for the frame of Economic challenge:*** Recently, it has been said that our economy is in decay, destroying our future, increasing inequality and harming our health. Research conducted by the World Bank displays that climate change increases the costs of development in the poorest countries by between 25 and 30 per cent. As reported by the World Bank, the annual cost of infrastructure in developing countries that is resilient to climate change is around \$1.2 trillion to \$1.5 trillion, resulting in \$700 billion gap in financing every year. Such a decline is unacceptable and must be counteracted at all times. However, if we try to manage climate change in ways that create barriers to overcoming poverty, we will not put together the coalition that we need to manage climate change (Stern, 2015). We should recognize and believe the economic reset will act as a blessing in disguise; the global crisis is uniting a clarion call for action against climate change. Human response to climatic change at least has to guarantee (status-quo) human wealth and development, but, ideally, amplify these. Such climate action requires the combination of efforts of export credit agencies, institutional investors, development banks, financial institutions, and public budgets to meet the climate and development challenges.

•***Ideologies for the frame of Environmental justice:*** The climate crisis is, to a certain extent, differentiating our society. The current acting of the elites is immoral and indefensible towards other groups in society, who live beyond the cultural time-space of the former. Developing countries, whose people did the least to cause this crisis, are paying the highest price for the climate crisis. This injustice is in the incessant and increasing cycle of extreme droughts and ever more powerful storms. Poor countries, in particular, will pay the price – not only because the lives of people in those countries will become harder but because those people always suffer disproportionately in times of climate disaster. The growing recognition of the systemic nature of the crisis and the links being built between movements in the global South and those in the North means the climate justice movement has never been stronger. To solve the problem, the only solution is a combination of mitigation and local adaptation. The key is to make the climate crisis relevant to the lives of ordinary people – about warm homes, free public transport and clean air – and to build solidarity. Only by combining political and moral leadership with social movements will the necessary decisions be taken with the urgency required (Stern, 2015).

•***Ideologies for the frame of Human rights:*** The United Nations High Commissioner for Human Rights has long underlined that climate change seriously threatens the human

rights to life, food, health, housing, culture and development. In particular, children, girls, women, migrants, people with disabilities and Indigenous people, who form marginalized populations, are disproportionately impacted by climate change. Climate change not only causes untold ecological disaster and human suffering but even threaten international peace and security. New figures released by Global Witness show that “the situation for frontline communities and defenders of the Earth is getting worse” (Watts, 2021). Stern (2015) emphasizes that climate change or other forms caused by climate change degrades the environment, denying too many, particularly poor people including those yet to be born the right to development, the right to work to enhance their living standards and causing the crucial moral arguments for combining economic growth and climate responsibility. To solve the problem, first and foremost, moral acting should take into account, and respect, the greater long-term interests of humanity. All actions that humans undertake must be inspired by the fundamental responsibility to defend their own rights and protect their well-being. All governments must keep in their mind that they are responsible for both fulfilling environmental commitments and protecting human wealth and human rights.

• ***Ideologies for the frame of Inscrutable ways of nature:*** Humans should acknowledge their limited impact on the natural system. Nature, in fact, can protect us from climate change rather than human act with contempt. Traditionally, societies have used "grey infrastructure" such as pipelines, dams, or man-made reservoirs to secure water supplies. Such ways have interacted with nature contemptuously and broken the system. Using “green infrastructure” with natural or semi-natural systems instead will provide similar benefits with positive long-term environmental consequences. Another example, of protecting wildfire, is our preventative efforts to reduce the spread of wildfires often involve the removal of forests to create a firebreak (or "fuel break"), a strip of land devoid of flora. This method surely has certain impacts on nature. Instead, using cypresses can be seen as an ecological method when such a sort of trees retains high levels of water in their leaves, even in the sweltering heat, and the fallen leaves form a wet environment at the base of the trunk, providing a "natural firebreak" to the wild. Also, in nature, many creators have their own method of camouflage to be able to exist in the dangerous system. Climate change may be inevitable, but “flaws are usually mitigated by the natural system; human help is largely superfluous” (Moernaut et al., 2018).

In the next section, the article author analyzes 13 discourses on climate change to identify the metaphorical expressions used intentionally in the discourses, and then, in accordance with the ideologies for each climate change frame mentioned above, to interpret the relevant conceptual metaphors. Those conceptual metaphors, then, are put onto the schematicity level of conceptualization in accordance with the referential meaning of the source domain that the metaphorical expressions convey.

7. Conclusion

In total, one hundred and fifty-five (155) metaphorical expressions were identified from 13 discourses used as the data in the study. The lemmas of these metaphorical expressions comprise 17 adjectives, 70 nouns, 66 verbs, one preposition and one idiom. With a total word count of 27,525 for 13 discourses, the metaphorical expressions per word is 0.0056. In terms of the climate change frames, the frame of Cycles of nature, with two speeches delivered by the UN’s Secretary-General (23 Mar 2024 and 11 Dec 2023), has 31 metaphorical expressions, the frame of Economic challenge, with two articles, one of The Guardian (12 Jan 2021) and one of the Word Bank Group (15 Jan 2014), has 13 metaphorical expressions, the frame of Environmental justice, with four discourses, two speeches made by the UN’s Secretary-General

(10 Sep 2018 and 11 Dec 2023), one speech made by Nicholas Stern (11 Sep 2015) and one interview article on The Guardian (27 Dec 2021), has 54 metaphorical expressions, the frame of Human rights, with one article on The Guardian (13 Sep 2021) and one report made by Volker Türk from the UN (05 Jun 2023) has 17 metaphorical expressions, and the frame of Inscrutable ways of nature, with three discourses, one speech made by the UN's Secretary-General (05 June 2024), one speech made by Sir James Bevan from British Environment Agency (25 Sep 2018) and one report from The UN, Climate action has 35 metaphorical expressions. Twenty-seven metaphorical expressions out of 155 have the sense out of the climate change frames, five for the frame of Cycles of nature, none for the frame of Economic challenge, nine for the frame of Environmental justice, two for the frame of Human rights, and ten for the frame of Inscrutable ways of nature. These metaphorical expressions are not taken into interpreting the conceptual metaphors, leaving 128 metaphorical expressions to be interpreted into conceptual metaphors.

As already mentioned, the ideologies, in general, and the ideologies for climate change frames, particularly, are seen as the sources encouraging discourse's senders using particular metaphorical expressions. These metaphorical expressions, then, provoke the attendees of the discourses to interpret the relevant conceptual metaphors that urge these people to think and act accordingly. In such a sense, the moral basis or "(...) a system of values, norms and political preferences" (Carvalho, 2007: 225) in the ideologies provokes the metaphors to be conceptualized onto the level of *image schemata* when the referential meaning relates to the entities mentioned by the senders such as the nature or the climate crisis, or to be conceptualized onto the level of *domains* when the referential meaning relates to the qualities of the entities or part of the entities, such as climate action, climate change, the sustainability development, the environmental justice, etc., while the programs of actions linked to such the moral basis or the impacts that the climate change puts on humans mentioned in the ideologies provoke the attendees conceptualize the metaphorical expressions used onto the schematicity level of *frames*. Since the conceptualization processing onto the schematicity level of *mental spaces* requires pragmatological functions that the senders and the attendees both are involved (Kövecses, 2017c: 345), the level is not considered when the data used are discourses.

Given such schematicity levels of conceptualizing, among 128 conceptual metaphors interpreted from the metaphorical expressions, sixty-eight (68) metaphors are conceptualized on the level of *image schemata*, 47 on the level of *domains* and 19 on the level of *frames*. Relating to the climate change frames, the frame of Cycles of Nature has 26 metaphorical expressions conceptualizing metaphors, 18 onto the level of *image schemata* for four conceptual metaphors of NATURE IS HUMAN, NATURE IS THE VICTIM OF HUMANS' DEVELOPMENT, CLIMATE CRISIS IS A DISASTER, and CLIMATE CRISIS IS A BATTLEFIELD, six onto the level of *domains* for two conceptual metaphors of CLIMATE ACTION IS CONSTRUCTION and CLIMATE ACTION IS INTERACTION, and two onto the level of *frames* for one conceptual metaphor of DOING CLIMATE ACTION IS JOINING A WAR; the frame of Economic challenge has 12 metaphorical expressions conceptualizing metaphors, six onto the level of *image schemata* for two conceptual metaphors of NATURE IS A FREE MARKET and CLIMATE CRISIS IS DOOMSDAY, five onto the level of *domains* for one conceptual metaphor of CLIMATE CHANGE IS A CHALLENGE TO SUSTAINABLE DEVELOPMENT, and one onto the level of *frames* for one conceptual metaphor of DOING CLIMATE ACTION IS PROTECTING HUMAN WEALTH; the frame of Environmental justice has 50 metaphorical expressions conceptualizing metaphors, 22 onto the level of *image schemata* for two conceptual metaphors of NATURE IS A BATTLEFIELD and CLIMATE CRISIS IS A WAR, 18 onto the level of *domains* for one conceptual metaphor of CLIMATE ACTION IS A JOURNEY, and ten onto the level of *frames* for three conceptual metaphors of DOING CLIMATE ACTION IS MITIGATION THE DAMAGE, DOING

CLIMATE ACTION IS MOVING IN A JOURNEY and ; DOING CLIMATE ACTION IS JOINING A WAR; the frame of Human rights has 15 metaphorical expressions conceptualizing metaphors, three onto the level of *image schemata* for one conceptual metaphor of CLIMATE CRISIS IS A WAR, nine onto the level of *domains* for one conceptual metaphor of CLIMATE ACTION IS PROTECTION THE PLANET, and three onto the level of *frames* for two conceptual metaphors of DOING CLIMATE ACTION IS PROTECTING HUMAN'S ACHIEVEMENTS and DOING CLIMATE ACTION IS PROTECTING HUMAN RIGHTS; and the frame of Inscrutable ways of nature has 25 metaphorical expressions conceptualizing metaphors, 19 onto the level of *image schemata* for three conceptual metaphors of NATURE IS AN EARTH MOTHER, NATURE IS A BATTLEFIELD and CLIMATE CRISIS IS (NOT) A MYTH, three onto the level of *domains* for one conceptual metaphor of CLIMATE ACTION IS (NOT) A MISCONCEPTION, and three onto the level of *frames* for one conceptual metaphor of DOING CLIMATE ACTION IS UPDATING OUR UNDERSTANDING.

The analysis demonstrates how these frames serves as a powerful tool in shaping public perceptions of climate change. By interpreting these conceptual metaphors at different levels of schematicity, that helps understand climate change in ways that are consistent with their moral, social, and political values in addition to conveying certain ideologies.

A summary of the conceptual metaphors associated with each climate change frame, along with the corresponding schematicity level and metaphorical expressions, can be found in Table 01 in the appendix. This comprehensive analysis highlights the nuanced ways in which metaphors operates within climate change discourse, shaping both in thought and action.

8. Limitations and Suggestion

The study, by its convenience, approaches 13 discourses for five climate changes. Such a limited number of discourses approached raises a limitation to the reliability and validity of the study's results. The article author would like to suggest other research to conduct with a larger number of discourses to give an insight knowledge about the conceptual metaphors interpreted from the metaphorical expressions in every climate change frame with the relevant ideologies.

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APPENDIX

Table 01: Conceptual metaphors relevant to the climate change frames

Frames	Conceptual metaphors	Lemmas	Level of schematicity
Cycles of nature	<ul style="list-style-type: none"> • NATURE IS A HUMAN • NATURE IS THE VICTIM OF HUMAN’S DEVELOPMENT • CLIMATE CRISIS IS A DISASTER • CLIMATE CRISIS IS A BATTLEFIELD • CLIMATE ACTION IS CONSTRUCTION • CLIMATE ACTION IS INTERACTION • DOING CLIMATE ACTION IS JOINING A WAR 	03: justice; addiction; pile 06: waging; suicidal; collapsing; choking; mountain; broken 07: collapsing; shattered; upended; chaos; chaos; slash; chaos 02: frontline; frontline 04: build; build; build; build 02: making peace; bailout 02: fight; fight	→ <i>image schemata</i> → <i>image schemata</i> → <i>image schemata</i> → <i>image schemata</i> → <i>domains</i> → <i>domains</i> → <i>frames</i>
Economic challenge	<ul style="list-style-type: none"> • NATURE IS A FREE MARKET • CLIMATE CRISIS IS DOOMSDAY • CLIMATE CHANGE IS A CHALLENGE TO SUSTAINABLE DEVELOPMENT • DOING CLIMATE ACTION IS PROTECTING HUMAN WEALTH 	04: outstripping; cost; toll; flowing 02: teeth; grinding 05: horrible; jolt; curbs; push; accelerating 01: rebuild	→ <i>image schemata</i> → <i>image schemata</i> → <i>domains</i> → <i>frames</i>

Environmental justice	<ul style="list-style-type: none"> • NATURE IS A BATTLEFIELD • CLIMATE CRISIS IS A WAR • CLIMATE ACTION IS A JOURNEY • DOING CLIMATE ACTION IS MITIGATION THE DAMAGE • DOING CLIMATE ACTION IS MOVING IN A JOURNEY • DOING CLIMATE ACTION IS JOINING A WAR 	<p>10: sound; boom; grim; battle; contest; tackle; tacking; drowning; churning; chaos</p> <p>12: disastrous; blazes; doom and groom; price; ferocity; sacrificing; tackle; risk; risks; risks; risks; tackling</p> <p>18: path; crossroad; path; path; strides; drivers; speed up; driving; horse-race; race; horse-race; race; clock; move; red lines; overdrive; accelerate; step</p> <p>07: brake; embrace; build; rebuild; burden; cost; burden-sharing</p> <p>02: drive; shift</p> <p>01: tackling</p>	<p>→ <i>image schemata</i></p> <p>→ <i>image schemata</i></p> <p>→ <i>domains</i></p> <p>→ <i>frames</i></p> <p>→ <i>frames</i></p> <p>→ <i>frames</i></p>
Human rights	<ul style="list-style-type: none"> • CLIMATE CRISIS IS A WAR • CLIMATE ACTION IS PROTECTION THE PLANET • DOING CLIMATE ACTION IS PROTECTING HUMAN’S ACHIEVEMENTS • DOING CLIMATE ACTION IS PROTECTING HUMAN RIGHTS 	<p>03: frontlines; risks; chaos</p> <p>09: defenders; defenders; defenders; defenders; defenders; watchdog; defenders; defenders; defenders;</p> <p>02: catalyzing; catalyze</p> <p>01: map</p>	<p>→ <i>image schemata</i></p> <p>→ <i>domains</i></p> <p>→ <i>frames</i></p> <p>→ <i>frames</i></p>

Inscrutable ways of nature	<ul style="list-style-type: none"> • NATURE IS AN EARTH MOTHER • NATURE IS A BATTLEFIELD • CLIMATE CRISIS IS (NOT) A MYTH • CLIMATE ACTION IS (NOT) A MISCONCEPTION • DOING CLIMATE ACTION IS UPDATING OUR UNDERSTANDING 	<p>05: tell; mother; Godfathers; grim; catastrophe</p> <p>12: tackle; tackle; tumbling; tackle; risks; tackle; tackle; tackle; tackling; turn-off; fight; tackle</p> <p>02: dinosaur; meteor</p> <p>03: Russian roulette; thrown; deceptive</p> <p>03: fool; build; poisoning</p>	<p>→ <i>image schemata</i></p> <p>→ <i>image schemata</i></p> <p>→ <i>image schemata</i></p> <p>→ <i>domains</i></p> <p>→ <i>frames</i></p>
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