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CRITICAL ANALYSIS OF MULTIMODAL DISCOURSE OF CLIMATE CHANGE

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УНИВЕРЗИТЕТ У БЕОГРАДУ

ФИЛОЛОШКИ ФАКУЛТЕТ

Јована Д. Вурдеља

КРИТИЧКА АНАЛИЗА МУЛТИМОДАЛНОГ ДИСКУРСА КЛИМАТСКИХ ПРОМЕНА

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CRITICAL ANALYSIS OF MULTIMODAL DISCOURSE OF CLIMATE CHANGE

Abstract

This dissertation scrutinizes the multifaceted notion of climate change from the perspective of two complementary theories, critical and multimodal discourse analysis. Within this theoretical and methodological framework, study seeks to elucidate how climate change is discursively constructed within the triangular relationship of scientific, media and political discourse as these domains are the most influential in shaping public opinion as well as policy-making. Amidst the overwhelming scientific but the absence of political consensus, the debate over climate change, fueled by antagonistic views between climate alarmists and skeptics on its anthropogenic origin, serves as a battleground for actors engaged in perpetual power competition, making climate change as one of the most defining yet concurrently controversial issues of all time. Consequently, the primary objective of this thesis is to deconstruct the verbal and visual discourses of climate change, aiming to expose the manipulative and persuasive utilization of various semiotic modes as multimodal means of communication of climate change risks and impacts. Furthermore, the study aims to unravel the opaque relationship between language, power and manipulation by exploring the role of visual imagery and linguistic devices, including lexical, rhetorical and pragmatic elements as carriers of ideology. It investigates how the compound effect of these semiotic modes contributes to shaping public perception, reinforcing certain ideological agendas or reproducing power dynamics in the climate change discourse which is being increasingly descientified, polarized, politicized as well as emotionalized in order to capture public attention and rally support for climate action.

Key words: critical and multimodal discourse analysis, climate change, climate change communication, manipulation, media discourse, political discourse, scientific discourse, pragmatics, rhetoric, lexicology

Scientific field: social sciences and humanities

Scientific subfield: critical sociolinguistics, ecolinguistics

UDC number:

КРИТИЧКА АНАЛИЗА МУЛТИМОДАЛНОГ ДИСКУРСА КЛИМАТСКИХ ПРОМЕНА

Сажетак

Предмет ове докторске дисертације представља истраживање мултимодалног дискурса климатских промена из перспективе две комплементарне лингвистичке теорије, критичке и мултимодалне анализе дискурса. У таквом теоријско-методолошком оквиру, у студији се испитује начин на који је наратив климатских промена дискурзивно конструисан у троугаоној интеракцији научног, медијског и политичког дискурса као најутицајних домена у обликовању јавног мишљења, као и креирању климатских политика. Услед постојања научног, али и одсуства политичког консензуса, дебата о климатским променама подстакнута је антагонистичким ставовима између климатских алармиста и климатских скептика по питању антропогеног порекла овог феномена и представља „бојно поље“ имајући у виду бројне актере који су у сталној борби за моћ, што чини климатске промене једним од главних али истовремено и најконтроверзнијих питања нашег доба. Према томе, основни циљ овог рада представља деконструкција вербалног и визуелног дискурса климатских промена како би се открила манипулативна и персуазивна употреба различитих семиотичких извора као мултимодалних средстава комуникације ризика и утицаја климатских промена. Осим тога, истраживање има за циљ да открије скривену везу између језика, моћи и манипулације анализом визуелних и језичких средстава, пре свега лексичких, реторичких и прагматичких елемената као носилаца идеологије. У том погледу, испитује се симбиотички ефекат ових елемената који доприносе обликовању јавног мишљења, јачању одређених идеолошких агенди или репродуковању динамике моћи у дискурсу о климатским променама који све више губи научни основ, а постаје предмет поларизације, политизације и емоционализације како би се привукла пажња јавности и задобила подршка за спровођење климатских активности.

Кључне речи: критичка и мултимодална анализа дискурса, климатске промене, комуникација климатских промена, манипулација, медијски дискурс, политички дискурс, научни дискурс, прагматика, реторика, лексикологија

Научна област: друштвено-хуманистичке науке

Ужа научна област: критичка социолингвистика, еколингвистика

УДК број:

CONTENT

LIST OF ABBREVIATIONS

AIP	American Institute of Physics
EEA	European Environment Agency
FAO	Food and Agriculture Organization of the United Nations
GEN	Geneva Environment Network
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel on Climate Change
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
UN	United Nations
UNEP	United Nations Environment Program
UNFCC	United Nations Framework Convention on Climate Change
US EPA	United States Environmental Protection Agency
WMO	World Meteorological Organization

In the space of one hundred and seventy-six years the Lower Mississippi has shortened itself two hundred and forty-two miles. That is an average of a trifle over one mile and a third per year.

Therefore, any calm person, who is not blind or idiotic, can see that in the Old Oolitic Silurian Period, just a million years ago, next November, the Lower Mississippi River was upward of one million three hundred miles long, and stuck out over the Gulf of Mexico like a fishing-rod.

And by the same token any person can see that seven hundred and forty-two years from now the Lower Mississippi will be only a mile and three-quarters long, and Cairo and New Orleans will have joined their streets together, and be plodding comfortably along under a single mayor and a mutual board of aldermen.

There is something fascinating about science. One gets such wholesale returns of conjecture out of such a trifling investment of fact.

Mark Twain - Life on Mississippi (1883).

1. INTRODUCTION

1.1. Some like it hot

"The course of climate change science and politics over the last years represents the most astonishing political and scientific reversal since Galileo's vindication of Copernican astronomy 400 years ago propelled the scientific revolution" (Hayward, 2010).

"The era of global warming has ended; the era of global boiling has arrived", proclaimed, UN Secretary-General António Guterres in July 2023 (UN, 2023). The year of 2023 marked yet another watershed moment portending the calamitous events in the Anthropocene epoch characterized by remixing of historicalization and science-fictionalization of climate change as well as amalgamation of climate alarmism and skepticism in the public discourse. What initially emerged as a scientific issue soon transformed into a highly emotionalized, ideologically charged mediated political discourse, undergoing gradual descientification for the purpose of baiting public attention and amplifying polarizing narratives.

Nonetheless, the climate momentum has been succinctly slipping for years. Consequently, the "now or never" ultimatum for critical temperature limit (UN, 2022) has been echoing for years. As never before, extensive scientific evidence on human-induced climate change is unequivocal. The scale of the observed changes in the climate system is unprecedented over decades to millennia and the world is "dangerously close" to irreversible changes and tipping points. "Code red for humanity" is sounded by launching of the IPCC Working Group I report, *Climate Change 2021: The Physical Science Basis,* indicating that large-scale climate changes are "widespread, rapid and intensifying" (IPCC, 2021). As for the temperature and greenhouse gas emission records, they are repeatedly broken. On November 17, 2023, the world briefly crossed a critical warming threshold with the spike in global surface air temperature of 2 degrees Celsius compared to pre-industrial levels (Copernicus, 2023). On top of that, for the first time, global averaged concentrations of carbon dioxide were 50% higher than before the start of the Industrial Revolution (WMO, 2023). What's more, Earth recorded its hottest 12-month streak (November 2022 - October 2023) (Climate Central, 2023) culminating in its warmest year in the past 174 years, and very likely the past 125,000 (Zhong, 2023).

The fingerprints of climate change are many. During Earth's single hottest month on record (July 2023), nearly 2 billion people around the world, i.e., one-quarter of the global population was strongly influenced by climate change on each day in July (Climate Central, 2023). In a light of this, the extreme weather events such as devastating floods and severe heat waves have become "the new norm" (WMO, 2023). Humanity's ecological demand consistently exceeds the planet's ability to replenish, causing Earth Overshoot Day to arrive prematurely on August 2, 2023 meaning that our consumption of natural resources consistently outpaces Earth's capacity for regeneration within a year (GEN, 2023). Not surprisingly but sadly, yet another inflection point earned climate change notorious reputation of "ultimate tragedy of the commons" (Hardin, 1968; Paavola, 2012).

And the worst is yet to come judging by the gloomy scientific forecasts. Nearly 35 years after his original prediction about the global warming and greenhouse gases before the Senate, the former NASA scientist, James Hansen, warned that global temperatures would pass a major milestone this decade and that the world was approaching "a new climate frontier" (Erdenesanaa, 2023) .

The year of 2021 was proclaimed as a "make it or break it" year to confront the global climate emergency (WMO, 2021). Clearly, Earth has a deadline and the countdown has begun. The climate clock set in New York is ticking the remaining time for reducing emissions and preventing irreversible changes (Moynihan, 2020). The impending disaster seemed to put heyday of climate skepticism, contrarianism and denialism to the rest once and for all.

Nevertheless, despite heightened public awareness, mounting scientific evidence, a number of international agreements altogether crowned by scientific consensus, the global climate action has reached stalemate. The profound deficit in global climate action is manifested in various ways; emission reduction efforts which are insufficient, adaptation initiatives that are limited, and financial commitments that are mostly inadequate.

World leaders' pledges to reach net-zero emissions by 2050 have been widely criticized and disregarded as "hot air" (Umair, 2021, Welton, 2022). In a similar vein, world leaders' rhetoric during preCOP26 in Milan was dismissed as "blah blah blah" by a young Swedish environmental activist, Grete Thunberg who strongly roasted their climate inaction, particularly mocking their unfulfilled promises and climate efforts (Carrington, 2021).

Consequently, world faces a Herculean task fueled by a "mismatch between scientific urgency and political inertia" (Boston and Lempp, 2011). Or as Gardiner put it, "there is a mismatch between the apparent seriousness of the problem and our collective institutional response" (Gardiner, 2009: 143).

1.2. An issue too hot to handle

"Climate change has more potency now as a mobilizing idea than it does as a physical phenomenon" (Hulme, 2009: 328).

1.2.1. Metamorphosis – from scientific to mediated political discourse

Climate science has not always been on a cover of a magazine or front-page news, let alone breaking news or a headline. British climatologist Hubert Lamb once explained its essence stating it is "the dry-as-dust bookkeeping branch of meteorology" (Henson, 2021). As it was widely assumed that 20th century climate was more or less stable, the "steamy relationship" between the increased greenhouse gas emissions and temperature rise was off the radar outside scientific community.

However, it didn't take long before the greatest U-turn in the history of climate science was observed unleashing tremendous global chain reaction.

Climate change discourse featuring the most defining cli-fi thriller elements once served as a cautionary tale about the horror and terror of the eco-dystopian future resulting from the ecological meltdown leading to resource depletion, wildlife extinction and economic calamity. In the meantime, the projected alterations of the temperature and precipitation patterns have taken place in not so distant future as first foreseen, affecting not so remote areas as first expected with far more tangible and visible manifestations than originally thought (Hansen et al., 2023).

The onset of climate change ignited a chain reaction, triggering significant shifts in the economy, business, politics, and society reshaping the global landscape (World Economic Forum, 2024). In the year of 1988, the most significant turning point was reached (Hulme, 2009) as James Hansen's testimony to the U.S. Senate spotlighted an otherwise little-known issue and turned it into a widely recognized social problem eagerly embraced by the global community (McCright and Dunlap, 2000; Jaspal and Nerlich, 2014). It was a game changer in climate change

transitioning process from scientific to political discourse bringing together scientific evidence with political decision-making at international level (Boykoff, 2011). At that point, the issue had already begun its descientification process and garnered extensive media attention.

Being recognized as a risk multiplier this global phenomenon not only amplifies the risk of further environmental degradation but also has a potential to magnify non-climate stressors such as poverty, social tensions, political instability, population growth, global security, resource availability, agriculture, health etc. (UN, 2022). Due to this multitude of risks it potentially poses, paradigm shift within the climate change debate took place, moving away from the physical science of the phenomenon toward social, economic, political, cultural and ethical aspects (Fløttum, 2014). Consequently, the challenge of combating climate change became an integral part of global political agenda increasingly entangled with political ideologies, interests, and agendas frequently leading to politicization and polarization, as well as delays in implementing effective measures (Trumbo, 1996; Boykoff and Boykoff, 2004). Climate change came to stay in political sphere for sure. In the following years, it became a highly discussed topic particularly in a context of international negotiations around greenhouse gas reductions including talks such as the Framework Convention on Climate Change in 1992, the crafting of the Kyoto Protocol in 1997, and the establishment of the Paris Accord in 2015 (Clémençon, 2023).

Afterwards, one thing just led to another. Once climate change discourse showed first signs of politicization imprint, its medialization followed immediately (Boykoff and Boykoff 2004; Carvalho and Burgess, 2005). As climate change gradually became a social, political and economic issue, "a societal turn" took place, signaling "a symptom of changing focus in media coverage of climate change" (Schäfer, 2015: 856). Specifically, as the chief source of scientific information and influential political actor "media are both important arenas and important agents in the production, reproduction, and transformation of the meanings of societal issues" (Carvalho, 2010: 172). With its newsworthiness being increasingly recognized, global phenomenon gained much-needed salience due to media attention, covering recurring onslaught of the widespread climate disasters and extreme weather events greatly exposing the vulnerability and fragility of the global communities as well as paradoxes and controversies related to the growing threat of the changing climate.

The process of meaning-making was taken over by media outlets challenging the hitherto dominant paradigms and hegemonic discourses by reproducing ideologies and power relations to feed the interest of specific power elites and thus maintain their integrity and authority in the climate change debate (Boykoff, Mcnatt, and Goodman, 2014).

1.2.2. From consensus to controversy

D. James Baker, administrator of the US National Oceanic and Atmospheric Administration brought attention to the unambiguous interpretation of global warming: "There is a better scientific consensus on this than on any issue I know – except maybe Newton's second law of dynamics" (Warrick, 1997). In other words, climate change is a settled science. "It is really case closed. There is nobody of significance in the scientific community who doubts human-caused climate change" (Watts, 2021). Despite the near-universal consensus on anthropogenic climate change by credential researchers (Oreskes, 2004; Doran and Zimmerman, 2009, Cook et al., 2013/2016), public discourse is increasingly characterized by conflicting views and controversy (Evans and Steven, 2007; Oreskes and Convey, 2011; McCright and Dunlap, 2011; Bliuc et al., 2015). Consequently, the political consensus is non-existent and "the climate debate has been raging for over 30 years" (Headrick, 2019: 43).

Climate debate is “deeply contested, with considerable competition among (and between) scientists, industry, policymakers and non-governmental organizations (NGOs), each of whom is likely to be actively seeking to establish their particular perspectives on the issues” (Anderson, 2009: 166). The dissonance between the scientific agreement and political disagreement stems primarily from the falsely balanced discourse of climate change as media have given equal weight to climate believers on one hand and non-believers, i.e. climate sceptics, deniers and contrarians on the other (Boykoff and Boykoff, 2004). According to Boykoff and Boykoff (2004), the journalistic norm of balance is seen as the root problem to information bias in the context of climate change communication. Consequently, the media “perpetuate the myth of a lack of international scientific consensus on anthropogenic climate change—and thereby succeed in maintaining public confusion” (Antilla, 2005: 350).

The counter-movement comprising of climate sceptics, contrarians and deniers united around a common goal of refuting climate science, obstructing climate action and undermining climate policy is often associated with the fossil fuel industries, conservative foundations, think tanks, front groups, and AstroTurf organizations (McCright and Dunlap, 2010). Anti-climate change lobbying has become notoriously known for organizing its underlying strategy around three D’s, *distracting* public about seemingly ambitious solutions to climate crisis and maintaining “business as usual scenario” by sowing *division* around climate consensus and thus promoting *doomism*, i.e. climate nihilism, i.e. powerlessness in terms of climate action (Carlin, 2021).

However, dichotomy between believers/activists (alarmists) and non-believers/inactivists (sceptics, deniers, contrarians, lukewarmers) doesn’t necessarily always reflect straightforward political, ideological and partisan divide within the climate change debate.

1.3. Climate change as a communication challenge

Communicating the issue of climate change outside scientific circles, primarily to lay public, has been and to a large extent, still is, a bumpy road. “Communication about climate change is as complex as the science itself” (Chess and Johnson, 2007: 223) particularly having in mind that “there is often little consensus about what the problem is, let alone how to deal with it” (Ritchey, 2013: 2).

“An atlas of human suffering” is how UN Secretary-General António Guterres encapsulated a 2022 IPCC report on the impact of climate change to human wellbeing adding: “I have seen many scientific reports in my time, but nothing like this” (UN, Secretary-General, 2022). On the other hand, professor Jim Skea, the newly elected head of the Intergovernmental Panel on Climate Change (IPCC) holds the view that overly loaded language, i.e. doom-mongering and scaremongering in scientific reports and media coverage may be counterproductive, that is, paralyze people and policy-makers and consequently prevent them from taking necessary steps to “get a grip on climate change” (Somerville, 2023). Therefore, dilemma scientists confront is twofold. On one hand, they seek to communicate research results accurately and clearly to the wider audience and policymakers. On the other, however, they can hardly resist an urge to emphasize risk of potentially destructive environmental effects. Therefore, their struggle is real.

Accordingly, communicating risks and impacts of climate change is problematized by chasm between the “sense of alarm” and “sense of alarmism” in relation to representation and framing of the issue (Risbey, 2008). On one hand, climate change is communicated by triggering emotionalization and sensationalization of climate change narrative reflected in the prevailing

apocalyptic and catastrophic framing reinforcing the *crisis* discourse with a purpose to convey the sense of urgency and severity of the problem aiming at accelerating the action. On the other hand, counter-discourse is built by minimizing the risk, discarding the future projections and discrediting the scientific claims by reinforcing the *hoax* discourse rooted in the rhetoric of doubt and scientific uncertainty (Painter, 2013). Accordingly, in reality skepticism often cools climate change frenzy.

Therefore, climate change communication represents a critical interface between the scientific research, public understanding and policy action. It serves as a connecting tissue between the scientific realm, media and politics vital for the adequate transmission, understanding and response to the climate information and knowledge. Simultaneously, it often reflects the vivid interplay between the language, power dynamics and ideologies embedded in the discourse of climate change. Moreover, it displays how in construction of the climate change discourse language devices, images and other modalities interact and intersect in shaping perceptions and influencing action or inaction. Therefore, whether climate change will be portrayed as "real" or "illusionary" (Broadbent et al., 2016) depends largely on the media selection of frames, linguistic resources along with discursive strategies. Some frames are used deliberately to construct climate change as an immediate threat, i.e. emergency, that must be urgently addressed, while others are utilized to diminish that need and urgency (Carvalho, 2007). This in turn may either hasten or hinder climate action.

The translation of climate science from research to real-life change and subsequently its communication to the wider public plays a vital role and it is necessary to make it meaningful and relevant to both policy-makers and the public (Depoux et al., 2016). Therefore, communication and miscommunication of climate change can be viewed as the two sides of the same coin largely depending on the underlying drivers for the dissemination of information, intent behind messaging, and the reception of that information by different audiences and stakeholders. One of the distinctive implications of miscommunication of climate change in the public discourse is the phenomenon known as the *Psychological Climate Paradox* (Garpenholt, 2021). Introduced by Per Egil Stoknes (2014), it refers to the discrepancy between the increased scientific agreement on man-made climate change and diminishing political action to reduce rising emissions. In spite of the growing body of scientific evidence demonstrating the impact of human activities on climate change, public concern and prioritization of the issue have been on the decline. In a light of this, Stoknes (2014) identified key communication gaps in the climate change representation: 1) it is often misinterpreted as distant, 2) most framings misrepresent climate change as doom and gloom, cost and sacrifice, 3) denialism is a defense mechanism due to rhetoric of fear and quilt, 4) the dissonance between peoples action and knowledge, 5) climate messages are received through cultural identities (Stoknes, 2014). In which case, establishing the climate equation is rather straightforward. The greater communication gap, the greater the disparity between the measures proposed and policies implemented.

The key drivers of the miscommunication, misrepresentation and misinterpretation of the climate change may stem from the various factors such as conflicting interests among stakeholders, complexities in conveying scientific information to diverse audiences, sensationalism in media coverage, ideological biases, and the spread of misinformation or disinformation through different communication channels.

The answer lies, partly, in the complexity of climate change as a policy issue. Accordingly, climate change is often referred to as a "super-wicked problem" (Lazarus, 2009). The term wicked problem was coined by Rittel and Weber (1973) and subsequently introduced in *Policy Sciences* denoting issues in stark contrast to the "tame problems" that can be easily solved

due to the transparent and unproblematic cause-effect relationship. Conversely, wicked problems are “ill-defined, ambiguous and associated with strong moral, political and professional issues” (Ritchey, 2005/2011:1). Bearing in mind information explosion, dissemination of enormous volume of misinformation and fake news within the media and political discourse of climate change, it doesn’t come as a surprise that uncertainty, albeit integral part of science production, is sometimes misinterpreted by non-scientific audiences (Hulme, 2009). In most cases it results with misunderstanding and confusion. Moreover, scientific uncertainty has been recurrently misused frame by climate change sceptics as the main counterargument for fueling climate debate on the existence of man-made climate change (Lewandowsky, 2013; Oreskes and Conway, 2010; Whitmarsh, 2011). However, unobtrusiveness and complexities surrounding the climate science cannot be accounted alone for the current conundrum and polarizing public opinion within the climate change debate. The root cause of the disjunction between scientific consensus and political idleness cannot be attributed to the uncertainty and misunderstanding framing either. It is more complicated than that. So, what causes communication gap.

The complexity of the climate change notion, being an abstract, distant and unobtrusive issue (Schäfer, 2015) makes it challenging for communication to the wider audience on one hand and perception of its anthropogenic causes, impacts and future risks by laypersons on the other. Namely, the climate change impact may refer to either extreme rapid onset events such as cyclones, heat waves or heavy downpour or slow-onset events such as ocean acidification or sea level rise (Matias, 2017). Therefore, communicating the assessment of the full scope of climate change perils primarily to the nonscientists and lay public often requires an unbiased interpretation of potential ambiguities arising from the context, intentionally or unintentionally distorted.

The public debate on climate change is often described as multi-voiced or polyphonic (Fløttum, 2014) with a number of social actors being engaged at different levels and in different contexts raising the questions: “Which voices are present, explicitly or implicitly, which ones are dominating, and which voices are absent” (Fløttum, 2010: 33). Plethora of voices often entails various backgrounds, perspectives, values and beliefs (Hulme, 2009). Therefore, with the multitude of actors and multitude of opinions and voices clashing, the climate change debate is complex and multifaceted causing a number of communication challenges. And all these different actors use different type of language favouring different strategies to construct discourses. It practically represents a “battlefield” between divergent and convergent actors, NGOs, corporations, scientific community, competing in an attempt to make their views prevail. Therefore, communicating climate change does not entail only informing and warning, raising awareness and engagement. As George Lakeoff puts it: “They assume all you have to do is tell people the facts and they will reason to the right conclusion. This is utterly ridiculous. Thought is mainly metaphorical. The frames trump all the facts” when referring how Democrats repeatedly get outplayed by Republicans on the linguistic battleground (Butler, 2013).

Climate change communication is therefore primarily about influencing the public, building authority and legitimacy, which is mostly accomplished by implicit or explicit manipulation and persuasion. The aim of different actors is to influence cognition, emotions, behavior and attitudes. Interestingly, some actors of the climate change debate have become notorious for using verbal jiu-jitsu to disarm the opponent without them even noticing or knowing they’ve been misled or deceived (Blake, 2023). An example of verbal jiu-jitsu is directly associated with rebranding and reframing of the entire environmental debate. The term “climate change” was initially proposed by a Republican conservative, Frank Lutz as the more benign alternative to “global warming” which was thought to have “catastrophic connotations”

(Skeptical Science, 2024). Consequently, liberals eventually ended up adopting the term favored by their conservative opponents.

Moreover, in case of climate change, influencing the audience is achieved through the symbiotic use of multimodal modes, coupling language and visuals (Wessler et al., 2016). Linguistic and visual discursive strategies are thus primarily utilized to disguise and modify the truth of reality.

One of the key criteria for manipulation is its invisible nature, which indicates that the manipulator assumes that the object of its action is not fully aware of the intention or would fail to notice the tools used (Van Dijk, 2006). Nowadays, manipulation can be monomodal, expressed as texts or utterances or multimodal (Van Dijk, 2006) in which a number of modalities are used to achieve the aim. Therefore, manipulative discourse of climate change presupposes the use of various elements images, graphs and colors to create the desired meaning and convey the specific message.

Selection of linguistic and discursive features employed to communicate climate change to the wider public and create various meaning differs between science, media and politics. The clash between science and the media creates different perceptions of the same information because "forms of filtering and reinterpreting information about climate change are rooted in, and reproduce, profoundly divergent value systems" (Carvalho, 2007: 239).

1.4. Climate change in a relationship triangle – three's a crowd?

These three discourses play a pivotal role when it comes to shaping public perception and attitude as well as understanding of climate change notion (Weingart, Engels, and Pansegrau, 2000). Bearing in mind that public opinion is greatly impacted by the portrayal and communication mode of climate change within these three domains, they are highly influential in constructing the climate change discourse through various narratives, framings and stories (Weingart, Engels, and Pansegrau, 2000). That is why the triangular relationship between scientific, media and political discourse represents a significant framework for analyzing climate change discourse. Examining the ways in which climate change is discursively constructed within these discourses can provide insights into the underlying ideologies, values, interests, and power relations that shape public opinion and policy decisions.

However, within these three discourses, climate change is represented in myriad of ways and it can be ascribed numerous different meanings. Various narratives of climate change are articulated utilizing different types of linguistic devices and favoring different concepts. Therefore, it is important to acknowledge that the representation and understanding of climate change varies among science (Sarewitz, 2004), media (Boykoff, 2008; Carvalho, 2007), and politics (Bäckstrand and Lövbrand 2007; Oels, 2005) and different groups within society (Ratter et al., 2012). Consequently, various discourses of climate change can be created with remarkable differences. Namely, climate change risks are minimized, maximized or dramatized depending on the effect of the meaning-making process is bound to achieve.

Even though influential power of these discourses is highly dependent on their symbiotic effect, each of them has its own rules and operates in its own way. According to Luhmann, "political system is coded through the difference of *power/non-power*: political decisions can only be achieved by the parties in charge" (Luhmann, 2000 as cited in Rhomberg, 2010: 57). "The coding for the scientific system is *truth/non-truth"* (Luhmann, 1992 as cited in Rhomberg, 2010: 57), and "the coding for the mass media is *information/non-information" (*Luhmann, 2000 as cited in Rhomberg, 2010: 57). For this reason, a system only needs to deal with

communications in its own coding. Even though each of discourses tends to promote its own view as the sole authority about climate change (Kress 1985), they are intertwined and overlapping.

Nevertheless, in spite of the fact that media, politics and science are interdependent and interrelated entities in the context of climate change, each of them has a distinct role in shaping public perception.

Scientific community represents the cornerstone of the climate science and is often viewed as the most authoritative source of information on the issue (Bakhtin, Holquist and Emerson, 1981). According to Mitchell et al. (2006), it is where the most relevant knowledge and information pertaining to climate change are generated and analyzed. Specifically, scientists are responsible for the production and publication of scientific knowledge, in particular display of empirical evidence to support scientific findings and results. Conducting various research and analyses, they use a range of methods to study the causes and effects of climate change, and they communicate their findings through peer-reviewed publications and reports.

Media, on the other hand, is an important "validator" of the science (Gamson, 1999). It is considered a key source of information on climate change (Anderson, 2011). It serves as an interface between scientists and citizens and it represents the domain in which information about climate change is disseminated to the public. The phenomenon of climate change is one of the most publicized topics on a global level (Petrescu-Mag, 2022). Media outlets, including traditional news sources and social media platforms, play a critical role in raising awareness, shaping public understanding of climate change and influencing government's action and adaptive response to the changing climate (Chinsinga and Chasukwa, 2018).

Finally, one can talk about the climatization of global politics (Aykut and Maertens, 2021). Politics is the domain in which decisions are made about how to address climate change. Political actors, including policymakers, political parties, and interest groups, often have distinct priorities and interests that shape their positions on climate change. Political discourse on climate change can be influenced by a range of factors, including public opinion, economic considerations, and geopolitical interests (Halden, 2007).

The triangular relationship between science, media, and politics is important for analyzing climate change discourse because it highlights the interconnectedness of these domains and the ways in which they shape public understanding and policy decisions. By examining the discourse of climate change within each of these domains, it is possible to identify patterns of communication, that is, common denominators and disparate entities in constructing the dominant narrative.

1.5. Structure of the thesis

The thesis is structured as follows. Chapter two introduces the theoretical and methodological framework of the thesis providing rationale for the employment and anticipated outcome of the implementation of the critical and multimodal discourse analyses, which constitute the cornerstone of the analysis. This section also delves into the critical and multimodal discourse analysis providing a comprehensive insight into their origins, key concepts, approaches as well as overarching goals aiming to provide theoretical and methodological grounding for the subsequent analysis and findings of the thesis. Chapter three provides overview of the climate change timeline at the intersection of science, media and politics focusing on the most relevant milestones in the evolution of the notion from the scientific to social and political issue, in particular the underlying reasons that catalyzed polarization, medialization and politicization of

the debate. Furthermore, it outlines the scientific framework of the climate change as a global phenomenon scrutinizing scientific consensus rooted in the most noteworthy research, findings and evidence on the anthropogenic cause as well as projected risks and impacts. Additionally, it casts the light on the antagonistic views within the climate change debate, analyzing the notion of climate alarmism and denialism often reflected in political and ideological divide. Chapter four provides insight into rudimentary concepts within the media discourse examining its role, relevance and responsibility pertaining to communication of climate change-related content to the wider audience. Simultaneously, it illuminates media's persuasive and manipulative power in shaping and reshaping public perception and attitude on climate change, addressing the key challenges arising from mediated representation of this global phenomenon. Chapter five provides outline of the main determinants of political discourse focusing particularly on the dynamic interrelationship between language and politics in the context of language misuse and abuse for the purpose of manipulation and persuasion of the audience by politicians. Moreover, emphasis is placed on the analysis of political dimension and political status of the climate change, that is, catalysts that at first ignited its politicization. Concurrently, disjunction between scientific consensus and political turmoil is explained. Chapter six offers an overview of the heterogeneous nature of scientific discourse, its main characteristics and functions, questioning the paradigm shift in the conventional perception of science authority with the ever increasing entanglement of rhetoric devices and science in a light of climate change knowledge communication. Chapter seven focuses on the analysis of lexical features of the language investigating their function and capacity to carry ideological and political values, beliefs and meanings in climate change communication. Specifically, this chapter illustrates how lexical choices in terms of overlexicalization and relexicalization, nominalization, technical jargon and neologisms can be strategically employed to frame the discourse in favor of specific groups or serve specific purposes in shaping climate change narrative. Chapter eight concentrates on the rhetorical features of the language, that is, how metaphors, irony and hyperbole are utilized in media and political discourse to persuade the public and mobilize, i.e. obstruct action on climate change. Chapter nine provides an analysis of the fundamental aspects of pragmatics in language, exploring its role and relevance in constructing climate change discourse. By focusing on the presuppositions and implicatures, as the primary pragmatic devices, chapter demonstrates how these features are exploited to sway public perception, attitude and opinion and shape public discourse on climate change. Chapter ten addresses the concept of visual communication of climate change in the public discourse exploring the interplay between different semiotic modes (images, colours, graphs) and language in the process of meaning-making. Specifically, chapter looks at the synergy between language and visual rhetoric in climate change communication illustrating how they are combined to enhance the impact and persuasive power of climate change messages. The final chapter provides an account of the overall study analysis i.e. synthesis of the most relevant findings and results in a light of principal research topic that was problematized, hypothesis that were postulated, research questions that were discussed, and research aims that were set within the theoretical-methodological framework of critical and multimodal discourse analysis. Based on this approach, final chapter also summarizes the crucial scientific contribution of the research for the future studies.

2. THEORETICAL-METHODOLOGICAL FRAMEWORK

2.1. The research context

2.1.1. Homo communicans

In contrast to plants and animals, humans "have language by nature" and are the "living being capable of speech" (Heidegger, 1971: 189) which makes them the subject of communication.

> "We speak when we are awake and we speak in our dreams. We are always speaking, even when we do not utter a single word aloud, but merely listen or read, and even when we are not particularly listening or speaking but are attending to some work or taking a rest. We are continually speaking in one way or another. We speak because speaking is natural to us" (Heidegger, 1971: 189).

However, the process of communication isn't necessarily always straightforward. According to Breton, "once involved in the process of communication, we naturally tend too much to convince the others, we think we hold the absolute truth and we are certain that people must adhere to our opinions" (2006: 28). He asserts that "human beings are full of beliefs and detain the wish to persuade", which is why they appeal to words (2006: 23). Similarly, Alex Mucchielli, holds the view that "every word is an attempt to influence others" (2002: 11).

Correspondingly, language can be used as a tool to manipulate and control people and to influence their thoughts and actions (Fairclough, 1995). "When Machito felt the gun pressing against his spine, he quickly became persuaded to do exactly as ordered. Machito was not persuaded: he was manipulated through intimidation" (Nichols, 1987: 15). Accordingly, Nichols describes manipulation as "short-lived, fluctuating and divisive" and persuasion as "long-lasting, trust-building and unifying" (2021: 17).

"The reality is produced, constituted or constructed through language" (Hughes and Sharrock, 1997: 145). Accordingly, "language is considered as constitutive and constructive, rather than reflective and representative" (Phillips and Hardy, 2002: 21). According to Habermas, "language is also a medium of domination and social force. It serves to legitimize the relations of organized power. In so far as the legitimization of power relations […] are not articulated […] language is also ideological" (1977: 53). According to Fairclough, "in human matters, interconnections, and chains of cause and effects may be effected, distorted out of vision. Hence critique is essentially making visible the interconnectedness of things" (1985: 747).

2.1.2. Research objectives

This research study aims to unveil the manipulative and persuasive use of multimodal semiotic modes in the climate change communication by elucidating the triangular interrelationship between the scientific, media and political discourse of this global phenomenon by examining how they contribute to shaping public perception and influencing policy-making. Specifically, the study's main objective is to decompose and deconstruct the climate change discourse by uncovering underlying discursive strategies utilized either to support or challenge dominant ideologies or hegemonies, thus reinforcing or shaking public opinion. To achieve this, the dual analysis of semiotic modes will be conducted, focusing on both the verbal and visual

discourse of climate change. The analysis of verbal construction will encompass lexical, rhetorical and pragmatic devices while the visual analysis will examine images, photos and colours utilized to convey the meaning within the discourse. To achieve this, the study employs a theoretical and methodological framework that integrates critical and multimodal discourse analysis, drawing from perspectives in ecolinguistics, sociolinguistics, and cognitive linguistics.

2.1.3. Theory and method

In this thesis, analyzing climate change discourse within the science, media and politics is approached from the perspective of two complementary scientific fields of critical and multimodal discourse analysis. Critical and multimodal discourse analyses hence represent the primary theoretical and methodological framework for the conduct of this research study. This framework thus acknowledges that the climate change discourse is communicated to the wider audience by combining linguistic devices and semiotic modes and that only by investigating both verbal and visual elements it is possible to gain insight into how scientific, media and political discourse of climate change are constructed and perceived by the public and policy-makers. Bearing in mind that the prevailing narrative and framing of climate change created within the scientific, media and political discourse is inherently multimodal by nature, only by applying both approaches it is possible to gain insight into discursive practices employed by different social actors, i.e. media, politicians and scientists.

Critical Discourse Analysis emerged as an interdisciplinary approach in the early 1990s, pioneered by scholars including Norman Fairclough, Gunther Kress, Theo van Leeuwen, and Teun van Dijk (Wodak and Meyer, 2001). Critical discourse analysis examines how language constructs and perpetuates social realities, aiming to identify instances of injustice, power imbalances among social groups, and discrimination based on factors such as race, social class, or gender (Wodak and Chilton, 2005; Wodak and Meyer, 2009). Wodak (2001) argues that Critical Discourse Analysis seeks to critically investigate how social inequality is expressed, signaled, constituted, legitimized, and otherwise shaped through language use (or discourse). Meyer (2001), on the other hand, asserts that CDA aims to illuminate the discursive dimensions of societal disparities and inequalities. Fairclough provides a more practical perspective on the goals of CDA, suggesting that its objectives are to examine the social functions of language, to interpret linguistic processes within social contexts, and to uncover their "ideological" and political implications (1992: 315).

> "Critical Discourse Analysis is based on the idea that text and talk play a key role in maintaining and legitimizing inequality, injustice and oppression in society. It uses discourse analytical methods to show how this is done, but without restricting itself to one particular discourse analytical approach" (Van Leeuwen, 2009: 277).

Critical discourse analysis as a qualitative analytical approach is applied in this thesis aiming to decode and expose political and ideological biases and power relations and the ways in which they are embedded in the climate change discourse. As the majority of these relations and messages are embodied in a discourse implicitly (rather less explicitly), CDA is applied as a means of unmasking and elucidating the concealed ideological discourse in the climate change debate, constructed primarily to maintain or legitimize interest of certain power groups. As CDA is well-suited to "uncover, reveal or disclose what is implicit, hidden or otherwise not immediately obvious in relations of discursively enacted dominance or their underlying

ideologies" (Van Dijk, 2013: 353), it is particularly applied in the analysis of linguistic devices, more specifically, choice and interaction of lexical, rhetorical and pragmatic features utilized within the climate change discourse as the crucial carriers of biased messages and ideologies. Moreover, CDA is applied to unravel manipulative and persuasive use of language by media, scientists and politicians through employment of various discursive strategies aiming to shape the opinion and influence the minds (and actions) of wider audience as well as policy-makers. Consequently, CDA is employed to expose the underlying, values and beliefs that shape the way in which a number of social actors, among other, climate alarmists and sceptics communicate about climate change.

The interplay of visual and linguistic devices in the meaning-making of climate change in politics, media and science is also analyzed from the perspective of multimodal social semiotic approach. It entails "the combination of different semiotic modes, for example, language and music — in a communicative artifact or event" (Van Leeuwen, 2005: 28). The leading proponents of the multimodal discourse analysis are Van Leeuwen, Kress, O'Halloran, Lemke, Baldry and Scollon. Kress and Van Leeuwen extend Halliday's theory of language as semiotic mode and language functions through ideational, interpersonal, and textual metafunctions to visual communication. They argue that visual modes such as image, color, music, and typography can also fulfill these metafunctions. According to Kress and Van Leeuwen (1996, 2006), these visual modes serve as resources for representation, displaying culturally specific regularities similar to language.

Multimodal discourse analysis is employed as it provides a more inclusive approach to the analysis of the dynamic interplay between language and visuals in terms of multimodal meaning-making as it recognizes the potential of linguistic devices and visual resources in communicating complex scientific issue such as climate change to the diverse audience. This approach is particularly relevant as it enables a comprehensive understanding of the ways in which various semiotic modes but principally non-verbal resources are used to create and convey desired meaning within the discourse. Hence, multimodal analysis is primarily applied to examine and unravel how language in conjunction with visual images is used to construct meaning, transmit certain ideologies and shape public opinion. Moreover, this approach reveals the way in which different discursive strategies in terms of visual framing and visual rhetoric are utilized to manipulate and persuade the public by downplaying or highlighting certain aspects of climate change by building visual discourse that suits interests of certain groups or actors. Its application in the thesis aims to reveal the ways in which images, photos, graphs, charts and other visual representations are used to convey messages, construct arguments and shape scientific, media and political discourse on the subject and thus influence the public perception.

2.1.4. Research

As previously indicated the theoretical underpinning of the thesis relies upon the convergence of two complementary fields, critical discourse analysis and multimodal discourse analysis. This amalgamation entails incorporation of all three CDA approaches, Norman Fairclough's dialectical relational approach, Ruth Wodak's discourse historical as well as Teun A. van Dijk's socio cognitive approach. Integrating all these methodological approaches was deemed necessary in order to conduct cross-disciplinary analysis of the media, political and scientific discourse of climate change considering its multimodal and multifaceted nature. Consequently, within the broader analytical and conceptual frameworks provided by CDA and MDA, both qualitative and interpretative analysis of the climate change discourse was undertaken

in the thesis in order to decode the manipulative discourse and unmask covert ideologies through various linguistic choices and visual modes.

2.1.5. Limitation of the research object

The analysis of the scientific, media and political discourse of climate change is delimited to the Anglo-Saxon context of the United Kingdom and the United States of America, thereby exclusively incorporating Anglophone sources and corpus material. Nevertheless, the thesis doesn't seek to contrast or compare findings between these two countries or triangulate examples of the British and American media, political and scientific domains, therefore the choice of synchronic or diachronic perspective in the thesis was not deemed imperative. Additionally, the thesis does not seek to conduct comparative analysis of how climate change is portrayed in the scientific, media and political discourse but rather demonstrate diverse discursive strategies employed by these discourses to influence public attitude and policy-making. In this context, it is also important to note that the thesis doesn't not address separately the dichotomy between climate alarmism and climate skepticism in science, media and politics in terms of comparison of the combination of various semiotic modes in climate change communication. Due to abundance of research dealing with discursive practices deployed to generate ideologies and communicate climate change-related issues, this thesis is delimited to explore specifically lexical, rhetorical and pragmatic devices and how they contribute to meaning-making and construction of manipulative discourse within the climate change. Furthermore, given the fact that climate change representation is being increasingly multimodal marked by utilization of an array of semiotic modes including visuals (images, photographs, colours, diagrams, symbols), auditory elements (sound, music, speech), linguistic (written or spoken language) as well as spatial components (layout, design), the research study is delimited to the analysis primarily focused on visual modes, specifically images, photos and colours in order to unravel the opaque relations between ideologies, power dynamics and manipulation in the visual discourse of climate change.

2.1.6. Corpus selection

As previously indicated, due to the complexity and extensiveness of the research topic in addition to the abundance of available sources, certain selection criteria were established to gather the most relevant data for the empirical part of the study. Recognizing that the notion of climate change "has outgrown" the scientific discourse where it first emerged and "has settled down" mostly at the intersection of science, media and politics, emphasis was placed on collecting data stemming primarily from these domains. Acknowledging their influence in shaping public perception on climate change, in their respective roles as knowledge producers, disseminators of information as well as decision-makes, gathering data related to the media, science and politics has proven beneficial for the analysis providing overall portray of this global phenomenon.

In that regard, as previously discussed, the first criterion for the selection was related to the geographical aspect. The climate change discourse is investigated in the Anglo-Saxon context, specifically including United Kingdom and United States of America thereby particularly focusing on the Anglophone sources within media, politics and science. Another significant criterion when it comes to the corpus selection refers to the time framework. In that regard, delimiting timeframe was essential so that the corpus mostly consists of the data collected from the 2010 and onwards. The temporal aspect plays crucial role in the thesis analysis

considering that the new (digital) media have substantially contributed to the further polarization, politicization, ideologization as well as descientification of the climate change. Review of the previous studies has shown that climate change-related issues have received growing attention as from the mid-2000s in most developed and developing countries (Song et al., 2021).

Corpus for the analysis of the scientific discourse is composed of the scientific papers, publications and studies published by the most renowned scientific organizations or institutions including *World Meteorological Organization* (*WMO*), *Intergovernmental Panel on Climate Change (IPCC*), *National Oceanic and Atmospheric Administration (NOAA), National Aeronautics and Space Administration (NASA), Copernicus Climate Change Service (C3S)* or peer-reviewed journals such as *The Nature*.

Corpus for the media discourse analysis is made of news articles, opinion sections, news comments, reports, columns and interviews from the news media (portals) with the broad readership. In the **United Kingdom** they include *BBC News, Sky News, The Guardian, Independent, Financial Times, The Times, The Sun, Daily Mail, The Daily Telegraph* and *The Huffington Post UK*. Each of these papers/portals was further classified depending on its political leanings. On the basis of their political orientation, *The Guardian*, *The Independent* and *The Mirror* fall under the left-wind category with *Guardian* taking most progressive stance toward the climate change issue while *Independent* is knows as political neutral but leans toward liberal viewpoints. *The Times* is normally regarded as the centrist, while right-wing category comprises of *The Sun, The Daily Mail* and *the Daily Telegraph* notorious for their sensationalist journalism and typically labeled as tabloid papers, which is evident in climate change coverage. The UK media corpus also includes several other less known portals and newspapers with smaller circulation that were included to enhance the diversity of the examples.

In the **United States t**hey include *CNN, The Huffington Post, Fox News, NBC News, CBS News, Bloomberg, The New York Times, The Wall Street Journal, USA Today, The Washington Post, Los Angeles Times, Chicago Tribune, The Boston Globe* and *New York Post.* In the context of the US, newspapers with smaller readership were also included to provide illustrative examples. As for the US papers, the breakdown displays similar political orientation as in the UK. The left-wing label typically refers to *The New York Times, The Washington Post* and *The Huffington Post* with liberal views toward the current social and political affairs. Less *The New York Times* is known as the "newspaper of record" (Cotter 2001: 416) in the US and plays significant role in influencing media outlets in other countries. *USA Today, The Wall Street Journal* as well as the *Los Angeles Times* are typically considered centrists, while the right-wing tabloid style media outlet is often synonymous with *Fox News* which is chiefly associated with climate change denial and climate skepticism marked by dissemination of fake news and misinformation in its coverage of climate change-related news stories. Considering that the thesis hypothesizes the existence of media bias in the climate change reporting, the data collection was driven by the need to showcase how this bias is reflected in the politically and ideologically opposed news media by examining how different frames, narratives and rhetoric are used for manipulating public opinion and attitude. Moreover, considering that thesis problematizes ideological polarization within the climate change discourse and existence of manipulation in both discourses of climate alarmism and skepticism, the corpus is particularly designed to encompass diverse materials and examples from sources spanning right-wing and left-wing orientations. In this context, the objective of the data collection process was to demonstrate how this political and ideological clash is manifested in the climate change debate by unraveling the "invisible link" between the power, ideology and manipulation and how it serves to perpetuate hegemonies or dominant paradigms.

Corpus for the political discourse analysis mostly includes speeches or statements of the current of former politicians, head of states, Prime ministers (*Joe Biden, Donald Trump, Barack Obama, Rishi Sunak*) or climate activists (*Grete Tunberg*) and is obtained from the relevant media texts or transcript from the political institutions such as the White House.

As the thesis theorizes on the conflict between the proponents and opponents of the anthropogenic origin of the climate change perpetuating media, political and scientific discourse, sampling was determined by one key criteria and that is to provide a picture of both pro and anti-attitude. Therefore, the research was conducted by applying the key word search on the internet containing words that reflect both movements, *climate alarmism, climate catastrophe, climate breakdown, climate crisis, climate doomism, fear, scare-mongering on one hand and *climate skepticism, climate denial, climate contrarians, climate delayism, climate hoax, scientific uncertainty, doubt on the other. Each of the lexical and rhetorical devices that were analyzed in the thesis were searched separately and the most relevant research results were included and examined in the thesis. All the collected material was further examined manually, organized, categorized and structured in different chapters depending on the analyzed notions.

2.1.7. Previous research

As shown, due to transformative (from scientific through political to social, ethical and cultural issue) and controversial (polarized and contested) nature of climate change, myriad of scholars have shown interest in conducting cross-disciplinary studies of various dimensions of climate change resulting with the research corpus amassing a vast number of studies, papers and publications on the language-centered analysis. Nevertheless, given its multimodal character, analysis of climate change visualization and visual communication has proved equally intriguing for a range of scholars given the fact we live in an image-based culture marked by conducting image-oriented science.

In order to provide a comprehensible, up-to-date analysis of linguistic (textual) and visual (semiotic) discursive strategies and underlying mechanisms employed in constructing climate change narratives, frames and stories as well as to expand understanding of challenges and pitfalls of its public communication, study includes analysis of both verbal and visual discourse of climate change at the intersection of science, media and politics. Given the scope, magnitude and complexity of the topic, this study draws on numerous research papers, highlighting only the most relevant due to abundance of sources.

The scholarly interest for the research on nexus between climate change and media (discourse) hasn't seemed to cease for the past several decades continuously extending, deepening and broadening on the research topic, methodology and corpus. In pursuit of identifying the knowledge gap between the science, media and policy, media communication of climate change stands out as a particularly engaging domain. Consequently, media framing, journalistic norms as well as impact of (un)balanced media coverage on the public perception of the issue has drawn interest of Maxwell Boykoff as well as Jules Boykoff who have published several papers dealing with these particular topics (2004, 2007). Maxwell Boykoff further explored the cause-effect relationship between media representations, scientific communication and international policy (2008) as well as the connection between the media reporting of climate change and decision-making process (2013). The influence of media framing on the policy responses and public understanding of the climate change risks was investigated by James Painter (2013); Mike Hulme (2009) explored the role of media in shaping public attitude and perception

of climate change while Schmidt, Ivanova and Schäfer (2013) explored how much media attention climate change get in different countries around the world.

Similarly, Anthony Leiserowitz (2006) examined the public opinion on climate change, focusing on the how media messages influence public attitude towards climate policies whilst Susane Moser (2016) researched media's role in communicating climate change effects, adaptation strategies and public engagement. The majority of the papers Boykoff co-authored address the link between the media coverage, its power and role in reproducing power relations, shaping public discourse on climate change and influencing public perception. For example, Boykoff and O'Neill (2011) explored what role media play in engaging the public with climate change; Boykoff and Yulsman (2013) investigated the portray of climate change in media, its main determinants and power dynamic; Boykoff and Roberts (2007) identified the main trends, weaknesses and strengths of media coverage of climate change; Boykoff and Rajan (2007) examined how climate change is covered in media in the USA and UK.

When it comes to framing, tremendous volume of research exists drawing upon sociological and psychological roots of the studies that highlight the importance, effect and implications of various framing strategies. Lakeoff (2010) wrote about environmental framing; Dewulf (2013) researched on the contrasting frames in the policy debate on climate change; Spence and Pidgeon (2010) aimed to demonstrate the manipulative effects of distance framing of climate change; Nisbet (2009) argued the relevance of framing for the increased public engagement; Trumbo (1996) researched media frames in the US news coverage, while Broadbent et al, mostly focused on the global frame patterns in the context of climate change. Stecula and Merkley (2019) explored the media frames, ideology and uncertainty in the US news content between 1988 to 2014 while Wozniak, Lück and Wessler (2016) focused on the multimodal approach to comparative analysis of climate change media frames. Examining climate change within the public health frame was conducted by Myers, Nisbet, Maibach, and Leiserowitz (2012), whereas Doulton and Brown (2009) researched on various discourse of climate change and their role in shaping public understanding.

Climate change as a communication challenge was subject of research carried out by Bell (1994), Moser (2010), Moser and Dilling (2004), Nerlich, Koteyko, and Brown (2010), while Weingart, Engels and Pansegrau (2000) particularly focused on the risks of climate change communication in German media discourse. Theory and language of climate change communication was presented by Hulme (2009) while the role of language in the debate on climate change was extensively researched by Fløttum (2010) specifically focusing on the linguistic and discursive perspective (2017). The linguistic aspect of the intersection of political and scientific narratives in the context of the IPCC reports and policy-making was explored by Fløttum and Dahl (2012, 2014), that is, Fløttum and Gjerstad (2017).

The vast amount of papers furthermore deals with the political communication of climate change, that is, the climate-policy nexus in the context of the polarized and ideologized climate change debate. Anderson (2009, 2011) investigated the interaction of political and media domain with the climate change; McCright and Dunlap (2011, 2015) focused their research on analyzing survey data (2001-2010) in order to explore political ideology and media framing particularly examining the politicization as the main determinant of polarization of public opinion on climate change in the United States. In a same vein, they additionally researched origins, strategies and goals of climate denialism (2011) and its implication for delaying climate action similarly to Whitmarsh (2011) who also focused research on the counter-movement of climate skepticism and the spread of uncertainty as the main communication strategy of climate contrarians. The communication goals of climate skepticism were explored by Rahmstorf (2004) as well as Antilla

(2005) with a specific focus on US news coverage. On the other hand the notion of climate alarmis drew attention of Risbey (2008) who explored the distinguishing features of the discourse of alarmism and the discourse of alarm in the climate change debate.

The complex interplay of climate change and politics was explored by Carvalho (2010) who specifically explored the connection between political (dis)engagement and mediated coverage of climate change focusing on the most dominant communication strategies. Additionally, she researched the ideological discourse in the mediated narratives of climate change in the British press (2007) as well as the underlying political dimension of the greenhouse effect (2010). The surge of the climate change-related news stories in the US media was investigated by Bolsen and Shapiro (2018) seeking to identify the roots of the partisan divide in the climate change debate and role of journalists in shaping polarized discourse on climate change.

The rhetoric dimension of the climate change discourse, in particular the interplay of rhetoric, politics and climate change was addressed by Kurz, Augoustinos and Crabb (2010) who specifically analyzed the political rhetoric of climate change; Dryzek and Lo (2015) researched rhetoric in climate change communication; Hoffman (2002) examined strategic implications of rhetoric in climate change policy; Supran and Oreskes (2021) analyzed the rhetoric of climate denialism in the context of Exxon Mobile; Bonefille (2011) investigated Obama and Sarkozy's speeches at the UN's Climate Change summit (2009); Cabe (2012) examined the persuasive techniques of President Barack Obama and Prime Minister Julia Gillard; Besel (2013) focused on the work of James Hansen and the rhetorical/political emergence of global warming while Vavilov (2019) explored Grete Thunberg's public speeches on climate change. The research on metaphors as rhetorical devices and their role in shaping the discourse of climate change was carried out by Niebert and Gropengiesser (2013), Deignan (2017), Skinnemoen (2019), Shaw and Nerlich (2015), Atanasova and Koteyko (2017), as well as Van der Linden, Leiserowitz, Feinberg and Maibach (2015). The lexical dimension of the climate change discourse was addressed by Ungar (2000), Sharon and Baram-Tsabari (2014) as well as Barnett, and Doubleday (2020). The pragmatic dimension of climate change was addressed by Luke (2020) who explored the ecopragmatic perspective of climate denialism (delusion, delay and destruction); Hassan (2023) who analyzed implicatures in the tweets of climate change sceptics; Brooks and Wingard (2024) explored hegemonic discourses and implicatory denial in the context of climate change, while Mohammed conducted pragmatic analysis of presuppositions in Trump's speeches (2023).

In that context, the role and relevance of the visual imagery in communicating climate change causes, risks and effects to the wider audience and the underlying reasons for their deployment was analyzed by Sheppard (2012), Smith and O'Neill (2014) as well as Culloty, Murphy, Brereton and Suiter (2018) who have additionally focused on different types of visual representations and their impact on public engagement on the issue. Based on the theory of social semiotics, Walsh (2015) employed rhetorical approach to the analysis of visual discourse exploring various rhetorical choices along with power of visual rhetoric in configuring policies and ideologies in climate change debate. The way how visual communication can serve as powerful tool for mediating various aspects of climate change in the context of conceptualization and cosmopolitization of the issue was examined by Yui (2013). *Red lines and hockey stick* are regarded among the most recognizable visualizations of climate change and as such were investigated by Dawson (2021) with particular focus on the data visualization embodied within the IPCC assessment reports aiming to reveal the knowledge gap between the scientific community and the wider audience. Furthermore, he analyzed various semiotic modes (graphs, maps and colours) in their role in visual meaning-making and their function as carriers of various

ideological orientations. With regard to all this research on visuals and semiotic modes, studies of polar bears have become emblematic for climate change. Analysis of the polar bears as visual symbols of the changing climate, melting Arctic as well as the rising temperatures makes an integral part of the research on climate change visual imagery with Manzo (2010), Born (2017, 2019), O'Neill (2013, 2022, 2022) as well as Swim and Bloodhart (2015). They are all concerned with the topic how polar bears (as icons, synecdoche or metaphor) visually shape the discourse of climate change and how they communicate the discourse of risk due to the escalating emissions and political inactivity. Moreover, Rebich-Hespanha and Rice (2016) have particularly focused on identification and assessment of the most dominant visual frames of climate change and the implications of their utilization in climate change campaign messages. In the context of visual representation of climate change, O'Neill and Nicholson-Cole (2009) conducted an empirical study focusing on the impact of visual discourse of fear (anxiety-inducing images and scaremongering) on the public engagement revealing how fearful images are mostly counterproductive and demotivating for public and policy-makers.

2.2. Critical Discourse Analysis

2.2.1. Defining CDA

> "Critical Discourse Analysis (CDA) has now firmly established itself as a field within the humanities and social sciences, to the extent that the abbreviation *CDA* is widely used to denote a recognizable approach to language study manifested across a range of different groups" (Breeze, 2011: 493).

Billig has further extended this claim by asserting that CDA is on a verge of evolving into "an intellectual orthodoxy" presupposing it is an established discipline possessing its own paradigm, canon, standardized assumptions, and even power dynamics (2003: 44). Accordingly, CDA has become part of "intellectual landscape" (Breeze, 2011: 493) as an entity, a recognizable approach to language study or "program" (Wodak, 2011: 50).

Despite various interpretations and paradigms, CDA comprises two fundamental elements. The first revolves around the political dimension, that is, understanding mechanisms of ideology and power within society on one hand, and how language influences and reflects these mechanisms on the other (Breeze, 2011). Therefore, interrelationship between language (text, discourse) and power (inequality, dominance, conflict) is subject of extensive study.

2.2.2. The aim of the CDA

> "Critical Discourse Analysis is discourse analytical research that primarily studies the way social-power abuse and inequality are enacted, reproduced, legitimated, and resisted by text and talk in the social and political context…aiming "to understand, expose, and ultimately challenge social inequality" (Van Dijk, 2015: 466).

According to Fairclough and Wodak, CDA is premised on the following tenets: "CDA addresses social problems"; "power relations are discursive"; "discourse constitutes society and culture"; "discourse does ideological work"; "discourse is historical"; "the link between text and society is mediated"; "discourse analysis is interpretative and explanatory"; "discourse is a form of social action" (1997: 271–279). In a similar vein, Van Dijk adds that CDA focuses on the ways

"discourse structures enact, confirm, legitimate, reproduce, or challenge relations of power abuse (dominance) in society" (2015: 467). One of the objectives of CDA is to "demystify" discourses by deciphering ideologies" (Wodak, 2001: 9) that is, to "deconstruct discursive hegemony" (Flowerdew and Richardson, 2018: 4).

2.2.3. Origin of the CDA

According to Van Leeuwen, "critical discourse analysis is founded on the insight that text and talk play a key role in maintaining and legitimating inequality, injustice, and oppression in society" (2006: 290).

From the diachronic perspective, the emergence of the CDA is often interpreted in the context of the classical rhetoric and sociolinguistics, along with applied linguistics and pragmatics (Weiss and Wodak, 2002) while certain concepts were directly influenced by Jürgen Habermas and the critical theory of the Frankfurt School (Van Dijk, 1993). Another important influence stems from the perspectives of neomarxist as well as postmodernist social theorists like Foucault (1972) and social linguists such as Pecheux (1975). Nevertheless, critical linguistics is regarded as the real predecessor to the CDA.

Critical discourse analysis moved beyond critical linguistics in a number of ways. CDA emerged as a movement at the University of East Anglia in the mid-1970s (Fowler et al., 1979; Hodge and Kress, 1993; Van Leeuwen, 2006). Specifically, linguists from this University were the first who brought the term *critical* to the fore of the language studies (Wodak and Meyer 2009: 7). CDA derived from the Halliday's (1989) systemic-functional linguistics who introduced a crucial insight that allowed linguistic analysis to extend beyond mere formal description and serve as a foundation for social critique:

> "Grammar goes beyond formal rules of correctness. It is a means of representing patterns of experience (...). It enable human beings to build a mental picture of reality, to make sense of their experience of what goes on around them and inside them" (Halliday, 1989: 101).

Critical linguists added two more things to the formal grammar: patterns of experience (inspired by Marx) and patterns of ideologies (inspired by Whorf).

A significant milestone in the development of CDA as a movement was reached in the early 1990s following a small symposium in Amsterdam during which Norman Fairclough, Theo van Leeuwen, Teun van Dijk, Gunther Kress, and Ruth Wodak spent two days together discussing theories and methods of CDA (Wodak and Meyer, 2009). The group gradually included more members that met annually from 1992 onward. This marked the beginning of rapidly-evolving movement now usually referred to as CDA. The first extensive international conference took place in Valencia in 2004 and the same year marked the release of two new journals, *Critical Discourse Studies* and the *Journal of Language and Politics* (Van Leeuwen, 2006).

According to Van Leeuwen, the term CDA appeared in connection with the Fairclough's works in a period from 1989 to 1995. Interestingly, he used the terms *Critical Language Awareness (CLA)* and *Critical Language Studies (CLS)* interchangeably with the CDA. However, the term was finally coined, acknowledged and used in his book "Critical Discourse Analysis" (Billig, 2003).

> "The book bore the subtitle *The critical study of language*. The use of the definite article in the subtitle was emblematic: it was as if the multiplicity of 'critical approaches', which were outlined in Fairclough (1992), had coalesced into a uniformity which could be identified as the critical study" (Billig, 2003: 35).

2.2.4. The notion of "critical"

The deconstruction of CDA research program entails defining the notion of *critical* and the notion of *discourse*. In her 2011 paper, Ruth Wodak introduced Michael Billig's perspective from 2003 about CDA becoming a recognized academic field marked by institutional practices similar to other disciplines. He raised the question whether this institutionalization could lead CDA to become "uncritical" or if the use of acronyms like CDA serves similar purposes like in non-critical disciplines (Wodak, 2011). However, he further argued:

> "Critical Discourse Analysis does not claim to be *critical* because of a technical or methodological difference from other approaches to the study of language. It is claimed that Critical Discourse Analysis, like critical psychology or critical social policy, is critical because it is rooted in a radical critique of social relations" (Billig, 2003: 38).

According to Van Dijk, criticism in CDA is targeted at power elites that sustain social inequality and injustice (Billig, 2003). In other words, CDA is discourse study with *an attitude* (Van Dijk, 2015: 466). Therefore, Ruth Wodak in an interview by Kendall, when asked about the function of *critical* in CDA clarified that:

> "Critical means not taking things for granted, opening up complexity, challenging reductionism, dogmatism and dichotomies, being self-reflective in my research, and through these processes, making opaque structures of power relations and ideologies manifest. "Critical", thus, does not imply the common sense meaning of "being negative"—rather "skeptical" (2007: 4).

2.2.5. The notion of "discourse"

According to Phillips and Hardy, "without discourse, there is no social reality, and without understanding discourse, we cannot understand our reality, our experiences, or ourselves" (2002: 2). In order to achieve its objective of disentangling discourse, that is, "to uncover the techniques through which discursive limits are extended and narrowed down" (Jäger and Maier, 2009: 34), CDA is directed towards discourse in two senses: where discourse is understood both as "language in use" and as "patterns and commonalities of knowledge and structures" (Wodak, 2011: 39).

Most importantly, CDA sees "language as social practice" (Fairclough and Wodak, 1997), and considers the "context of language use" to be crucial (Wodak, 2011).

> "CDA sees discourse – language use in speech and writing – as a form of 'social practice'. Describing discourse as social practice implies a dialectical relationship between a particular discursive event and the situation(s), institution(s) and social structure(s), which frame it: The discursive event is shaped by them, but it also shapes them. That is, discourse is socially constitutive as well as socially conditioned –it constitutes situations, objects of knowledge, and the social identities of and relationships between people and groups of people. It is constitutive both in the sense that it helps to sustain and reproduce the social status quo, and in the sense that it contributes to transforming it. Since discourse is so socially consequential, it gives rise to important issues of power. Discursive practices may have major ideological effects – that is, they can help

produce and reproduce unequal power relations between (for instance) social classes, women and men, and ethnic/cultural majorities and minorities through the ways in which they represent things and position people." (Fairclough and Wodak, 1997: 258).

2.2.6. The main pillars of CDA

In Critical Discourse Analysis, power, ideology, and manipulation are considered fundamental elements.

2.2.6.1 Ideology

Due to the complexity of the phenomenon, multitude of definitions persist in the literature. Traditional definitions often convey negative and critical notions such as *incorrect*, *inaccurate*, *distorted*, or *misguided* beliefs, primarily in reference to our social or political opponents (Van Dijk, 1996). Kress points out that the term ideology may refer to various notions ranging from "system of ideas, beliefs or a worldview" to more contested ones such as "false consciousness or ideas of the dominant ruling class*"* (1985: 29). According to him, exploration of language is essential as ideology is most often embedded into the linguistic structures. According to Van Dijk, "ideologies establish links between discourse and society. In a sense ideologies are the cognitive counterpart of power" (1996: 7). According to Fairclough, ideology is "meaning in the service of power" (1995: 14). Moreover, Fairclough and Wodak underline that "discourse does ideological work by continuous producing and reproducing ideology" (Fairclough and Wodak, 1997: 274) as "significations/constructions of reality (the physical world, social relations, social identities), which are built into various dimensions of the forms/meanings of discursive practices, and which contribute to the production, reproduction or transformations of relations of domination" (Fairclough, 1992: 87).

One of the most distinctive features of ideology is that it is opaque and embodied into the language utilization which in turn means that trough continuous reproduction specific beliefs become universal. As a result, ideology gets used as a tool for pseudo-legitimization of power of the dominant or elite groups, that is, for the establishment of hegemony. According to Gramsci (1971), hegemony is power which is exercised covertly through discourse and ideology and not physical coercion. In this sense, the "Janus-headed" nature of discourse "is consequence of power and domination, but also a technology to exert power" (Wodak and Meyer, 2016: 10).

2.2.6.2 Manipulation

Van Dijk views manipulation as a crucial component of the CDA, especially as it often implies "discursive power abuse" (2006: 359). He analyses its characteristics in the framework called "triangulation" linking discourse, cognition and society (Van Dijk, 2001). Accordingly, within this framework, manipulation is often investigated as a notion influenced by interplay of discourse, cognitive processes and social power dynamics as crucial determinants for shaping of the discourse and discourse comprehension. "Manipulation is a communicative and interactional practice, in which a manipulator exercises control over other people, usually against their will or against their best interests" (Van Dijk, 2006: 400).

Aside from the power, manipulation also implies "abuse of power", that is, domination (Van Dijk, 2006: 400). Shortly, manipulation entails exerting *illegitimate* influence through

discourse: manipulators seek to convince others, either to believe or act in ways that suits their interest or agenda, often contrary to the best interests of those being manipulated (Chouliaraki, 2005; Martín Rojo and Van Dijk, 1997). Additionally, Van Leeuwen notes that such *illegitimate influence* can extend beyond discourse and encompass photos, pictures, movies or other forms of media (Van Leeuwen, 2005). Which in turn makes contemporary communicative manipulation (especially by media) multimodal, particularly executed by mass media in advertising (Day, 1999; Messaris, 1997).

"In everyday usage, the concept of manipulation has negative associations – manipulation is *bad* – because such a practice violates social norms" (Van Dijk, 2006: 389). However, beyond this negative context, manipulation could be seen as a form of (legitimate) persuasion (Dillard and Pfau, 2002). The difference lies in the fact that persuasion allows recipients to freely choose to believe or dismiss the "persuasive" arguments whilst manipulation recipients are labeled as "victims of manipulation" (Van Dijk, 2006: 361). Wodak elaborates on the negative effects of the manipulative discourse noting that manipulators' true intentions may be hard to uncover due to recipients' lack of the specific knowledge (Wodak, 1987). Consequently, "the boundary between (illegitimate) manipulation and (legitimate) persuasion is fuzzy, and context dependent: some recipients may be manipulated by a message that is unable to manipulate others" (Van Dijk, 2006: 361). Correspondingly, dominant groups use "manipulation as a discursive social practice to reproduce their power and by doing so they reproduce or may reproduce inequality" (Van Dijk, 2006: 364). Furthermore, in most instances such manipulation is highly likely ideological (Van Dijk, 2006) and it involves ideologies, ideological attitudes and ideological discourse structures.

2.2.6.3 Power

"Power is the ability of people and institutions to control the behavior and material lives of others" (Fowler, 1983: 61). He further states that power is a transitive notion which entails asymmetrical relationship. In a similar vein, Fowler (1983) and Van Dijk (1996), describe the power as a relation in which control and asymmetry are evidently present arguing that through the use of language it becomes powerful. In a similar fashion, Van Dijk (1996) notes that social power implies a control in which one group has control over another group which makes power a crucial notion. According to Fowler (1983), language serves as a tool that can be manipulated to abuse positions of authority and privilege, for instance, through regulations or commands, moreover the use of language also constructs statuses and roles that provide the foundation for individuals to exert power.

2.2.7. Central approaches to CDA

2.2.7.1 Norman Fairclough's Dialectical Relational Approach

Norman Fairclough, a British sociologist stands as one the central persons in Critical Discourse Analysis and is typically described as the "the most influential practitioner" (Widdowson, 2004: 90). Although initially associated with the group that established the English School, Fairclough later aligned his work with the Vienna school (1989: 1).

Relying upon Halliday's systemic functional linguistics theory, Fairlcough developed a three-dimensional CDA framework aiming to make a "contribution to the general raising of

consciousness of exploitative social relations, through focusing upon language" (Fairclough, 1989: 4).

The first dimension of the CDA framework implies micro-level analysis and views discourse as text for which Fairclough states: "Texts may be written or oral, and oral texts may be just spoken (radio) or spoken and visual (television)" (1995: 57). The text analysis involves the study of the "linguistic structures, vocabulary selection and patterning (metaphor, wording), grammar (intransitivity, transitivity, passivization, modality), cohesion (conjunction, clauses), and text structure (e.g. episoding, turn-taking)" (Blommaert and Bulaen, 2000: 448).

> "The first phase of the analysis is called description and involves vocabulary; word choices in the text, the way words are used together, whether ideologically controversial words are used or not, positive/negative expressions, which topics are repeated with synonyms, whether the expressions are softened or not, where formel and non-formel the re-formulations of expressions and the use of metaphors are looked at" (Fairclough, 1989: 113-120).

The second dimension of the framework refers to the meso-level of analysis and typically involves three-step practice of "text production, text distribution, and text consumption" and how they vary due to the influence of social factors (Fairclough, 1992: 78). At this level emphasis is put on the "speech acts, coherence and intertextuality" (Blommaert and Bulcaen, 2000: 448). The second phase is called interpretation. According to Fairclough, "interpretation is concerned with the relationship between text and interaction with seeing the text as the product of a process of production, and as recourse in the process of interpretation" (1989: 26). In the interpretation stage, the relationship between the discourse and its production and its consumption should be interpreted.

The third dimension of the CDA model proposed by Fairclough relates to "the macro level and views discourse as a sociocultural practice" (Fairclough, 1998: 311). The third phase is called explanation. According to Fairclough, "explanation is concerned with the relationship between interaction and social context with the social determination of the process of production and interpretation, and their social effects" (1989: 26). Analysis may not necessarily be performed at all three levels of the framework, but rather at the level that is relevant for understanding a specific text, as noted by Fairclough (1998).

2.2.7.2 Ruth Wodak's Discourse Historical Approach

Wodak and her colleagues are at the forefront of the approach known as the Discourse-Historical Framework. As the name suggests, this framework prioritizes the historical and socio-political aspects of context when analyzing discourse. The term "historical" has a crucial role since it demonstrates significance of integration of "all available background information in the analysis and interpretation of the many layers of a written or spoken text" (Wodak, 1995: 209).

Wodak's CDA model integrates insights from historical origins and socio-political contexts surrounding the production of discourse. Additionally, it explores the catalysts driving changes in discourse genres over time.

2.2.7.3 Teun A. van Dijk's Socio Cognitive Approach

The term *Critical Discourse Studies (CDS)* is favoured by Van Dijk who claims that it is a critical approach that involves not only critical analysis, "but also critical theory, as well as

critical applications" (2009: 62-64). Central notion of Dijk's approach is the "discursive injustice". He argues that CDS is based on the belief that "some forms of text and talk may be unjust" as they violate recognized human rights or worsen social inequality (2009: 63). Therefore, he asserts that objective of the CDA is to reveal and combat such injustices. Van Dijk's triangular framework of discourse-cognition-society plays also important role in this approach. He views understanding cognition as essential for critically analyzing discourse, communication, and interaction within society.

2.3. Multimodal Discourse Analysis

2.3.1. From monomodality to multimodality

> "Semiotically, we never in fact make meaning with only the resources of one semiotic systems: words conjure images, images are verbally mediated, writing is a visual form, algebra shares much of the syntax and semantics of natural language, geometric diagrams are interpreted verbally and pictorially, even radio voices speak to us of individuality, accent, emotional states and physical health through vocal signs not organized by the linguistic code" (Lemke, 2002: 23).

Consequently, texts in which various semiotic modes are combined have become "the *norm* rather than the exception" (Bucher, 2010 as cited in Siefkes, 2015: 113). In contemporary world, webpages include language, images, layout, videos or music; written material such as books or brochures employ graphics, language, symbols, science conferences involve language and interactive presentations comprising videos and sound (Siefkes, 2015). Accordingly, we live in a multimodal world and all communication is, and has always been, multimodal (Kress and van Leeuwen, 1996). Regardless of the nature or characteristics of the communication, be it either tete-a tete or distance, synchronous or asynchronous, every component of communication is dependent on more than one mode to make a meaning. Even though it is taken for granted nowadays, historically, communication was under the prevalence of the verbal language and writing. Monomodality was by far a preferred and prioritized communication method, which had various manifestation modes. It had monopoly in literary genres (novels, reports, documents) that were devoid of all kind of illustrations, paintings were entirely done on canvas, musicians in concerts were all dressed identically (Kress and van Leuween, 2001). During the period of monomodality prevalence, language was the one and only means for representation and communication (Kress and van Leuween, 2001). Although several modes of representation were identified, they were mostly treated as ancillary while representation remained mainly monomodal (with no interaction between the modes).

Nevertheless, this trend of monomodality reversed at the point when alteration of communication landscape took place. The transitioning process unfolded in line with the changes technological and information environment underwent. Namely, the advent of computer and internet are perceived as the principal driving forces of change in the communication landscape. According to Kress (2003) and Jewitt (2008), the processes of globalization and internationalization have been the main triggers to accelerate technological development introducing new electronic era which moved literacy into the digital age (Jewitt, 2008; Kress, 2003). Similarly, O'Halloran and Smith assert that "technology has greatly increased the human capacity for multimodal communication and thus socio-cultural development" (2011: 55). They further point out the relevance of explaining multimodal nature of meaning-making. In that

regard, Kress (1997) singled out three aspects that laid foundation for the reconceptualization of literacy and communication in the light of digital era.

Firstly, he drew attention to the new trend of coupling language-centered approach with visual-related representation in a bid to create a multimodal experience. In that regard, he pointed out that we all witnessed a "trend towards the visual representation of information which was formerly solely coded in language" (Kress, 1997: 66). For instance, the dominance of books was eclipsed by the prevalence of screens, which became a commonplace in an everyday life with the increasingly pervasive role of digital devices. In that vein, conveying messages characterized more audiovisual content. Images on social networks, smartphones or YouTube turned into the principal medium for dissemination of information and thus overshadowed the written or verbal language. Digital devices evince the transition from language-centered texts (*monomodal* texts) towards *multimodal* texts (Cloonan, 2010; Kress, 2003).

Secondly, "the multimodal turn" has greatly influenced the language studies. This turn is opposed to language studies that have lessened the role of "semiotic resources such as proxemics, gesture, gaze, and other components that interplay in communication exchanges and contribute to meaning making" (Alvarez, 2016: 99). Utilizing modern technologies allows for the integration of diverse communication modes such as images, sound, and animation which is why numerous scholars have recognized that all communication is multimodal (O'Halloran and Smith, 2011; Kress, 2010).

Thirdly, the era of digitalization was a fertile ground for the development of convergent technologies. Unlike the previous times, when electronic devices were produced to perform mainly one task, contemporary devices allow several different technologies to converge (Kress (1997, 2003, 2010). Back in time, using electronic devices such as radio, computer or phone was related to certain rituals performed at certain times, for instance, family used to gather in order to listen to a radio or watch television. Nowadays, all these devices are converged and hence impact communication due to their accessibility and ubiquity (Beetham, Mcgill, and Littlejohn, 2009). This emerging trend was depicted by Mitchell as "the pictorial turn" with focus on "imagination, imagery, and non-linguistic symbol systems and a setting aside of the assumption that language is paradigmatic for meaning" (1994: 12). This trend reflected a growing presence of non-linguistic forms of communication, particularly visual/pictorial forms in everyday lives. As multimedia technologies integrated images, sound, color, written text, and other semiotic modes, the textual communication has never been more easily or readily multimodal than it is now (Kress and van Leeuwen, 1996, 2001; Kress, 2003).

Consequently, dissemination of the digital content is equally determined by use of linguistic semiotic resources as well as static and dynamic images, or music to present a multimodal experience and make a multimodal meaning. Accordingly, one of the implications of multimodality is related to the fact that meaning arising from the text was no longer seen as a result of a single semiotic resource but a combination of co-deployed resources within the text. The new communication landscape thus required new approach to language and communication, multimodal approach.

2.3.2. Multimodal discourse analysis

Multimodal discourse analysis can be referred to as „multimodality", „multimodal analysis", „multimodal semiotics" and „multimodal studies" (O'Halloran, 2011: 120). The language, in combination with other resources, which contribute to the creation of meaning, are often described in various ways as „modes", „modalities" or „semiotic resources" (O'Halloran,

2011: 120). According to Halliday, „semiotic resources‟ are defined as „system(s) of meanings that constitute „the „reality‟ of the culture (1978: 123).

Conceptualizing multimodality offers a vast array of definitions proposed by various scholars. In that regard, Carey Jewitt argues that:

> "Multimodality describes approaches that understand communication and representation to be more than about language, and which attend to the full range of communication forms people use - image, gesture, gaze, posture, and so - and the relationships between them" (2009: 14).

In a similar vein, Van Leeuwen emphasizes that "multimodality means the combination of different semiotic modes - for example, language and music in a communicative artifact or event" (2015: 447). Additionally, he argues that multimodality encompasses discourse that incorporates additional communication features beyond spoken language, such as "voice, gestures, facial expressions, or elements of self-presentation" (Van Leeuwen, 2015: 447).

In the same fashion, O'Halloran et al. propose definition: "multimodal discourse involves the interaction of multiple semiotic resources such as language, gesture, dress, architecture, proximity lighting, movement, gaze, camera angle, and so on" (2010: 5).

Multimodal discourse analysis entails a paradigm shift in discourse studies extending the study of language to include integration of language with other resources such as visuals and audio material (images, music, gestures etc.). It is primarily concerned with theories, framework and analysis of semiotic resources and combination of the semiotic choices in multimodal phenomena. The central focus of multimodal research is on the „inter-semiotic‟ (or inter-modal) relations emerging from the interaction of semiotic choices, known as intersemiosis (Jewitt, 2009). Moreover, it is concerned with the design, production and distribution of multimodal resources in social settings (Van Leeuwen, 2008), and the resemioticisation (Iedema, 2001, 2003) of multimodal phenomena which occur in line with social practices.

Multimodal discourse analysis underlines the specific nature of multimodal texts, where meanings emerge through a variety of modalities and semiotic resources. Each of these resources contributes to meaning creation both individually and collaboratively through their interactions with other elements employed in the text. Therefore, it's necessary to comprehend how these multiple multimodal resources interact with each other.

On the other hand, multimodality, as a theoretical terminology deployed within the social semiotics has been ascribed different meanings in different settings. It has been denoted as a phenomenon (O'Halloran, 2011), a domain of enquiry or research field (Kress and van Leeuwen, 1996/2006; O'Halloran, 2005; Kress, 2009) and an analytical approach (Jewitt, 2009).

Furthermore, Kress argues that a multimodal approach presupposes that language, regardless of its form, is just one of many means that can be used for representation and meaning-making, in other words, meanings revealed by analysis of only written or spoken discourses can only be "partial meanings" (2014: 55).

According to Jewitt (2009), there are four intertwined theoretical assumptions that support the multimodality. The first is based on the assumption that language is an inherent part of a multimodal ensemble and that all modes equally contribute to meaning-making in the communication process. The second assumptions is related to the fact that each mode in a multimodal ensemble is contributing to different communicative work as they have been created through their cultural and social uses to achieve social function. The third relies upon the fact that people dictate meaning by selecting and configuring modes. The fourth assumption draws upon the fact that meanings of signs from multimodal semiotic resources are social.

Kress shares the same view implying that "in a multimodality approach, all modes are framed as one field, as one domain. Jointly they are treated as one connected cultural resources for meaning-making by members of a social group at a particular moment" (2012: 37).

2.3.3. Origins of multimodality

The advent of multimodality is often associated with four schools of linguistics that were concerned with semiotic modes aside from the language. The first school was Prague-based in the 1930s and 40s, and was focused on visual arts and non-verbal elements of the theater thus extending the scope of linguistics. The second school was Paris-based and was oriented toward popular culture and mass media deploying methods from structural linguistics. At the approximately same time multimodal analysis of spoken and non-verbal communication also attracted attention of American linguists. However, emergence of the fourth school is tied to the 1990s and was inspired by the linguistics of M. A. K. Halliday. Sydney school of semiotics by M. A. K. Halliday was the first who used the term "multimodality" and developing methods and tools for the multimodal analysis of discourse (Van Leeuwen and Kress, 1996: 107).

According to O'Halloran, et al. "in practice, texts of all kinds are always multimodal, making use of, and combining, the resources of diverse semiotic systems to facilitate both generic (i.e., standardized) and specific (i.e., individualized, and even innovative) ways of making meaning" (2010: 4). Accordingly, multimodality is immanently and inseparably linked with communication. Research of multimodality from the Systemic Functional perspective is relatively recent field of enquiry and can be traced back to the mid-1990s. There are few books that have played an important role in inception of the field of multimodality and concurrently laid foundation of its development. The two most crucial among them are Gunther Kress and Theo van Leeuwen's *Reading Images: The Grammar of Visual Design (1996/2006)* and Michael O'Tooles *The Language of displayed art (1994/2010).* In spite of substantial differences, both books have been influenced by the work of Michael Halliday who underscored the social semiotic approach to language thus shifting away from the other theories of language. *Reading images* and *The Language of displayed art* can be thus seen as an extension of the social interpretation of language relating to visual aspects of the communication. As Kress and Leeuwen chiefly investigated images and visual design, O'Toole (2010) was more concerned with displayed art, paintings, sculpture and architecture. Furthermore, Kress and van Leeuwen (2006) developed a (top-down) contextual approach relating to ideology whist O'Toole (2010) adopted a (bottom-up) grammatical approach by focusing on specific „texts" (i.e. paintings, architectural designs and sculptures) to derive frameworks which can be applied to other works.

Moreover, their publication initiated emergence of several strands of multimodality. On one hand, *Reading Images* drawing on the Halliday's concept of semiotics and visual psychology influenced more critical and interdisciplinary strand of multimodality oriented toward social rather than systemic approach. On the other hand, majority of the work published on multimodality is mostly associated with O'Tooles book representing "social semiotic" driven by systemic part of Halliday's concept. Cognitive approach represents another strand of multimodality and takes research on visual metaphors and their role in shaping perception of certain phenomenon.

2.3.4. Central concepts in multimodality

The multimodal analysis is grounded in a concept related to social semiotic view of language and communication that derives from the work of Halliday and his systemic-functional approach to language.

Systemic functional linguistics addresses language as a "social semiotic" (Halliday, 1978), and social semiotics is a branch of semiotics exploring relevant practice and describing meaning-making. Social semiotics is concerned with "the way people use semiotic *resources* both to produce communicative artefacts and events and to interpret them ... in the context of specific social situations and practices" (Van Leeuwen, 2005: preface). Halliday takes all the credit for putting forward the theory of "language as a social semiotic", which holds that the evolution of language is manifested either in a system he termed "meaning potential" of language (Halliday 1978: 39) or as a resource which allows speaker to use language in a specific social context. He acknowledges that language in interaction with other semiotic systems and communication is multimodal: "We all the time exchange meanings, and the exchange of meanings is a creative process in which language is one symbolic resource - perhaps the principal one we have, but still one among others" (Halliday, 1978: 4). Accordingly, Halliday treats language as a semiotic system, "not in the sense of a system of signs, but a systemic resource for meaning" which is considered locus for his functional grammar theory (1985: 192). In Halliday's Systemic Functional Grammar, language includes three systems, semantic system, lexico-grammatical system and phonological system.

In connection with his Systemic Functional Grammar (SFG) Halliday (2000) presents a triangle in which "language", "mind" and "the world" lines are linked. These lines represent relations that are crucial for understanding our place in reality, as they constitute the purposefulness and meaningfulness of the language. Halliday reflects on the interdependence of the mind, language and the world and applies it in his SFG particularly in the three lines meanings of structure – the three metafunctions. According to Halliday, language serves three general (meta)functions in communication: the (experimental) ideational, the interpersonal, and the textual. "All languages are organized around two main kinds of meaning, the „ideational‟ or reflective, and the „interpersonal‟ or active" and "combined with these is a third metafunctional component, the „textual‟, which breathes relevance into the other two" (Halliday, 1994: 39). Each of them has its own system of choices. The experiential metafunction is related to the representation of our experience and the way it is portrayed in the world, the interpersonal metafunction takes social relations in the world and how they are enacted while the textual metafunction deals with the organization of meaning within text. These three metafunctions also serve as the foundation for Kress and van Leeuwen's grammar of visual design (2006).

2.3.5. Social semiotics

Social semiotics stems from the two branches of semiotics established by the American philosopher Charles S. Pierce and the Swiss-French linguist Ferdinand de Saussure. Charles S. Pierce identified the process of meaning making (semiosis) as embedded in a relation between a signifier, a thing signified, and an interpretant "created in the mind of the interpreter" (Bishara, 2007 as cited in Halloran et al., 2011: 4). Saussure defines semiotics as "science that studies the life of signs within society" (Saussure, 1916/1974: 16). He believes that language "is a system of signs in which the only essential thing is the union of meanings and sound-images, and in which both parts of the sign are psychological" (Saussure, 1974: 15).

According to Van Leeuwen, “the sign was considered the fundamental concept of semiotics” (2005: 3). More recently, the term “semiotic resource” has been developed as a core concept of social semiotics. The notion of sign as a resource is influenced by developments in systemic functional (SF) theory as proposed by Halliday, “who argued that the grammar of a language is not a code, not a set of rules...but a “resource for making meanings” (Halliday 1978: 192 as cited in van Leeuwen, 2005: 3).

Based on Halliday’s concept, Kress and van Leeuwen (1996, 2001), Jewitt (2008), and Machin (2007) developed the multimodal social semiotic approach to communication. The basic notion of this multimodal approach revolves around the utilization of various semiotic resources. Van Leeuwen defines semiotic resources as:

> “The actions, materials and artifacts we use for communicative purposes, whether produced physiologically – for example, with our vocal apparatus, the muscles we use to make facial expressions and gestures – or technologically – for example, with pen and ink, or computer hardware and software – together with the ways in which these resources can be organized” (2005: 285).

Within this approach, another important concept are modes of communication described by the New London Group (1996) as resources that enable the construction of meanings. Kress holds a following view:

> “Socially, what counts as mode is a matter for a community and its social-representational needs. What a community decides to regard and use as mode is mode...Formally, what counts as mode is a matter of what a social-semiotic theory of mode requires a mode to be and to do” (2005: 87).

Moreover, intersemiotic relationships also play an important role within the multimodality. They refer to the distribution of meaning across the modes, that is, how the combination of communication modes contributes to the overall/general meaning of a text. In other words, how written message, sound or image jointly generate a specific message.

3. CLIMATE CHANGE

3.1. Weather versus climate

Over the years, climate has become an increasingly salient topic in the news media, sparking public debate on the importance of addressing not only its scientific aspects but also the socio-economic, political, and security contexts (Boykoff and Rajan, 2007; Boykoff and Roberts, 2007). However, its growing omnipresence in the public discourse simultaneously prompts confusion over the *weather/climate* dichotomy as the terms are "loosely defined in common parlance" (Baede et al., 2001: 87). Namely, there is still a widespread misconception about the interpretation, perception and usage of the terms *weather* and *climate*. They are easily confused and misused in the public discourse particularly when the coverage of climate change includes images of weather disasters (Moser and Dilling, 2004). In this context, according to Moser and Dilling, "climate change becomes synonymous with and erroneously restricted to a change in the weather" (2004: 36). The difference however remains and is prominently illustrated in a popular phrase: "Climate is what you expect, weather is what you get" (NOAA, 2024). According to National Oceanic and Atmospheric Administration (2024), "weather is what you see outside on any particular day" and it refers to the changes in the atmosphere over a short time period (minute, hour or a day) while "climate is the average of that weather" and can be described as a variation in weather conditions over longer periods of time (30-year period or more). Consequently, the fundamental distinction between *weather* and *climate* is the duration of time. Accordingly, *weather* is usually a specific event, day-to-day state of the atmosphere, like a rainy day or a thunderstorm while *climate* (from ancient Greek: κλίμα, "clime") refers to what is anticipated to happen in the atmosphere rather than the actual conditions (US EPA, 2011). The Intergovernmental Panel on Climate Change (2012) glossary defines climate in a following way:

> "Climate in a narrow sense is usually defined as *the average weather*, or more rigorously, as the statistical description in terms of the mean and variability of relevant quantities over a period ranging from months to thousands or millions of years. The classical period is 30 years, as defined by the World Meteorological Organization (WMO). These quantities are most often surface variables such as temperature, precipitation, and wind. Climate in a wider sense is the state, including a statistical description, of the climate system" (IPCC, 2012: 557).

3.2. Climate system and climate change

The Earth's climate system represents a greatly complex system comprising of five interacting subsystems: the atmosphere, the hydrosphere, the cryosphere, the lithosphere and the biosphere (Baede et al., 2001: 87). The Earth's surface climate is primarily determined by the complicated interaction between these components (Baede et al., 2001). "The climate system is particularly challenging having in mind that complex, chaotic, non-linear dynamics are an inherent aspect of the climate system" (IPCC, 2001: 773). "The climate system evolves in time under the influence of its own internal dynamics and because of external forcings such as volcanic eruptions, solar variations and anthropogenic forcings such as the changing composition of the atmosphere and land use change" (IPCC, 2014: 120).

Throughout history, Earth's climate has undergone numerous major and marginal changes. In the past 800,000 years, as many as eight cycles of glacial advance and retreat have been observed (NASA, 2021). However, beginning of the modern climate era is associated with the end of the last ice age, about 11,700 years ago (NASA, 2021). Remarkably small variations in

Earth's orbit that alter the amount of energy emanating from the Sun that our planet receives are mostly responsible for these climate changes (NASA, 2021).

Based on a study carried out by the *Proceedings of the National Academy of Science*, by 2070, the planet could experience a greater global temperature rise than it did during the last 6,000 years combined (Xu, 2020).

The IPCC defines the climate change in a following way:

> "Climate change refers to a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings such as modulations of the solar cycles, volcanic eruptions and persistent anthropogenic changes in the composition of the atmosphere or in land use" (IPCC, 2014: 120).

According to the United Nations Framework Convention on Climate Change, climate change is defined as:

> "A change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods" (UNFCCC, 1992: 105).

3.3. Causes of climate change

The main driver of climate change is the greenhouse effect (IPCC, 2014). The greenhouse effect is a naturally occurring phenomenon that refers to the process in which greenhouse gases trap solar energy in the atmosphere and warm the planet (NASA, 2021). The greenhouse gases (GHG) are also known as heat-trapping gases due to their ability to warm the atmosphere by absorbing the infrared radiation from the Sun and consequently act as insulating blanket keeping heat close to the Earth (IPCC, 2021). Therefore, greenhouse effect is vital for maintaining life on Earth otherwise the planet would be insufficiently warm and uninhabitable place (British Geological Survey, 2024). However, even the slightest increase in warming could potentially pose a serious threat to humans, plants, and animals (Le Treut, 2007). The main gases responsible for the greenhouse effect include carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), and water vapor (which all occur naturally), and fluorinated gases (which are synthetic) (EPA, 2024).

Since the beginning of the Industrial Revolution and the development of coal-fired steam engine, dramatic surge in emissions of greenhouse gases, in particular carbon dioxide, methane and nitrous oxide has been detected (Le Quéré et al., 2021). According to IPCC, "the observed increases in well-mixed GHG concentrations since around 1750 are unequivocally caused by GHG emissions from human activities over this period" (2023: 4). Ever since systematic scientific evaluations commenced in the 1970s, the influence of human activity on the warming of the climate system has evolved from theory to established fact (Arias et al., 2021).

Specifically, Earth's natural greenhouse effect is amplified by "combusting fossil fuel (burning coal, oil and gas), deforestation (cutting down forests) as well as livestock farming" (IPCC, 2023: 4, 29). In other words, human activity (by October 2023) has contributed to warming of the world by around 1.40°C compared to the preindustrial 1850–1900 baseline (WMO, 2023).

"The largest contributor to historical human-induced warming is CO2" (IPCC, 2022: 25) and "is responsible for about three-quarters of the emissions" (EPA, 2024). It remains in the atmosphere for centuries and even longer in the oceans.

The first alarming climate milestone of CO2 concentration in the atmosphere was measured in May 2013 at the NOAA's Mauna Loa Atmospheric Baseline Observatory when an instrument at the mountaintop observatory on Hawaii's Big Island recorded 400 parts per million (ppm) for the first time in 55 years of measurement - and probably more than three million years of Earth history (Blunden and Hurst, 2014). Nearly a decade after this record-breaking amount of CO2, in May 2022, amount of carbon dioxide reached a new threshold, surpassing 420 ppm (NOAA, 2022).

Before the Industrial Revolution, carbon dioxide levels remained around 280 ppm for nearly 6,000 years of human civilization compared to the current CO2 levels which are comparable to the Pliocene Climatic Optimum, when they were near or exceeded 400 ppm (NOAA, 2022). However, "back then temperature was 2-3°C warmer and the sea level was 5 to 25 meters higher and there weren't 7.8 billion people" (NOAA, 2022).

As long as GHG emissions continue to rise pushing global temperatures up, pace of the global climate change is unlikely to abate, leading to many other changes around the world in the atmosphere, oceans, soil and biosphere (WMO, 2022).

Therefore, aside from the positive effect, greenhouse effect and greenhouse gases have nowadays substantially more negative connotations considering that human-induced GHG emissions are the most significant driver of the observed climate change since the mid-20th century. Consequently, curbing carbon emissions, primarily from fossil-fuel and industrial processes is considered an imperative in combating climate change (European Environment Agency, 2024). In order to meet the goals set in the Paris Climate Agreement and limit global warming to well below 2°C (UNFCCC, n. d.), growing coalition of world's largest companies and countries has made decarbonization pledges (net-zero pledges) concerning the transition of the energy system from fossil fuels to renewables as the dominant source of energy (COMMIT and CD-LINKS, 2018).

The term greenhouse effect was first coined by Nils Gustaf Ekholm in 1901 to denote the warming effect caused by greenhouse gases (Ekholm, 1901). In 1861, John Tyndall conducted laboratory experiments demonstrating the greenhouse effect (Tyndall, 1861). However, it was a Swedish scientist, Svante Arrhenius who was the first to detect the nexus between fossil fuel combustion and global warming in 1896 (Crawford, 1997). He drew attention to the possible correlation between atmospheric carbon dioxide concentrations and temperature (Arrhenius, 1896). Being a Swede, he wasn't much concerned over this surprising finding, but rather thrilled over potential rise in temperature that could lead to warming of the planet (AIP, 2022).

3.4. Effects of climate change

When addressing the issue of climate change, one of the most common misconceptions is the perception of climate change consequences as "distant, affecting people in distant places or distant future" (Kysela et al., 2018: 1). The reality is strikingly different as the latest findings from the *2023 WMO Provisional State of the Global Climate* indicate that: "Greenhouse gas levels are record high. Global temperatures are record high. Sea level rise is record high. Antarctic sea ice is record low. It's a deafening cacophony of broken records" (WMO, 2023).

Gradual warming of the Earth's surface, atmosphere and oceans has consequently proved that: climate is an ongoing process in which every aspect of the humans and natures well-being is

already influenced today (NASA, 2009). Magnitude and scope of the potential future impacts of climate change are critically dependent on the GHG pathways humanity chooses to pursue in their efforts to mitigate and limit warming to "safe threshold" well below 2°C and derail from the business-as-usual scenario (Coen, Kreienkamp and Pegram, 2019).

Nevertheless, a whirlwind of changes, either visible or invisible, tangible and intangible has brought world into a vicious cycle galloping toward climate breakdown. Vicious cycle of climate-related hazards and risks can be outlined as follows: the ongoing surge in carbon dioxide concentrations in the atmosphere has triggered higher air temperatures resulting in shifts in weather and precipitation patterns, followed by record levels of heat in the oceans, causing glaciers and ice sheets to melt and shrink, leading to rising sea levels and significant alterations in the intensity and frequency of extreme weather events. Ultimately, these changes are impacting biodiversity and hindering achievement of sustainable development goals (WMO, 2021).

And as long as the world leaders and decision-makers take a rain check on averting this ongoing crisis, it is undoubtedly likely to cost an arm a leg to the planet and the people. A large-scale environmental degradation has come with a hefty price tag. According to the latest estimate obtained in the study exploring the correlation between the extreme weather and climate change, damage caused by the climate change through extreme weather events cost $16m an hour for the last twenty years (Newman and Noy, 2023).

Assessment of the economic impact of climate change was signaled as early as the 2006 Stern Review which emphasized that the costs of inaction could outweigh those of immediate action. It suggested that without precautionary measures, the global economy could face losses equivalent to at least 5% of global gross domestic product (GDP) annually, indefinitely.

> "Climate change will affect the basic elements of life for people around the world - access to water, food production, health, and the environment. Hundreds of millions of people could suffer hunger, water shortages and coastal flooding as the world warms" (Stern, 2006: 56).

Hence, climate change poses not only an isolated ecological threat but rather a risk of interconnected and interdependent socio-political, economic, security, military, institutional, cultural and health implications. With these cumulative impacts in mind, climate change is often referred to as "threat multiplier" considering its potential to aggravate and multiply non-climatic stressors such as poverty, population growth, political and government instability leading to conflict, social tensions, human mobility ("climate refugees") over food insecurity or water shortage (Fankhauser et al., 2022).

However, it is also noteworthy that due to the varying levels of vulnerability and exposure to climate change (Cardona et al., 2012) multitude of effects with far-reaching and potentially devastating consequences are projected to disproportionally affect countries and communities around the world requiring different adaptation and mitigation models and measures (IPCC, 2014).

So what is at stake:

- One of the most obvious climate change indicators is the rise in the global air temperature (NASA, 2021). Based on the analysis conducted by scientists from NOAA's National Centers for Environmental Information (NCEI) as well as other scientific organizations like NASA, the Copernicus Climate Change Service and the UK Met Office, 2023 is ranked as the planet's warmest year on record by a significant margin (NOAA, 2024). The annual average global temperature was 14.98°C which is 0.17°C higher compared to

the previous highest annual value in 2016 (Copernicus, 2024). It is particularly noteworthy that in 2023, every day within a year, for the first time surpassed 1°C above the 1850-1900 pre-industrial level (Copernicus, 2024). The extraordinary temperature records of 2023 underscore its remarkable status, as multiple months—June, July, August, September, October, November, and December—tied as the warmest ever documented on Earth (Copernicus, 2024). According to the WMO (2024), since the 1980s, each decade has been warmer than the previous one and this long-term warming trend is expected to continue. Moreover, the 10 warmest years in the 143-year record have all occurred since 2010, and the last nine years (2014–2022) are among the nine warmest years on record. 17 November 2023 was the first day in which the global surface air temperature was 2°C above the pre-industrial levels (Copernicus, 2023).

- Another important indicator of climate change is the greenhouse gas concentration (NASA, 2021). In 2023, the concentrations of greenhouse gases in the atmosphere reached their highest recorded levels to date (Copernicus, 2024). Carbon dioxide concentrations in 2023 were 2.4 ppm higher than in 2022 and methane concentrations increased by 11 ppb. Remarkably, for the first time in 2022, global average concentrations of carbon dioxide (CO2) exceeded pre-industrial levels by a substantial 50% (WMO, 2023). Record-breaking levels of atmospheric concentrations of GHG gases were registered in 2021. According to the WMO Greenhouse Gas Bulletin No.18 (2021), concentration of carbon dioxide (CO2) reached 413.2 parts per million in 2020 and is 149% of the pre-industrial level. Methane (CH4) is 262% and nitrous oxide (N2O) is 123% of the levels in 1750 when human activities started disrupting Earth’s natural equilibrium (WMO, 2021).

- Oceans play an important role in the climate system as they are responsible for absorption and storage of 90% of the heat that is trapped in the earth system by rising concentrations of GHG gases (Lindsey and Dahlman, 2023). In 2023, the global ocean heat content, reached its highest recorded level (NOAA, 2024). This indicator has been followed globally since 1958, and the last five years saw the highest values (NOAA, 2024). As the oceans are absorbing larger amounts of carbon dioxide and with their pH decreasing they are subsequently becoming more acidic with reduced capacity to absorb CO2 from the atmosphere (NOAA, 2020). Ocean acidification has thus affected many ocean species, in particular shallow coral reefs (NOAA, 2020).

- Another important indicator of climate change are the changes observed in cryosphere (IPCC, 2019). As a result of water melting from glaciers and ice sheets, rising sea levels pose an adverse threat to low-lying coastal communities, increasing risk of tidal flooding and beach erosion (IPCC, 2019). According to the Special Report on the Ocean and Cryosphere in a Changing Climate (2019), global mean sea level has risen about 21–24 centimeters since 1880, with about a third of that coming in just the last two and a half decades. An exceptionally warm weather over the years has taken catastrophic toll on the sea ice extent as well as glaciers and ice sheets (IPCC, 2019). In February 2022, sea ice around Antarctica reached the lowest extent ever observed since the start of the satellite record in 1979. It marks the first time that the ice was observed to shrink below 2 million square kilometers (NASA Earth Observatory, 2022).

- Another dire consequence of climate change are high impact events, that is, extreme weather events including heat and cold waves, heavy rainfall, floods and droughts, severe storms, tropical cyclones as well as forest fires (Seneviratne et al., 2021). According to The Max Plank Gesselchaft (2024), the year 2023 was marked by climate extremes, heavy rainfalls, heatwaves, droughts, along with storms.

3.5. Scientific evidence and consensus

In September 2019, sixteen-year-old Swedish climate activist Greta Thunberg, in her address to the world leaders at the U.N.'s Climate Action Summit in New York underscored the well-known fact: "For more than thirty years," she exclaimed, "The science has been crystal clear. How dare you continue to look away" (NPR, 2019). As Thunberg noted, awareness and understanding of the role and risk that human activities pose on the environment have grown over decades following the growing body of scientific evidence indicating that anthropogenic climate change has resulted from the increased concentrations of the greenhouse gases in the atmosphere triggered by burning of the fossil fuels (oil, gas, natural coal), deforestation and farming livestock. Based on the observations and measurements, scientific evidence of the warming trend has been accumulated over the past three decades. As scientific evidence grew stronger, scientific agreement on the man-made climate change was reached within the scientific community and expressed in the reports of the Intergovernmental Panel on Climate Change. IPCC was jointly established in 1988 by the World Meteorological Organization and the United Nations Environmental Programme with the purpose to provide policymakers with relevant information on the anthropogenic climate change, its effects and future risk as well as adaptation and mitigation options primarily on the basis of evaluation of peer-reviewed and published scientific literature (IPCC, n.d.). With the release of every new IPCC assessment report, degree of certainty that humans are the primary driver and dominant cause of the climate change was considerably higher. The first 1990 IPCC Assessment Report contained deficient observational evidence (IPCC, 1990). Six years later, remarkable progress in findings was confirmed in the 3rd IPCC report, highlighting "discernible" human influence on the climate of the 20th century (IPCC, 1996). Similarly, the 4th IPCC report from 2007 stated that: "Most of the observed increase in global average temperatures since the mid-20th century is very likely [90 percent confidence] due to the observed increase in anthropogenic greenhouse gas concentrations" (IPCC, 2007: 2). The 5th IPCC report further reinforced the previous research results: "It is extremely likely [95 percent confidence] that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by the anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcings together" (IPCC, 2014: 5). With the launch of the latest IPCC 6th assessment report there was no doubt left: "It is unequivocal that human influence has warmed the atmosphere, ocean and land. Widespread and rapid changes in the atmosphere, ocean, cryosphere and biosphere have occurred" (IPCC, 2023: 1).

The substantive "scientific consensus on the reality of anthropogenic climate change" first appeared in the paper "The Scientific Consensus on Climate Change" published by Naomi Oreskes in 2004 (Oreskes, 2004). In 2013, a team of scientists led by John Cock provided review and update of the research results in the paper entitled "Quantifying the consensus on anthropogenic global warming in the scientific literature." After investigating 21 years of published papers and over 12,000 abstracts, Cook concluded that scientific consensus on the human-induced climate change is supported by 97% actively publishing climate scientists (Cook

et al., 2013). Additionally, major scientific bodies and leading science organizations around the world have issued similar public statements expressing the same scientific opinion.

The ground was no longer fertile to grow skepticism as scientific uncertainty was replaced by near-unanimity among high-profile researchers. The case seemed to be closed. Albeit seemingly.

As opposed to this widely-held consensus are the remaining 3 per cent of the climate scientists who impassionedly defy and belittle mainstream climate science. Even though few in number, they established a vigorous climate countermovement with remarkably influential reach and extent. For many, this has served as an inspiration to make a comparison with the episode in which Albert Einstein was informed of the publication of a book entitled "100 Authors Against Einstein". In this particular circumstance, he is said to have commented, "If I were wrong, then one would have been enough!" (Hawking, 1988).

3.6. Terminology – What's in a name?

Throughout history, the scientific debate on the correlation between greenhouse gases, rising temperatures and human activities went hand in hand with the language debate on selecting the most preferred terms depicting and fully embracing newly discovered conditions (Dembry, 2021). The phenomenon referring to a rise in a global surface temperature with the increasing risk for the deterioration of the planet and people's lives has in the past 50 years undergone multiply labelings and relabelings, brandings and rebrandings in line with the shifting attitudes and opinions of the scientific community as well as political actors in order to find the well-suited terms that would feed their ideological interests. Consequently, the paradigm shift that took place in the scientific and political discourse left visible marks on the prevailing terminology. In scientific circles, the first predecessor of *climate change* to refer to human impact on climate was *inadvertent climate modification* (NASA, 2021). Its widespread use marked the beginning of the 1970s considering that scientist were still uncertain what kind of change was about to occur following human activities whether aerosol-induced "cooling" or "warming" caused by increased GHG emissions would prevail (NASA, 2021).

It first appeared in 1971 report entitled the same way published by an international team of climatologist affiliated with Massachusetts Institute of Technology (MIT) and the Royal Swedish Academies (MIT, 1971). Studying how climate is influenced by man, this paper is considered the first consensus report communicating warning of rising sea levels, Arctic and ice caps melting (MIT, 1971). Soon afterwards, one of the most cherished terms in scientific and political circles, made its debut. The term *global warming* emerged in connection with the publication of Wallace Broecker's article in the journal *Science* titled: "Climatic change: Are we on the brink of a pronounced global warming?" (Broecker, 1975). However, it was not until the late 80s that *global warming* came to the fore and overtook the term *greenhouse effect*. In 1988, this novelty term went into mainstream primarily thanks to the James E. Hansen's testimony before Congress specifically on this particular topic. He noted: "Global warming has reached a level such that we can ascribe with a high degree of confidence a cause and effect relationship between the greenhouse effect and the observed warming" (Shabecoff, 1988). Hansen's historical testimony contributed strongly to popularization of the term *global warming* that consequently became household phase - gained traction and positioned itself superior to other candidates in the terminology debate. In the 1990s, the term *climate change* overtook *global warming* primarily owing to the Republican Frank Luntz, a global warming sceptic who attempted to reframe the dominant narrative by introducing the term that would sound "less frightening" than global

warming and thus reshape the public attitude and opinion on the matter (Shefrin, 2023). It led to considerable spike in its usage promoting fundamentally different concept of the phenomenon. Even though they are still used interchangeably by some media outlets, they denote different aspects of the warming. *Global warming* refers to the rise in the average Earth's temperature constantly whilst *climate change* is defined as a concept which includes all forms of variability relating to the climate and weather as colder winters, hotter summers, more rainfall and drought (Turrentine, 2021). Even though the term *climate change* is still in vogue, recent study suggests that in recent years, language surrounding climate change communication brought a conceptual novelty reflecting a variation of perspectivization by being "more urgent", less neutral and more emotionally loaded as in the case with the terms *climate crisis* and *climate emergency* (Vinter, 2021). Both terms are introduced by *The Guardian* and *Scientific American*, respectively, to underscore the gravity and urgency of addressing the climate change issue (Carrington, 2019; Fischetti, 2021). Prior to the 26th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP26) in November 2021, The Oxford English Dictionary (OED) released an update on climate terminology. According to the OED, the term *climate crisis* debuted in dictionary in 2021 following its increasing usage frequency in the previous years. Between 2018 and 2020, the term became 20 times more popular in media, social networks and public debates while the use of *climate emergency* increased almost 76-fold demonstrating the fact that the language surrounding climate change is becoming more urgent. Or as Hulme puts it:

> "It seems that mere climate change was not going to be bad enough, and so now it must be catastrophic to be worthy of attention. The increasing use of this pejorative term – and its bedfellow qualifiers chaotic, irreversible, rapid – has altered the public discourse around climate change…it seems that it is we, the professional climate scientists, who are now the (catastrophe) skeptics. How the wheel turns…" (Hulme, 2006).

3.7. Climate change debate

According to Professor Mike Hulme, climate change is a phenomenon "that is reshaping the way we think about ourselves, about our societies and about humanity's place on Earth" (Hulme, 2009: 41). Most importantly, understanding of climate change is directly linked to climate action and engagement, that is, motivating or demotivating private and public actors in implementation and execution of various climate policies and measures.

"The climate change debate has been raging for more than 30 years" (Headrick, 2019: 43). The reasons for that are manifold. Primarily, abnormally high economic, social and political stakes as combating climate change has become paramount challenge facing the world (Saha et al., 2024). Secondly, as soon as climate change was no longer regarded only as an unobtrusive scientific phenomenon predicted for a distant future but rather a planet-wide urgent existential threat, the debate has drawn interest of multitude of actors: governments, media, politicians, shareholders, stakeholders, decision-makers, private sector participants etc. (Fløttum, 2014). Over the night, it was transformed from a scientific, into a kitchen table issue and everyone seemed to be entitled to an opinion representing various contemporary discourses displaying convergent and divergent attitudes and views. According to Fløttum (2014), over the years, climate debate has become multi-voiced or polyphonic, multifaceted and complex. It has turned the science upside down and cast light and doubt on issues ranging from scientific uncertainty to knowledge controversy.

Namely, despite the well-established climate science underpinned by mounting scientific evidence promoted and advocated by climate researchers, scientists and climate activists, there coexists the counter-movement comprising climate sceptics, contrarians and denialists aiming to obstruct policy action fueled by carbon-based industry and conservative think tanks.

Accordingly, climate change debate became a source of conflict and battlefield between dissenting actors competing for the political supremacy and dominance. Initially, it sparked controversy arising from the fact that the overwhelming scientific consensus was not equaled with political consensus. Naturally, media has taken advantage of this vacuum to frame the issue in an ideologically-biased way and further deepen polarization of public attitude. The debate soon evolved into a process of "naming, shaming and blaming the other" moving away from the essence i.e. considering the spectrum of possible solutions (Boykoff, 2015). Bearing in mind that the "devil is in the uncertainty" (Pancost, 2017), the *malum discordie* of the debate soon revolved around the causes of the climate change referring to various interpretations, "anthropogenic, natural, and even climate change as *acts of God"* (Petrescu-Mag et al., 2022: 5). Consequently, the crucial issues that are the main source of conflict in the controversy-based debate are: the uncertainty i.e. doubt around the existence of climate change (whether it is real or not) and in case it is, the attribution of the cause (whether it is anthropogenic or if it can be ascribed to natural variability (Leiserowitz et al., 2012). Differences in understanding and perception of the climate change are reflected in the dichotomy axis between the climate alarmists and climate sceptics as the most prominent voices in the debate (Dunlap, 2013). However, this political and ideological divide in the debate is not straightforward. In order to illustrate the clashing opinions, potential gains and losses of the debate and their impact on the potential outcome, the climate change narrative is framed as "the constellation of villains, heroes and victims" as the main characters of the debate (Petrescu-Mag et al., 2022: 3). Accordingly, heroes are in the role of the fixers of the problem, the villains are those who mainly cause the problem, whilst victims are those who are harmed by the problem (Petrescu-Mag et al., 2022). In the case of climate change, Earth, ecosystem and most vulnerable nations have been identified as the victims whilst villains mostly comprise media, fossil fuel industry, government and profit-driven organizations. Conversely, heroes refer to the climate science, younger generation and reformed states.

3.7.1. Discourse of climate alarmism

In line with the transformation of climate science into climate politics, emerged a discourse of alarmism and gained footholds within the public debate. From the historical point of view, the term "alarmist" or "alarmism" was first noticed in 1980 in connection with the climate change in the *Christian Science Monitor*. Its first official use can be traced back to 1989 headline, announcing editorial for the *Washington Post* by James Hansen, a physicist and climatologist, entitled "I'm not being an alarmist about the greenhouse effect" (Hansen, 1989). It was a response to an article "The Greenhouse climate of fear" written by Patrick Michaels, an environmental scientist and climatologist. Ever since 1989, *Mr. Greenhouse* as James Hansen is often referred to, hasn't changed its view on climate, claiming that the greenhouse effect is beginning to be large enough to load the climate dice (Hansen, Sato and Ruedyb, 2012) and the lingering effect of this metaphor is still closely related to alarmism. Namely, even after 35 years, Hansen remained active advocate for urgent emission reductions in combating climate change. In late November 2023, he and 17 co-authors published a paper refocusing on the magnitude of climate change, warning that global warming is happening much faster than previously thought (Hansen, 2023). His controversial 1989 call to take action was mainly ignored by the Congress;

therefore his new warning may be regarded as the renewed attempt to raise awareness of the shortage of time and declining possibilities to avert the changes.

Aside from being labeled as alarmists, advocates of climate doom are often referred to as "alarmists, warmists, believers, or catastrophists" (Howarth and Sharman, 2015: 244) or simply "doomists" as in the media discourse (Silva, 2022; Borm, 2019).

The notion of alarmism was labeled primarily by contrarians to designate the movement of doomsday prophecy comprising of climate scientists and policy makers responsible for climate of intimidation that the rise in greenhouse gases greatly contributes to anthropogenic global warming (Ereaut and Segnit, 2006). Alarmists portray climate change as "an existential threat" to humanity, demonstrating its adverse impacts with multimodal representation of the dystopian narrative and "civilization game over" rhetoric if left unabated (Risbey, 2008). Correspondingly, they have become the key advocates of climate change *fatalism* or *doomism* by spreading the panic based on apocalyptic warnings and frightening predictions about the dystopian future (Silva, 2022). As they often employ tactic of scaremongering, climate alarmists are often accused of fear-inducing and hyperbolic crisis rhetoric rife with emotionally-laden words to draw attention to the approaching climate emergency (O'Neill and Day, 2009). According to Hulme (2006), the most prevalent alarmist frames have been the ones depicting climate change as catastrophic or cataclysmic event using descriptors such as "chaotic, irreversible, urgent, rapid" (Hulme, 2006).

Additionally, proponents of alarmism emphasize the *countdown narrative* concerning the urgency of acting to save the planet (Anshelm and Hansson, 2014). Over the course of the years, numerous deadlines have been set within the alarmism discourse; in 2009, Gordon Brown, UK Prime Minister warned that we had "fewer than 50 days to save our planet from catastrophe" (Brown, 2009). In 2006, Al Gore emphasized that unless significant measures were taken to curb emissions "within 10 years the world would reach a point of no return" (CBS news, 2006). Similarly, in 2018, with the launch of IPCC report world top scientists warned about the planet reaching the tipping point unless unprecedented changes were made "within the 12 years" (Watts, 2018). In the same vein, UK Met Office announced that snow in England would be a "thing of the past" (Rowlatt, 2020).

The reasons underlying panic-inducing narrative and distortion of evidence are however justified by a Stephen Schneider, climatologist:

> "On one hand, as scientists we are ethically bound to the scientific method. … On the other hand, we are not just scientists but human beings as well. … To avert the risk (of potentially disastrous climate change) we need to get some broad based support, to capture the public imagination. That of course means getting loads of media coverage. So we have to offer up some scary scenarios, make simplified dramatic statements and little mention of any doubts one might have. …Each of us has to decide what the right balance is between being effective, and being honest" (Schneider, 1989: 33).

Therefore, in constructing frame of environmental doom, alarmists frequently play on "crisis, fear and panic" card. To amplify these messages, scary stories disseminated through media include shocking, sensational and terrifying images of devastating impacts of extreme weather events, like flooded coastal areas, dead fish, starving polar bears, forest fires etc.

In a light of this, James Risbey notes that the climate change communication is divided between *sense of alarm* and *sense of alarmism* in terms of evaluation of urgency and scope of the problem (Risbey, 2008).

> "Either way, alarm seems pivotal for generating funding and for maintaining triangle of interaction between climate scientists, advocates and policymakers…….raising the political stakes for policy makers who provide funds for more science research to feed more alarm to increase the political stakes" (Lindzen, 2006: 3).

Climate scientists have been prone to overemphasize the role of alarm discourse for decades in order to catch the attention of public, media and politicians and primarily galvanize action: "If a red light blinks on in a cockpit, should the pilot ignore it until it . . . speaks in an unexcited tone? . . . If it did, would anyone pay attention?" (Meadows, D, 1996).

Nevertheless, this tactic of promoting apocalyptic frames accompanied by despair, dread and panic has proved to be counterproductive in the context of climate change and rather foster inaction having in mind that the audience rather felt disillusioned, disempowered and helpless to address the problem (Moser, 2007).

3.7.2. Discourse of climate denialism

Within the climate change debate, legitimacy of the mainstream climate science is questioned and challenged by the countermovement often referred to as denialism. This counter discourse may be labeled as *skepticism, contrarianism, anti-science, doubt, dismissal* (Bjørnberg et al., 2017). Correspondingly, it is constituted by climate deniers, sceptics, contrarians and lukewarmers. Nevertheless, several authors disagree about the interchangeable usage of the words, noting that "skepticism" is a misnomer and should be avoided in relation to the science denial (Jacques, 2006; O'Neill and Boykoff, 2010). Distinction between the terms *denialism*, *skepticism* and *contrarianism* is clarified by Robert Manne (2012) stating:

> "Scepticism suggests an open mind. The minds of those who dispute the consensual core of climate science are closed. Contrarianism is a term commonly used, even by some of those who are best informed, like the climate scientist Michael Mann. Contrarian might be the right term for the small minority among climate scientists who have not accepted the consensual conclusion of their fellow scientists. The contrarian is a loner, perhaps, cranky, but also genuinely independent of mind. Most of those who dispute the consensual conclusions of the climate scientist are not mavericks or heretics but orthodox members of a tightly knit group whose natural disposition is not to think for themselves. To dispute the conclusion drawn by climate scientists involves for them neither the open mind of the sceptic nor the cranky independence of the contrarian but the determination – psychological or political or both – to deny what those who know what they are talking about have to say. They are denialists." (Manne, 2012).

However, they all express "ambivalence", "attitudinal uncertainty", "dissonance" or "cynicism" toward the dominant scientific discourse reflected in the IPCC physical science basis of the climate change (Howarth and Sharman, 2015: 241).

Climate change denial is built upon three cornerstones indicating the main sentiment of the movement which relates to trend, attribution and impact denialism (Rahmstorf, 2004). Björnberg et al. (2017) further delineate all three categories; trend denialists dismiss the fact that climate change is real refuting any observed warming trend; attribution denialists contest the anthropogenic nature of the climate change attributing it to solar activity, impact denialists accept that climate change is human-caused yet deny that it will have any significant (negative) impact on the planet and the humans (Björnberg et al., 2017). However, Engels et al. (2013) add a fourth variant, consensus denial that questions the existence of the scientific consensus about the man-made climate change (Engels et al., 2013).

In general terms, science denial is defined as mistrust in the mainstream climate science, that is, unwillingness to accept the evidence on the climate change. Moreover, the organization is a mission-driven movement aiming to disseminate doubt about the valid scientific information and results (Austgulen and Stø, 2013).

According to Dunlap and McCright, "climate science denial is by far the most coordinated and well-moneyed form of science denial, constituting the backbone of the opposition to environmentalism and environmental science in general, particularly in the United States but also to some extent in the UK and Australia" (2011: 145).

Climate change denialism is not a unified movement but rather a fragmented and diversified community consisting of governments, denial scientists, fossil fuel industry and corporations, conservative think tanks, advocacy and lobby groups, political and religious organization, as well as public relations companies, whose position is promoted through blogs network, publishers of books and supportive media channels (Dunlap and McCright 2015; Bjørnberg et al., 2017). However, they all exhibit common features. Based on the studies of climate denialism (Brulle, 2020; Bjornberg et al., 2017; Lewandowsky, 2015; Dunlap and McCright, 2011, 2015), deniers seek to undermine public trust in mainstream climate science by delegitimizing and discrediting climate authorities. Moreover, they strive to manipulate media and public into believing that climate change is simply a "hoax" manufactured by climate scientists. By belittling and diminishing the importance of scientific findings and evidence, climate deniers seek to intentionally delay or obstruct any climate activities and thus stall phasing out of fossil fuels and green transitioning. To achieve this, climate deniers employ a variety of rhetorical arguments, in the first place, anti-establishment rhetoric in order to construct convincing counter discourse and illuminate the flawed climate science. Moreover, in order to amplify their message, they engage in spread of fake news, spin and propaganda taking advantage of media outlets and social media, manipulating climate frames and narratives (Al-Rawi et al., 2021).

According to Diethelm and McKee (2009), deniers spin is based on the five main arguments heating up the climate change debate, conspiracy theories; fake experts; impossible expectations; misrepresentations and logical fallacies and cherry-picking. According to James Delingpole, conspiracy theory "Climategate" is symptomatic of a movement that denies climate change (Delingpole, 2009). "Climategate" was widely considered a scandal because it caused a stir in the established consensus in climate science. In his blog on *The Daily Telegraph*, Delingpole referred to Climategate as "the final nail in the coffin of Anthropogenic Global Warming (Delingpole, 2009). Similarly, Christopher Booker, columnist in the same paper labeled the incident as "the worst scientific scandal of our generation" (Booker 2009).

"Climategate" refers to a controversy that took place in 2009 when huge amount of documents and emails of correspondence between world's leading climate scientists from the Climate Research Unit (CRU) at the University of East Anglia was hacked and released (Leiserowitz, 2013). Climate change skeptics alleged that these emails showed scientists manipulating data to exaggerate the evidence for human-caused climate change (Ryghaug and Skjølsvold, 2010).

Although leakage of scientists' correspondence in the East Anglia University all cleared climate scientist of any wrongdoings (Adam, 2010), it served as an argument to raise and strengthen mistrust in scientific community. Or as Hulme put it: "One of the clearest repercussions of Climategate was the unprecedented challenge to the authority, accuracy and reputation of the UN's Intergovernmental Panel on Climate Change (2013: 7).

A preliminary assessment was offered on the first anniversary of Climategate in a Nature editorial:

> "Never mind that almost all of the accusations thrown at the researchers involved have been proven baseless... And never mind that the scientific basis for the global-warming problem remains as solid as it was a year ago. Huge damage has been done to the reputation of climate science, and arguably to science as a whole. That impact deserves to be assessed and the necessary lessons need to be learned" (Raman and Pearce, 2020: 2).

ExxonMobil and other prominent oil and gas corporations have been particularly known for their involvement in financing think tanks specialized in "challenging and doubting" the science of climate change. Specifically, Supran, Rahmstorf, and Oreskes (2023) discovered that Exxon Oil Company, since the late 1970s, was fully aware that burning of the fossil fuels would likely lead to global warming with possibly dramatic environmental impact before the year 2050.

Consequently, several of the companies responsible for substantial emissions contributing to global warming have simultaneously supported, influenced, and promoted climate denial initiatives paralyzing global climate policy for decades (Grasso, 2019).

In this denial spin machine are various ideologically-motivated, politically-motivated or financially motivated-actors. The aim behind this network of denial has been to create confusion among the public and policymakers, intending to stall climate-related actions and safeguard the interests of fossil fuel businesses while upholding libertarian, free-market conservative ideologies (Cook et al., 2019).

Peter J. Jacques, draws parallels with the Holocaust denial, "in the sense that both represent reactionary efforts that camouflage their true intentions, sow confusion and demand space for two competing and supposedly equally valid sides in a public debate that adherents say deserves equal treatment" (2012: 10).

> "…well-credentialed contrarians serve as spokesmen (mostly men) to media forums outside peer-reviewed journals. Thus, it appears to policy elites, journalists, and of course the general public that there are two equally legitimate *sides* and that each should receive equal attention. Climate denial advocates sow confusion in a public that is often unaware that core elements of climate science have far more vetting, good-faith witnesses, corroboration, and merit" (Jacques 2012: 11).

4. MEDIA DISCOURSE

4.1. Introduction

With its pervasive and overarching function as a 24/7 provider of vastly diversified content, spanning from entertainment to news media, one can hardly make claim about the unfairly overestimated role of media in our everyday lives. This can additionally be reinforced by the fact that besides sleeping and working, we spend most of our time using mass media (Kepplinger and Maurer, 2000). Or as Luhmann (2000) noted: "Whatever we know about our society, or indeed about the world in which we live, we know through the mass media (2000: 1). With regard to that, one can go even further and compare the absence of media channels or no media access with the sensory impairment or disability, keeping in mind that any loss of a sense cannot be compensated by another. Consequently, media's strong competitive advantage as the fundamental source of insight and the vital source of knowledge ensured that its monopoly in dissemination of information seems almost unshakeable in modern societies.

4.2. Role of the Media: *watchdog* or a *guard dog*?

Taking into account the degree of significance and influence it holds in people's lives, news media, press and journalists are very often referred to as the *Fourth Estate* or *Fourth Power*. The credit for revelation of the term goes to Thomas Carlyle who recognized the importance of press as the backbone of the well-functioning and healthy democracy established on the grounds of the stable government. In 1837, he used the phrase in his work *French Revolution*: "A Fourth Estate, of Able Editors, springs up, increases and multiplies; irrepressible, incalculable" (Carlyle, 1837: 22). However, origin of the term is ascribed to British politician Edmund Burke. In 1787, he introduced the term in a parliamentary debate in the House of Commons of Great Britain with the intention of mocking the representative of the press. Shortly after, Carlyle made an additional remark in his book *On Heroes and Hero Worship*: "Burke said there were Three Estates in Parliament; but, in the Reporters' Gallery yonder, there sat a *Fourth Estate* more important far than they all" aiming to emphasize the fundamental role of media in spreading facts and igniting a revolution against all suppressive forces (Carlyle, 1841: 58). Interestingly, given the complex nature of the interrelationship between the media and the power elites in different societies and different countries, variety of canine metaphors has been constructed.

The principal premise of the *Fourth Estate* was built on the idea of media operating as a *civil watchdog* (Stier, 2015; Strömbäck, 2005). Functioning as an independent and autonomous entity, press was intended to provide checks to two estates (the church and nobility) along with the common masses. It was supposed to be a *watchdog* protecting and representing the interest of the people with regard to political elites (Bennett, 1994; Donohue et al., 1995). Creator of the theory was Edmund Burke who initially conceptualized it in a form of satire (Stanford Encyclopedia of Philosophy, 2004).

In contrast to the idea of press as a "freedom-seeker-and-defender" and "forum for the people" emerged a divergent perspective (Merrill and Lowenstein, 1971: 98-99). The role of media in terms of a *guard dog* was suggested by Donohue, Tichenor, and Olien (1995). Contrary to the Fourth Estate idea of autonomous press representing the populace and challenging the dominant groups, *guard dog* metaphor suggests that:

> "Media perform as a sentry not for the community as a whole, but for groups having sufficient power and influence to create and control their own security systems. Media reflect interests of the dominant groups and the system and have neither the inclination nor the power to challenge those dominant groups, unless they are already under challenge by other forces" (Donohue, Tichenor and Olien, 1995: 115).

The media are sleeping *guard dogs* in situations when there is no suspicious intruder, external force or a threat. According to Donohue, Tichenor and Olien (1995) the *guard dog* theory journalism is characterized by three features: first, the news media protect a particular group within the power elite; second, depending on who is being protected and who is recognized as the threat (external/internal) perspective is selected; third, in times of political conflict and/or scandal it is common for the *guard dog* to turn on one of the masters.

In the multifaceted climate change discourse with countless actors with a varying degree of responsibility and authority, both media roles are equally represented in addition to several other models such as *attack dog* or *lapdog* (Coronel, 2008). Even though number of researchers and scientists advocate for the *watchdog* role of press to be reestablished as a mainstream perspective in particular in the context of climate change, with journalists scrutinizing the government and power structures on behalf of the public, many still underperform in this role; they rather describe themselves as "interpreters and disseminators" of the news and lot less as *watchdogs*. In most cases, their primary objective is to protect its owners and their interests, and in the case of climate change it contributes to the polarization and ideologization of the issue.

4.3. Old/new media

Even though media's role and relevance as the main newsagent has remained unchanged throughout history, media nomenclature has undergone substantial alterations particularly with regard to inception of internet, that is, digital age. Namely, in the new media ecosystem one can distinguish between *traditional* and *new* media (Luedecke and Boykoff, 2017). The distinction between them is primarily based on the two key aspects related to the form and means of communication. Prior to advent of digitalization, *traditional* forms of media referred chiefly to print publications (newspapers, magazines, books and flyers) as well as broadcast news (TV and radio), hence the term *old* media. Additionally, they were often characterized by one-to-many (mono-directional) communication as the prevailing form of communication to largely anonymous mass audience, thereof mass media (Luedecke and Boykoff, 2017). As opposed to *old* media, surge of digital technology triggered emergence of *new* media landscape encompassing Internet, Web and social media as the predominant form of communication i.e., marking the beginning of co-existence of traditional media (papers, magazines) with their digital versions such as digital newspapers and blogs. The *traditional/new* media divide simultaneously renewed the widespread dichotomy between *push* and *pull* media (Tong, 2018). While *push* media (tv/radio) is transmitted to the audience with minimal interaction required on their part, *pull* media (chiefly social networks) typically require interactivity on the part from the participant (Knilans, 2011). In this particular case, those digitally oriented type of media brought many-to-many (more interactive) webs of communication allowing users to communicate with one another forming communicator – audience relationship previously non-existent in conventional media (Luedecke and Boykoff, 2017). This type of media swiftly became notorious for producing and disseminating so called "fast-food information" (Graminius, 2022). As the term implies, fast-food information was described as something that is digested fast but not fulfilling. Information

of fleeting character appearing and disappearing with no weight whatsoever was barely registered in the virtual world. In that regard, it has been postulated that social media does not offer space for facts, but rather for opinions considering that emotional content travels faster than other types of content on social media (Vosoughi et al., 2018).

> "The shift from *traditional* to *new* media has signaled substantive changes in how people access and interact with information, who has access to it, and who are considered *authorized* definers (e.g., actors with more power and influence than others) of the various dimensions of environmental issue" (Luedecke and Boykoff, 2017: 1).

Correspondingly, as various actors and online bloggers are entitled to interpret and communicate images, these media representations help to create public discourse on environmental issue (Luedecke and Boykoff, 2017). Accordingly, as the number of content-creators in the digitalized world mushroomed, so have their contributions repeatedly continued to constitute and influence the pluralistic public debate along with mediated discourse of climate change, frequently reflecting cacophony of divergent opinions, views and attitudes. Moreover, Boykoff and Luedecke highlighted "democratizing influences of the new and social media due to their potential to more readily shape the public agenda as they often offer a platform for more people to become content producers" (2017: 1).

4.4. Mediatization of climate change

In the history of evolution of climate change as a multidisciplinary subject of research, it is possible to pinpoint two milestone events that have galvanized its abrupt upturn on the global agenda. Two transformational processes that have lifted climate change from the scientific community into a much broader and wider context are related to the notion of *politicization* (Druckman, 2017; Jaspal and Nerlich, 2014; Trumbo, 1996; Boykoff and Boykoff, 2004) and *medialization (*mediatization) (Rödder, 2011; Schäfer, 2014) of the issue in the public discourse. Converging media and political discourse served as a catalyst for increased awareness, influence and attention on a vast array of challenges surrounding the climate change.

Medialization of climate change refers to the process in which this global phenomenon attained a substantial amount of salience and prominence in the media discourse becoming visible to the wider audience, thus widely discussed, and debated in the public (Rödder, 2011). Nevertheless, the orientation towards media wasn't without any consequences. As soon as the climate science became embroiled in media ecosystem, rules of the game substantially changed. The dominant climate change portray was media-constructed applying media logic in strict line with media criteria and journalistic norms erasing all the previous traces of scientific norms (Berglez, 2011; Boykoff and Boykoff, 2007).

The primary purpose of medialization is to increase the credibility of science and influence political decisions as well as to mobilize public support for arguments in intra-scientific disputes (e.g. disagreements about priorities) (Weingart, 2001 as cited in Peters et al., 2008). However, each misconduct by media may have serious repercussions in terms of threatening autonomy and quality of the science production. Medialization was preceded by politicization of climate change, which greatly contributed to establishing controversial and divisive debate, hence hindering a decision and policy-making process.

In the US, the onset of medialization of climate change can be traced back to late 1980s, peaking in the 1988 (Trumbo, 1996). Specifically, the year of 1988, "when three spheres of

media, science and policy finally intersected" (Boykoff and Rajan, 2007: 208). According to Hulme (2009), the year 1988 marks a significant milestone in terms of raising public awareness and media attention towards the challenges pertaining to climate change. Prior to political breakthrough, media coverage of climate change was chiefly dominated by scientific findings and results as well as the potential future effects of the rising temperatures. Nevertheless, as the issue gained traction in political arena, it also gained more prominence within the media discourse. As previously noted, the year of 1988 is viewed as crucial due to set of events, which generated increased media interest and consequently triggered rise in news coverage (Jaspal and Nerlich, 2014). The outbreak of medialization was thus associated with the following triggers: *ecological-meteorological* (drought across North America), *political* (Margaret Thatcher issued warning due to potential climate change effects, Hansen's testimony), *scientific* (establishment of IPCC, WMO Conference in Canada) (Boykoff and Boykoff, 2007; Bolsen and Shapiro, 2017). In a light of this, Ungar concluded: "What rendered 1988 so extraordinary was concatenating physical impacts felt by the person in the street" (1992: 490).

Accordingly, interplay of events of ecological, scientific and political significance played pivotal role in elevating climate change as the prominent issue in media discourse fueling a number of side effects of this media spotlight. According to Krosnick, Holbrook and Visser (2000), "the drought and the fact that 1987 had been the hottest year on record received major news coverage, much of it speculating about whether global warming was responsible for the drought" (2000: 240). The increased media attention contributed to the increased acknowledgment of the issue considering that nearly 60% of the US public was informed in some way of the global warming by September of 1988 (Nisbet and Myers, 2007). Additionally, in the same year, George H. W. Bush ran for the president promising to "fight the greenhouse effect with the White house effect" (Boykoff and Roberts, 2007: 6). At that point, politicization of climate change was already increasingly intertwined with medialization of the issue seeking to bridge the information gap in the public discourse on the potential future impacts (Bolsen and Shapiro, 2017). Various interest groups and stakeholders, including environmental organizations, businesses, and politicians, started to shape the narrative within the climate debate in order to advance their agendas. Correspondingly, media started to frame climate change in terms of political and economic implications and how technological investments could reduce concern (Nisbet, 2009). Media involvement in the climate change communication within the public discourse entailed the deployment of wide specter of frames which exacerbated the existing polarization between different political and ideological groups (Jang and Hart, 2015; Bolsen and Shapiro, 2017; Chinn, Hart, and Soroka, 2020).

The events of 1988 helped catalyze the medialization of climate change by bringing the issue to the public fore (Jaspal and Nerlich, 2014). According to Boykoff and Boykoff (2007), during the 1990s, media coverage of climate change was characterized by a gradual upturn chiefly driven by scientific and political reasons. Interestingly, the *carbon club* was established (comprising of carbon sceptics/contrarians) to oppose the findings of the IPCC First Assessment Report thereby fueling the climate change debate (Boykoff and Boykoff, 2007; Gelbspan, 1998). In that regard, the norm of balance was seen as one of the underlying reasons for the increasingly polarized media representation of climate change. Aside from the norm of balance, norm of personalization was also found to play an important role in the sudden surge of news on the warming planet particularly in relation to media exposure of personalities i.e. advocates and opponents of the climate science (Boykoff and Boykoff, 2007). In 1992, most of media attention was focused on the Earth Summit, i.e. United Nations Conference on Environment and Development in Rio de Janeiro, Brazil, utilizing the norm of dramatization and personalization

when reporting whether or not US president George Bush would participate in the summit (Boykoff and Boykoff, 2007). The upward trend of media coverage of climate change continued in 1997 particularly in connection with the Third Conference of the Parties (COP3), i.e. the Kyoto Climate Summit relying upon the norms of novelty, dramatization and personalization (Boykoff and Boykoff, 2007).

Boykoff and Boykoff (2007) further noted that substantial surge in media reports on the climate change reoccurred at the turn of the century and was mostly driven by political reasons. In 2001/02, media directed attention towards George Bush administration's refusal and withdrawal from Kyoto treaty implying that "it would wreck the U.S. economy", continuing throughout 2004 with the Russian ratification of the Kyoto Protocol (Boykoff and Boykoff, 2007).

Tremendous surge in media coverage on climate change was recorded in the period between 2007 and 2010 (Bolsen and Shapiro, 2018). The first peak in 2007 was fueled by release of several influential scientific reports, among others, the Third IPCC report in 2007 and Al Gore's documentary *An Inconvenient Truth* (Boykoff and Roberts, 2007). A subsequent peak in media coverage in 2009 was primarily driven by a combination of the controversial *Climategate*, cap and trade legislation as well as a 2009 UN Climate Change Conference in Copenhagen. This historic event represented culmination of a two-week negotiation under United Nations Framework Convention on Climate Change (UNFCCC). Dubbed as the "Hopenhagen" due to tremendously high expectations, it attracted a lot of media attention, because at that point, it was envisaged as a turning point in the fight against climate change. When Copenhagen agreement failed, against all the odds, media had even more to speculate about. Moreover, a 2011 study carried out by Nisbet encompassing media outlets such as *The Washington Post, The New York Times, the WSJ, CNN and Politico* showed that during nearly 10 months of 2009, 93% of all news and opinion articles reflected the scientific consensus framing (Bolsen and Shapiro, 2018). However, although this framing wasn't outnumbered by the presence of false balanced and dismissive view, its prevalence was found to vary over time and across sources.

Even though number of journalists covering environmental stories at traditional media outlets plummeted starting from the 2010s (Bagley, 2013), there has been a considerable rise in climate change reporting over time due to a growing number of new media and online domain. This way, communicating climate change through traditional media was advanced by incursion of new media channels, such as blogs or social media.

Correspondingly, the hype surrounding the climate change didn't fade away in media throughout the last decade (Bolsen and Shapiro, 2017). On the contrary, climate change has been a long-standing buzzword that has contributed to ever-heightening media interest due to synergistic effect of several factors. As one of the most visible and tangible consequences of human-induced climate change that has generated most media attention are extreme weather events such as floods, droughts, heat waves, wildfires and hurricanes exposing the vulnerability of the developing countries (MeCCO, 2017). As the extreme became commonplace, it was soon embodied by media. Global climate agreements and milestones have also been of particular interest for media. The adoption of the Paris Agreement in 2015 in addition to international climate conferences, including the Conference of the Parties (COP) under the UNFCCC, have attracted significant media coverage (MeCCO, 2017). In that regard, media outlets reported on the negotiations, pledges made by countries, and progress towards addressing climate change. Not surprisingly, in the aftermath of the ratification of the Paris Agreement by nearly 200 countries, U.S. President Donald J. Trump's decision on withdrawal from the Paris Climate Treaty in 2017 also known as "Trump Dump" marked the peak in media coverage (MeCCO,

2017). Otherwise, the media and Climate Change Observatory team at the University of Colorado Boulder found that 2017 “saw media attention to climate change and global warming ebb and flow” (MeCCO, 2017). In recent years, focus in media coverage on climate change shifted towards climate change activism and social movements. Fridays for Future with Grete Thunberg at the forefront and Extinction Rebellion, have drawn substantial media attention in the recent decade (Mede and Schroeder, 2024). Primarily youth-led climate strikes, protests and controversial eco-vandalism have received widespread coverage, amplifying demands for urgent climate action and generating public concern on the issue.

Apart from spotlighting climate change social activism, in recent years, media have particularly boosted prominence of the increasingly popular cli-fi genre drawing attention to the scientific warnings translated into unnerving doomsday prophecies for the planet and the people (Svoboda, 2015). The hyperbolized, multimodal narrative featuring apocalyptic and cataclysmic rhetoric about the approaching dystopian future caused by the rising emissions media tend to make into a nerve-wrecking thriller story as a cautionary tale about the soon-to-be climate reality if climate change impacts are left unabated. The sense of alarmism hallmarking the cli-fi revolution was thus widely embraced as the default coverage mode for most media outlets drawing upon doomsday scenario as the foundation for their reporting (Schneider-Mayerson, 2018). Accordingly, the cli-fi genre is exploited by media as a stepping stone to reinforce the alarmist discourse of climate change in the public debate conveying the message of urgency and severity (Glass, 2013). Among the most media hyped cli-fi movies alerting the public about the pending climate crisis are Adam McKay’s “Don’t look up” and David Attenborough’s documentary “A Life on Our Planet” whilst among the best-rated and best-received cli-fi series is “Extrapolations” starring Meryl Streep. Moreover, climate fiction gained traction in literary genre attracting wider audience with the vision on climate breakdown with the following books/novels, “The Ministry for the Future” by Kim Stanley Robinson, “Bewilderment” by Richard Powers and “Termination Shock” by Neal Stephenson. Even though they are not directly encompassed by the cli-fi genre, standout books that captured media attention and contributed to elevate the importance of urgently addressing the climate crisis are “How to Avoid a Climate Disaster: The Solutions We Have and the Breakthroughs We Need” written by Bill Gates as well as “Not the End of the World” by Hannah Ritchie.

Overall, the combination of scientific findings, extreme weather events, global climate agreements, activism, economic implications, and political developments have been the main drivers of media interest in climate change during the period from 2010 to the present. These factors have increased media coverage, public awareness, and the prominence of climate change in public discourse.

4.5. Navigating climate change through media

Numerous studies of the interrelationship between media attention and climate change have shown that the issue is regarded “a relevant topic in many countries on all continents, outnumbering other hotly debated science issues like stem cell research or genome sequencing (Schäfer, 2018: 856). And this is not without a reason. Media’s role as an impetus and propelling force in steering the issue through cross-sectoral and transnational arena is quintessential as most climate-related phenomena are invisible. “The causes and consequences of climate change and its implications are not directly and easily perceivable, and what most people know about them stems from media communication” (Schäfer, 2015: 853). Similarly, Schneider and Nocke note:

> "Climate change as a long-term process cannot be seen. It needs to be constructed on the basis of physics, chemistry, and big data: measurements, simulations, and statistics. Because climate is a scientifically constructed object, there is no way to learn about it other than through media devices. We need media to learn about climate change" (2014: 12).

Therefore, how scientific subjects are covered by mass media matters in many ways, regardless of whether scientists like it or not (Boykoff and Rajan, 2007). This is mainly because peer-reviewed research is most commonly accessible to the relatively few people. "Only few people typically begin each day with a morning cup of coffee and the latest peer-reviewed journal article" (Boykoff and Yulsman, 2013: 1). Instead of reading scientific publications or being directly involved in science, public more often turns to mass media – online news sources, social media, newspapers, television, and radio, to get informed about the scientific issues, including climate change.

The fact that news media have significant role in communicating the issue of climate change is backed by the Reuters Institute Digital News Report 2020. According to the report, public relies on media as the main source of information in getting information on climate change to a rather high degree and therefore substantial amount of knowledge about the phenomenon is obtained through various media sources (Newman et al., 2020). In 2020, the most preferred and most widely used form of media for the update on climate change news was the television (the 35% of respondents) followed by online sites of major news organizations, specialized climate news outlets, alternative sources such as social media and blogs. In comparison, printed newspapers and radio were used surprisingly little as a source of news on climate change.

Consequently, news media are the primary source of information about climate change for most people (Bolsen and Shapiro, 2018), and as such they are the key factors in rising public concern, shaping public opinion and setting the public agenda (Carvalho, 2010). Correspondingly, media play a significant role in the construction of environmental issues and problems (Boykoff and Boykoff, 2004; Schoenfeld et al., 1979). Moreover, they are key actors in the identification and interpretation of environmental issues. The news media are the central "interpretative system" of modern societies (Peters and Heinrich, 2005 as cited in Schimidta, Ivanova and Schafer, 2013) and have thus become "the key validator" of science (Petrescu-Mag et al., 2022). Moreover, "they are the main arena for the production, reproduction and transformation of the meaning of the societal issues and hence influence the understanding of risks, responsibilities as well as of the functioning of democratic politics" (Carvalho, 2010: 172). This view corresponds with the Ulrich Beck's claim that a risk society is intrinsically a media society (Beck, 1996). Namely, as an invisible environmental risk, in order to "acquire the status of *social problem* that the public should be concerned about", climate change needs to be detected and visualized (Hansen, 2000 as cited in Wu, 2009: 158).

Media as a mediator, that is, interface between the scientific community and general public has a substantial power to influence public perception and debates and impact governments' response. As most people rely on media as the main source when it comes to extracting scientific knowledge, exploring media's re-construction, that is, portrayal of climate change is of vital importance. According to Nelkin, "the public understands science less through direct experience or past education than through the filter of journalistic language and imagery" (Nelkin, 1995: 2).

4.6. The illusion: media as a construct, not a mirror of reality

News stories are narratives which are socially-constructed, and even though they disclose facts they never reflect perfect reality (Dispensa and Brulle, 2003). The socially-constructed news are determined chiefly by "journalistic norms and conventions" (Dispensa and Brulle, 2003: 81). Namely, media realm "represents the world in the society for the society and builds perceptions of reality" meaning that everyone who uses media can be informed about societal agenda (Saxer, 2007 as cited in Adolf, Baumann and Rhomberg, 2011: 10). However, the mediated portray of the world or environmental issues is not a reflection but the construction of the reality. It doesn't serve as a *mirror*, mediating real events, stories or debates (Shoemaker and Reese, 1996). Conversely, media create their own version of reality based on the mechanisms of selection and presentation. Correspondingly, science is reconstructed and not mirrored, i.e. reflected in the media. Media coverage, reports and framings are therefore not simple translations of the *truth* but representations grounded on the series of choices such as "whether an issue will make the news, the highlight it will be given, and who is going to speak for it" (Carvalho, 2007: 223). Correspondingly, "there is no such thing as *pure facts* in media. Instead, "truth claims" are embedded with certain word views, judgments and preferences (Carvalho, 2007: 225). This is particularly noteworthy for issues, which are not directly observable, visible or tangible such as climate change. As they are considered gatekeepers in the process of selecting the information, media have the authority to decide whom to give attention, what kind of attention and to what extent: "The capacity to define potential risks and hazards is broadly aligned with the distribution of power among, credible, authoritative, and legitimate definers of reality across the media field" (Allan et al., 2000: 13). Therefore, scientific issues are interpreted through media's lens.

Correspondingly, the media reality is manufactured and constructed reality according to certain rules of selection. Media coding system and rules are based on the binary code of *information/non-information* (Luhmann, 2000 as cited in Rhomberg, 2010: 57). Specifically, those rules are entirely determined by "news factors" which journalists use as a guideline for selection. Most commonly, it relates to the "news hook", that is, process of translating an event into a story by adding a novelty twist to an already existing thing. Another important aspect in that regard is *issue attention* as a measure of climate change media coverage. Bearing in mind that news media have limited "carrying capacity" following the limited space or amount of time or lines (on social media), only specific number of issues may receive attention at certain point of time (Hilgartner and Bosk, 1988: 58).

In a light of this, not all science-related information is considered newsworthy and qualifies for media attention. Only in cases specific criteria are met, science may generate attention of newsmakers, "if it is source of some kind of conflict; it may be exploited by social or political groups to legitimize or support their arguments or it may be expected to resolve conflicts by providing an ultimate answer to the issue" (Peters, 1999: 253).

This way, the selection of events for media coverage may be determined by "geographical, political and cultural proximity; surprise; relatedness to a topic that has already been introduced; prominence; personalization; conflict; success; or damage" (Peters et al., 2008: 3). Nevertheless, "any description of media communication based solely on the gate keeper model of selection criteria misses the mark with respect to the media construction of reality" (Imhof, 2006 as cited in Cheng et al., 2008: 74). An extended version of selection criteria may also include the relevance for the public, in which certain contexts are highlighted or downplayed. However, aside from these news factors, the central processes of media meaning-making are associated with the concepts of recontextualization and framing. In this particular

case, events may be attached various meanings conditioned on the context or as Kohring's (2005) encapsulates, science journalism is conceptualized as an observation of science based on the rules that are entirely different from those of the observed system (Kohring, 2005 as cited in Cheng et al., 2008). According to him, scientific knowledge or events that are chosen for the news coverage are those with a multisystem relevance – that is, those with political, social, economic or legal implications.

4.7. Decoding media logic

Media coverage is primarily characterized by *ideological biases* and *structural media logics* (Schulz, 2011: 68).) Media logics refers to the professional norms and journalist routines that Altheide defines as "assumptions and processes for constructing messages within a particular medium" (2004: 294). Among the most powerful media logics are news factors such as novelty, elite actors, or proximity (Galtung and Ruge, 1965). Media has always had penchant for reporting on scientific expertise even outside their specialized science-related sections. In general, journalists have recognized scientific knowledge and expertise as an attractive object for reporting primarily due to its practical relevance. Most importantly, the moment when scientific expertise pervades public discourse, it enters the domain of policy-making preceded by transformation by the logic of mass media (Heinrichs et al., 2005 as cited in Peters, 2008).

Integration of scientific knowledge into media-based public discourse is always preconditioned by adaption of science to media communication. As modern science is esoteric by nature, its incomprehensibility and unobtrusiveness makes it difficult to adjust to media nomenclature. The *mad scientist scheme* (Haynes 2003), and *scientific miracles* are examples of semantic structures used by journalism to construct connections between science and the everyday world (Peters, 2014). First and foremost, this relates to the distribution of information. Therefore, societies increasingly act in line with the logic of the mass media. And the logic of mass media may manifest itself in various forms. "Climate change is after all a problem created partly by a buy now, think later logic" (Boyce and Lewis, 2009: 5). The guiding principles underlying the consumer-driven media logic are further explained by Durning: "Our enormously productive economy demands that we make consumption our way of life…we need things consumed, burned up, worn out, replaced, and discarded at an ever increasing rate" (1991: 153).

4.8. Media and ideology

What seems like media coverage of a certain environmental topic is in fact affected by ideologies, priorities, experiences and perspectives (Luedecke and Boykoff, 2017). Nowadays, news media stand out as one of the most influential tools for shaping and manipulating ideologies and as such, they construct and affect almost every facet of our realities. According to Carvalho, "discursive (re)constructions of the scientific information in the media are typically strongly entangled with ideological standpoints" (2007: 223). Climate change can potentially be a very successful and effective carrier of ideology. In a light of this, Carvalho (2007) notes that analysis of media communication of scientific issues, among others, climate change, unambiguously implies research on the role and underlying effects of ideology embedded in discursive practices. In her paper, Carvalho (2007) argues that media discourse and ideology are mutually constitutive. Her view is based on the premise that media texts result from the ideological standpoints whereas media texts produce ideology. In her opinion, news and other media genres always either reproduce and/or challenge a certain ideology. Accordingly, "the media should not be seen as

mere conveyers of the ideologies of other actors" (Carvalho, 2007: 225). In this vicious cycle, she further adds that media either "allows or disallows other social actors to advance their ideological standings, or they can also have an important agency in bringing in new ideological readings of issues or confronting those of the dominant" (Carvalho, 2007: 225).

4.9. Engineering controversy with scientific expertise

Peters (2014) argue that media outlets resort to several strategies depending on whether they seek to legitimize/delegitimize or emphasize/deemphasize the integrity and authority of scientific expertise. In that regard, they either create the narrative of *certainty* of *uncertainty* pertaining to scientific results, knowledge or evidence, in a broad sense. To support the arguments and claims of a particular standpoint, media may in an implicit or an explicit manner construct a discourse by employing a frame that best suits interests of a group advocating for either validation or dismissal of scientific expertise. To accomplish this, media outlets utilize several methods: of communicating (or purposefully omitting) explicit reservations in relation to expert knowledge; of challenging and confronting expert knowledge with non-scientific knowledge (e.g. common sense); or by quoting several expert sources that either agree or contradict each other (Peters, 2014). All discursive strategies are intentionally utilized to manipulate the public on the existence or absence of strong scientific expertise and knowledge on particular subjects.

Scientific expertise in a light of certainty/uncertainty rhetoric that is embroiled into media this way may cause quite a stir. Accordingly, miscommunication and misrepresentation of scientific *uncertainty* in public discourse may have dire implications and consequently trigger a domino effect in the scientific and non-scientific community particularly when it is framed as scientific controversy (Schmid-Petri and Arlt, 2016) or politicized (Carvalho, 2011).

Controversy is identified as one of the main variables that may impact the choice of storyline along with human interest, celebrity, prominence, timeliness, and proximity (Shoemaker and Reese, 1996). Moreover, controversy has always been an inherent part of media coverage of scientific issues considering that political journalism is premised on the notion of balanced coverage. This in turn may distort the reality in several ways, either by journalists making errors, prioritizing narratives that emphasize human experience rather than scientific content, or by adherence to core norm of balanced coverage. Therefore, juggling with scientific uncertainty in public discourse is a very common journalistic strategy aiming to manufacture expert controversy, mislead the public and serve as a medium for obstruction. Due to this fact, not everyone in the scientific community has been willing to deal with the challenges posed by the cooperation between science and media outlets. With regard to this, the case of "mediaphobia at IPCC" (Brainard, 2010) is particularly significant. In July 2010, there was a leakage of information on how IPCC chair Rajendra Pachauri had sent an email to authors of the IPCC Fifth Assessment Report warning them on the following:

> "I would also like to emphasize that enhanced media interest in the work of the IPCC would probably subject you to queries about your work and the IPCC. My sincere advice would be that you keep a distance from the media and should any questions be asked about the Working Group with which you are associated, please direct such media questions to the Co-chairs of your Working Group and for any questions regarding the IPCC to the secretariat of the IPCC" (Brainard, 2010).

The affair also ignited concerns relating to IPCC transparency and effective communications (Boykoff and Yulsman, 2013).

"Media representations are shaped by framings, journalistic norms and cultural politics of media economy that are inextricably linked with each other" (Luedecke and Boykoff, 2017: 7).

4.10. Media framing

Framing can refer to "the selection of language to communicate information about an issue as well as the effect of such choices on how audiences form an opinion" (Bolsen and Shapiro, 2018: 1). "A story's frame directs readers' attention by defining the problem, stating what or who is responsible, and pointing to a solution" (Entman, 1993: 52). According to Entman, the concept of framing "consistently offers a way to describe a power of communicating text" (1993: 51). "Frames select some aspect of reality and make them more salient in communicating text in such a way as to promote a particular problem definition (Entman, 1993: 52). O'Neill et al. drew attention to the fact that "frames are never neutral: they define an issue, identify causes, make moral judgments, and shape proposed policy solutions" (2015: 380).

Accordingly, all forms of human communication inevitably imply selection of frames to shape public understanding of a certain social issue or an event (Bolsen and Shapiro, 2018). Framing is unavoidable. There is no such thing as unframed information, even the most successful communicators resort to framing, whether deliberately or intuitively (Nisbet, 2010). Although frames are inherently embedded into communication and can facilitate understanding of complex issues, they are very often deployed strategically by communicators with a purpose to persuade the audience to support certain causes.

4.10.1. Framing as the construction of social reality

According to McQuail, "the entire study of mass communication is based on the premise that the media have significant effects" (1994: 327). In the history of research on media effects, he distinguishes four different stages. The first stage, from the late 20th century to the late 1930s was characterized by the growing fear prompted by prevalence of strategic propaganda during World War I in conjunction with media impact on the attitudes. The second stage, until the late 1960s was marked by revision of paradigm of impactful media effects. Personal influence was viewed as the crucial influence on attitude change. The third stage, starting from the 1970s, was prevailed by the search for new strong media effects with focus shifting from attitude change to more cognitive effects of mass media. The fourth and present stage, which started from the 1980s, is distinguished by "social constructivism." On one hand, mass media may strongly influence the public by constructing social reality, i.e. "by framing images of reality . . . in a predictable and patterned way" (McQuail, 1994: 331). On the other hand, media impact is limited by an interaction between recipients and mass media. "Media discourse is part of the process by which individuals construct meaning, and public opinion is part of the process by which journalists. . . develop and crystallize meaning in public discourse" (Gamson and Modigliani, 1989: 2). Therefore, framing and framing formation have to be defined grounded on this social constructivism.

According to Neuman, Just, and Crigler, "they give the story a *spin*….. taking into account their organizational and modality constraints, professional judgments, and certain judgments about the audience" (1992: 120). They minimize or ignore irrelevant or uninteresting content. Consequently, public rely on "a version of reality built from personal experience,

interaction with peers, and interpreted selections from the mass media" (Neuman et al., 1992: 120).

4.10.2. Framing as a theoretical concept

Defining framing as a coherent theoretical concept is not a clear-cut task as it encompasses a broad set of various definitions and interpretations. This multitude of clarifications stem from the fact that researchers using framing come from a substantially different scientific fields and disciplines. Accordingly, this excludes the possibility of narrowing down this crosscutting concept to only one disciplinary approach. "Interdisciplinary diversity" is singled out as one of the reasons and consequently obstacles for why there isn't any unified definition on what frame is, how frames can be conceptualized and operationalized in empirical studies (Scheufele, 2004; Scheufele and Scheufele, 2010).

Notwithstanding, one of the most widely circulated definitions of how media use framing as interpretative tool is formulated by Entman (1993). Aside from the specification of frame comprised of four frame elements (problem definition, causal interpretation, moral evaluation, and treatment recommendation), Entman casts light on the dual nature of framing consisting of two essential factors, selection and salience. "To frame is to select some aspects of a perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation" (1993: 52). Correspondingly, framing refers to the process of selecting a certain perspective or aspect of reality and making it more salient, implying that some information and context are purposefully emphasized at the expense of the other, which are either neglected or omitted. The framing and presentation of news in the mass media can thus systematically affect how recipients of the news come to understand these events. Bearing in mind that framing is approached from a number of theoretically divergent disciplines, another facet which prompts debate is related to the theoretical underpinnings of framing. According to Entman, framing is "a scattered conceptualization" (1993: 51).

4.10.3. Frame production

Frame production refers to the process in which frames are created and developed by public actors, communicators or journalists on their cognitive frames (Borah, 2011). It may also include frame description as well as intends of communicators (Borah, 2011; Guenther et al., 2021). In the role of communicators may appear politicians or members of movements who may be engaged in the process of *strategic framing*, that is, constructing frames to shape public communication (Matthes, 2014). Various strategic frames may compete in the framing contest over the dominant position and thus shape the public discourse. Journalist's frames are also encompassed by frame production. Journalists rely on their own set of frames (Nisbet, 2009).

In the climate change debate characterized by conflicting views, competing actors aim to impose their perspective (Anderson, 2009). Although frames are inherently embedded into communication and can facilitate understanding of complex issues, they are very often deployed strategically by communicators with a purpose to persuade the audience to support certain causes. To give boost to climate skepticism, conservative think tanks as major opponents to anthropogenic view of the climate change often resort to strategic framing of increasing warming by emphasizing scientific uncertainty (Nisbet, 2009). Consequently, frames are used strategically to support communicators' interests and agenda, which may be the root cause of public

polarization and further aggravate the decision-making process relating to the combat of climate change and emission reduction (Bolsen and Shapiro, 2018). Simultaneously, framing strategies may be employed by governmental actors to influence media coverage of climate change and thus play an important role in shaping public perception of climate change risks.

4.10.4. Frame content

Media frames may be comprised of text, visuals (O'Neill et al., 2013) and multimodal forms (Wessler et al., 2015). Media frames are not interchangeable with journalists' frames as the news production implies more complex process than journalists' frames could clarify alone. Frame content encompasses so-called *strategic frames* (Matthes, 2009), that is, frames in the content of non-journalistic actors. This is particularly significant in the climate change communication considering that plethora of actors involved in the contested climate debate like scientists, politicians and NGOs use their own frames (Anderson, 2009). Public, on the other hand, relies heavily on the messages and information disseminated by the sources they use (Schäfer and O'Neill, 2017). This may partially be the cause of partisan divide in the United States considering that different sources of information use different framings. This in turn may spark controversy, spread confusion and deepen polarization within the climate change debate following the contradictory views triggered by divergent framings employed by various interest groups to support their goals. In contrast to media frames, equally important for news coverage are the individual frames. Individual frames are descibed as "mentally stored clusters of ideas that guide individuals' processing of information" (Entman, 1993: 53).

4.11. Framing in climate change communication

Media communication of climate change causes, impacts and risks goes hand in hand with the selection and deployment of various issue frames depending on the goal and intention that should be accomplished.

> "Through frames, media transmit information that shape how people understand climate change as well as the actions they are ultimately willing to support to address the problem. The framing process refers to selection of language to communicate information as well as the effect of such choices on how audiences form an opinion" (Bolsen and Shapiro, 2018: 1).

However, even though media frames are unavoidable aspect of climate change communication, they are often employed strategically by various actors as powerful persuasive tools to suit their specific agendas (Bolsen and Shapiro, 2018).

According to Nisbet, "framing climate change means remaining true to the underlying science of the issue while applying research from communication and other fields to tailor messages to the existing attitudes, values, and perceptions of different audiences" (2009: 14).

Media framing has an important role in shaping public understanding, influencing public attitude and motivating action (Schäfer, 2015) and is therefore of key importance for climate change communication for several reasons. Firstly, because climate change is one the most pressing global issues and as such its effective communication is highly relevant. Public perception of climate change risks is primarily determined by the representation of the issue in media discourse as the main source of information, which is why media employment of certain framing may motivate or demotivate action to avert dire consequences. Moreover, owing to the

fact that media coverage of climate change is pervaded by "scientific uncertainty" promoted by climate sceptics, framing is able to "break through the communication barriers" (Nisbet, 2009: 15). A frame can include pro, anti, and neutral arguments or a combination of any of those (Nisbet, 2009).

4.12. Media frames of climate change

For decades, framing has been recognized as a well-functioning communicating strategy for effectively communicating and connecting the broader audience to the issue of climate change (Nisbet, 2009). In media, climate change can be depicted in myriad of different ways and carry multitude of different meanings depending on the message, the underlying motive and the effect intended to make. Messages are produced in a way to either emphasize certain aspects like environmental loss of the fossil fuel industry or conceal certain perspectives like economic costs of decarbonizing economies worldwide. Depending on the issue focus, there are over a dozen categories of frame, whilst the most salient ones have been categorized into five main categories: *economy, environment and biodiversity, morality, geographical identity* and *public health (*Li and Su, 2018). Each of these frames serves to highlight either economic, environmental or moral implications of the climate change for the local and global communities. The *economic frame* has been a recurring topic in the climate change debate mostly exploited by Republicans and Trump's key cart to contest the climate change. As opposed to this frame, is the narrative emphasizing numerous job opportunities in the renewable energy sector presented by the Democrats. Communicating climate change within the *environmental frame,* stressing the far-reaching ecological implications has however proved to be counterproductive as many people distanced themselves from the issue, which contributed to decreasing public engagement necessary to resolve the subject (Maichbach et al., 2010). On the other hand, *geographical identity* frame had a positive impact on the climate sceptics in Australia who were "more willing to do something about the environment" when it was linked to their identity rather than climate change (Sapiains et al., 2016). In recent years, *moral* and *religious* aspects of the climate change have become more prominent in the media discourse as the increasing number of Christian leaders, including Pope Francis have urged world leaders to act on climate change, proclaiming 2022 as the fundamental year to make some radical changes (Pope Francis, 2015; Schuldt et al., 2016; Jenkins, Berry, and Kreider, 2018). Last but not least, the surge in health issues caused or aggravated by climate change ranging from heat-related illnesses to asthma, allergies or infectious diseases has foregrounded the *public health frame* in media in recent years. Additionally, it has shifted the geographic location of climate change effects "replacing visuals of remote Arctic regions, animals and people with more socially proximate neighbors and places across local communities and cities" (Nisbet, 2009: 22).

Analyzing media frames of climate change in high-quality newspapers and internet sources in the US, Nisbet and Scheufele (2009) have identified the most salient ones characterizing media and political debate in the late 1990s and onward. In addition to the frames such as *economic development/competitiveness, morality/ethics, scientific* or *technical uncertainty, public accountability* or inter-group *conflict/strategy* they have accentuated climate change framing as *Pandora box* following its frequent analogies drawn in the media discourse, emphasizing the need for taking precautionary measures to avoid adverse and wide-ranging consequences.

4.13. Journalistic norms

Fairness, objectivity as well as accuracy, also referred to as *professional norms*, are among the principal ethical codes that lay foundation for the open and transparent journalistic discourse and mass media ecosystem (Boykoff and Boykoff, 2007). Correspondingly, they can simultaneously be viewed as *styles of storytelling*, often dubbed as "news values" and as such interact with other journalistic norms (Bødker and Morris, 2022). However, Boykoff and Yulsman add that even though "accuracy is widely seen as necessary" it is "not sufficient for good journalism, especially with complex scientific, economic, and political issues such as climate change (2013: 361). According to Bennett, content of news is influenced by three normative orders that journalist are confronted with: *political norms* ("norms about the proper role of the press in politics and society"), *economic norms* ("the normative constraints of the business side of news organizations") and *journalistic norms* ("norms about the journalism profession like objectivity, fairness, accuracy, balance") (1996: 375). All three are intertwined and difficult to disentangle.

4.13.1. First and second order journalistic norms

Journalistic norms are a set of guiding principle on the basis of which media discourse operates and constitute the foundation of journalistic integrity. In a light of this, Boykoff and Boykoff differentiate between "the first-order and second-order journalistic norms" (2007: 3). According to Boykoff and Boykoff, the first-order journalistic norms most commonly refer to "*personalization*, *dramatization* and *novelty*" (2007: 3). *Personalization* is considered a fundamental journalistic norm, which typically indicates "tendency to downplay the big social, economic, or political picture in favor of the human trials tragedies, and triumphs that sit at the surface of events" (Bennett, 2009: 45). In the context of climate change, it is extensively used by media as a strategic tool to increase its significance and relevance by making it resonate with the wider audience and thus influence their attitude and opinion on the subject.

Mediated coverage of climate change is almost inextricably linked to another first-order journalistic norm of *dramatization* (Boykoff and Boykoff, 2007). It represents an inherent component of alarmist rhetoric and narrative surrounding the climate change prophecies. According to Bennett, "news dramas emphasize crisis over continuity, the present over the past or future conflicts" and "downplay complex policy information, the workings of government institutions, and the bases of power behind the central characters" (2009: 46). In a same vein, Hilgartner and Bosk assert that "drama is the source of energy that gives social problems life and sustains their growth" (1988: 62). Even though dramatic norm may contribute to trivialization, emotionalization and descientification of climate change-related news content, it doesn't necessarily lead to reduced coverage (Boykoff and Boykoff, 2007). Another explanation of dramatic norm is provided by Ereaut and Segnit who claim that drama-trigger is a commonplace for news coverage, adding that sensationalized or alarmist reporting "might even become secretly thrilling – effectively a form of *climate porn* rather than a constructive message" (Ereaut and Segnit, 2006: 14). Closely tied with the dramatization norm is a *novelty* norm. Their entanglement is scrutinized by Hilgartner and Bosk who write that "saturation of the public arenas with redundant claims and symbols can dedramatize a problem" (1988: 71). Furthermore, Stocking and Leonard claim that "it ain't news unless it's new" (1990: 40). Accordingly, the novelty is one of the crucial selection criteria on the basis of which some news are prioritized and foregrounded and others left aside. However, it concurrently implies "issue-of-the-month

syndrome" that "allows persistent, and growing, environmental problems to slide out of sight if there is nothing 'new' to report" (Stocking and Leonard, 1990: 40). In the context of climate change coverage, Wilson notes: "The underlying causes and long-term consequences are often overlooked in the day-to-day grind to find a new angle by deadline" (Wilson, 2000: 207).

All these three first-order journalistic norms intersect with the second-order journalistic norms comprising of *authority order* and *balance* (Boykoff and Boykoff, 2007). Boykoff and Boykoff (2007) argue that all these norms are the leading cause of the *information bias* present in the media discourse. It may lead to "episodic" rather than "thematic" framing which has been shown to contribute to shallow perception of social problems (Boykoff and Boykoff, 2017: 3). The *authority order* bias refers to reliance and prioritization of almost exclusively authority figures – government officials or business leaders. It plays an important role in reporting of climate change as it serves to enhance legitimacy and integrity of climate scientists and researchers and thus contribute to strengthening of the policy-making process. However, in cases with clashing authoritative views and contested subjects, it is rather ineffective. Last but not least, *the balance norm* is one of the most intriguing norms as it is often viewed as a root cause of the controversies surrounding the climate change debate. Balance is often interpreted as a synecdoche for objectivity especially since 1996 after the Society of Professional Journalists removed the term *objectivity* from its ethics code (Cunningham, 2003).

4.14. False balance

One of the fundamental principles in journalism is to present both sides of a contested issue in order to provide a "fair and balanced view" (Dunwoody, 1999). This means that each news story is framed from a perspective of both yea-sayer and nay-sayer reflecting two divergent viewpoints. This way, media communication gives an impression of being bias-free. Climate change is one of the topics frequently associated with false balance reporting. Consequently, representing scientific agreement as a debate may perpetuate confusion with public and possibly negatively affect the level of support and engagement for ambitious climate action (Wetts, 2020). This is mostly because media rarely depict the middle ground of the debate but instead focuses on the diametrically opposed arguments of the actors at the polarized edge of a climate change discourse (Boykoff and Boykoff, 2007). By displaying asymmetrical nature of the climate change debate, media falls into a *botsidesism* trap also known as *false balance (*Brüggemann and Engesser, 2017).

4.15. Balance as bias

In their two essays titled "Climate change and journalistic norms: A case-study of US mass-media coverage" (2007) and "Balance as Bias: Global warming and the US prestige press" (2004), authors Boykoff and Boykoff investigate the cause-effect relationship between journalistic norms and media coverage of climate change. Based on the research findings, they note that the media(ted) (un)intentional misrepresentation of the scientific basis of climate change risks derives primarily from satisfying journalistic norms and conforming to the main journalistic standards which in turn results with information bias. The news media and journalists often fuel heated public debates, which are replete with misconceptions, misinterpretations, and misunderstandings about various phenomena. They justify this by adhering to the norm of balanced reporting, which ultimately leads to a redefinition of traditional journalistic norms (Boykoff and Boykoff, 2004, 2007). A fundamental principal of fair journalism is the *audi*

alteram partem rule (let the other side be heard) (Claassen, 2020). However, bias is often concealed and disguised as deeply entrenched concern for the fulfilling of norm of balance (Brüggemann and Engesser, 2017).

According to Entmann, balanced coverage entails displaying "both sides in any significant dispute with roughly equal attention" (1993: 52) or, in the context of climate change reflecting an open debate between "warners" and "deniers" (Brüggemann and Engesser, 2017). According to Boykoff and Boykoff, balanced coverage isn't necessarily synonymous with "accurate coverage" (2004: 126). "Journalist's adherence to *the norm of balanced reporting* leads to informationally biased coverage of global warming. This bias is hidden behind the veil of journalistic balance" (Boykoff and Boykoff , 2004: 134). According to Entman, "balance aims for neutrality. It requires that journalist presents standpoints of both sides in any dispute and provide them with equal amount of attention" (1989: 30). In terms of the balanced media reporting on science, Dunwoody and Peters point out that balance is often referred to as "a surrogate for validity checks" as typical journalist lacks both time and expertise to verify the validity of claims himself (1992: 210). In case of climate change, balanced coverage can in fact indicate information bias considering that small group of opponents of the climate science can get their voices in the debate magnified (Boykoff and Boykoff, 2004). This may be the source of conundrum particularly in the climate change debate. In that regard, Gelbspan (1998) notes that translating canon of balanced reporting into science may contribute to polarization in the climate change debate despite the broad agreement on the anthropogenic causes and effects.

The term "bias" often refers to *informational bias* meaning "joint product of internalized professional values and of newsgathering routine" (Entman, 1989: 48). It can lead to distorted news, and according to Gans bias often implies "distortion" (1979: 304–305). In that regard, Boykoff and Boykoff conclude that US prestige press has considerably contributed to "failed discursive translation due to adherence to journalistic norm of balance" (Boykoff and Boykoff, 2004: 134).

5. POLITICAL DISCOURSE

5.1. Untangling political maze in the climate change narrative

Scrutinizing critical juncture of mediated and science-based climate notion is nearly inconceivable without taking into account the growing embroilment of politics and political actors on the rapidly expanding international climate arena. Nonetheless, entanglement of political sphere into climate change debate can be dually interpreted. In the light of the strongest or weakest link depending upon the political efforts to "persuade" the wider audience and policy-makers to implement adaptation and mitigation measures and act urgently in order to curb the growing emissions and combat accelerating warming.

In spite of the fact that political discourse typically echoes mediated scientific findings and consensus, it usually doesn't follow any media or scientific compliance policy but relies on its own premises and terms constructing the unique outlook of climate change reality. Aiming to avoid further institutional and policy jam in this congestion, uncorking political bottleneck in the climate change debate becomes an important matter.

In the light of this, political discourse can be seen as *locus in quo* for contestation of power by maximizing persuasiveness of political speeches coupled with manipulation through various linguistic resources. Concurrently, power is very often seen as a seed to discord provoking political opposition and lay foundation for contrasting discourses. Very much alike children's game *tug a war*, political contestants in a climate change debate are pulling the opposite sides of a rope in a bid to gain control and power and consequently shake up and weaken position of their opponents. Equilibrium is not even an option. The urge to win authority and power has pushed contestants of the political debate to the limits pushing in turn planet and people to the brink of potentially catastrophic climate tipping points. Catalytic mechanisms underlying debate are triggered primarily by abuse of the power of language ingrained in political discourse through language–specific manipulation to control and eventually influence masses.

Consequently, the process of separation of language from the political discourse analysis is unfeasible. In a same vein, the ongoing climate change debate bears an indelible imprint of political seal and detaching it from politics deems unthinkable. Therefore, exploring the role of language in the construction of political discourse of climate change is crucial in this paper.

5.2. The domain of Politics

"*What is Political Discourse Analysis* may seem like a rather naïve question" (Van Dijk, 1998: 11). Yet, scholars and researchers have encountered a number of obstacles when trying to define and delimit the object of study of the political discourse with numerous complications arising particularly in relation to the definition of political discourse analysis. Even though political discourse is at the center of the political discourse analysis, what remains ambiguous according to Van Dijk is the aspect concerning the determinants of the political discourse itself (Van Dijk, 1998). Therefore, tackling these issues typically begins with the conceptualization of the foundational idea that both concepts are intricately connected to and rooted in, namely, *politics*. Yet again, there isn't any universal and unambiguous definition of what *politics* is.

Nevertheless, one of the most widely referred definitions of politics is the one suggested by Paul Chilton who states that there are two different ways of viewing politics. On one hand, Chilton defines politics "as a struggle for power, between those who seek to assert and maintain their power and those who seek to resist it" (2004: 5). On the other hand, he outlines politics as

"cooperation, as the practices and institutions a society has for resolving clashes of interest over money, power, liberty and the like" (Chilton, 2004: 5). The former points to clash for power as the gist of the politics, whilst the latter sees politics as the non-violent conflict resolution model, with conflicts arising over money, interests or authority, etc. In a broad sense of the word, politics is defined as a struggle to seize power while enforcing certain political or socio-economic agenda. Furthermore, he elaborates on the topic of enactment of politics explaining that it can occur both at the *micro* and *macro* levels of society. He further clarifies:

> "Micro politics takes place between individuals, genders, and social groups and is enacted through acts of persuasion and argumentation, threat, bribes and so on while at the macro level, politics involves conflicts between and within political institutions and manifests in legal codes, precedent practices, and democratic constitutions" (Chilton 2004: 3).

Characterization of the domain of politics in relation to the political discourse also provides Van Dijk:

> "Politics may not only include all official or unofficial political actors, events, encounters, settings, actions and discourses, but also, more abstractly, political processes (like *perestrojka*), political systems (like democracy and communism), political ideologies (like liberalism), and political (group) relations (such as power, inequality, hegemony, and oppression)" (Van Dijk, 1998: 15).

5.3. Political system

In order to grasp the full scope of two notions of politics and political discourse, it is necessary to define all related terms. One of them is political system.

Decoding of the political system is thus possible by distinguishing the binary opposition of *power/non-power* in which political decisions can only be made by the dominant parties (Luhmann, 2000 as cited in Rhomberg, 2010: 57). Accordingly, power represents a demarcation line between the ones who are in charge and those who are not. The political system hence represents a system in which decision-making process is prepared and binding decisions are made (Rhomberg, 2010). This system is in charge and decides on allocation of responsibilities and authorities. Author further elaborates that the system must possess *the power* to reach these decisions. Legitimization of government and its power is executed through democratic elections. Secondly, this authority given by the people has to be proved by continuous decision-making. Thirdly, special mechanisms have been developed within the political system in terms of political communication carried out by special agencies observing mass media reporting. Additionally, conjuring with science can take place in which case scientific data can reinforce certain political decisions or serve as funding of research projects.

5.4. Political discourse (analysis)

According to John Wilson, the term political discourse implies a certain ambiguity. Its twofold nature entails two possible interpretations. "First, a discourse which is itself political; and second, an analysis of political discourse as simply an example discourse type, without explicit reference to political content or political context" (Wilson, 2005: 398). Nonetheless, confusion may arise in relation to this account considering that certain definitions indisputably indicate that nearly all discourses may be considered political (Shapiro, 1981). In which case, Wilson further suggests that all discourse analysis can be viewed as political discourse adding that even minor

reference to *power, conflict, control* or *domination* may further aggravate confusion relating to the definition of political discourse as they not necessarily may be the main indicators of political discourse but others as well. Conversely, this kind of interpretation hides a conceptualization trap that may lead to overgeneralizing the term political discourse. Therefore, it is not uncommon to propose delimiting of subject of analysis to political actors and political context (Shapiro, 1981).

Another perspective on the political discourse is provided by Van Dijk who suggests that political discourse shouldn't be considered a genre, but rather a class of genres defined by a social domain, namely that of politics (Van Dijk, 1998). He thus concludes that domain of politics encompasses "government deliberations, parliamentary debates, party programs, and speeches by politicians" (1998: 212). Moreover, he focuses on the delineation of the object of study, stating that "political discourse can be identified by its actors or authors, politicians – group of people who are being paid for their (political) activities, and who are being elected or appointed (or self-designated) as the central players in the polity" (1998: 12, 13). However, he stresses the fact that there are far more participants in the domain of politics aside from politicians implying the presence of public, citizens, the masses, and other groups or categories. Another view on the political discourse is presented by Fairclough (2006) who asserts that the domain of politics is not "unambiguously delimited but socially constructed" (2006: 33). According to him, political discourse should extend into the domain of the "life-world" (Fairclough, 2006: 33). Wodak and de Cilia (2006) draw attention to the fact that "everyday language is infiltrated by terms from institutionalized politics" (2006: 709).

According to Van Dijk, political discourse is a "prominent way to perform politics" (1997: 18). He notes that political discourse analysis can either refer to an analysis of political discourse, described as "the text and talk of professional politicians or political institutions within political contexts, or to a political, that is, critical approach to discourse analysis" (1997: 11, 15). Political discourse analysis is thus concerned with the political discourse function, i.e. the role of discourse in terms of producing, abusing and maintaining power and dominance in the society. With respect to this, John Wilson notes that the principal objective of the political discourse analysis is to explore the ways in which various language resources are selected and employed to manipulate the public for political effect (Wilson, 2005).

Chilton and Schäffner define political discourse as "a complex form of human activity" (2002: 8), stressing the fact that politics cannot be performed without language and that language is closely linked with culture, which is in turn associated with the game of politics in any given society

5.5. Language as a key player in political dynamics

According to Hague, Harrop and Breslin, "politics involves reconciling differences through discussion and persuasion which is why communication is central to politics" (1998: 3, 4). As previously suggested, the domain of politics and language are fundamentally interrelated, intertwined and interdependent. Defining language-politics nexus is therefore highly relevant aspect of the political discourse analysis for several reasons. Exploring this complex interplay has an important role in understanding how various linguistic features are utilized to make meaning and political opinions or how they help to (re)frame political issues by ideologically divergent parties. Importance of the interrelationship between language and politics acknowledge Chilton and Schaffner, "it is surely the case that politics cannot be conducted without language, and it is probably the case that the use of language in the constitution of social groups leads to what we call *politics* in a broad sense" (1997: 206). In other words, they conclude that "political activity

does not exist without the use of language" (Chilton and Schaffner, 2002: 6). Therefore, they argue that linguists should be engaged in the study of politics along with political philosophers and scientists. In a same vein, Pelinka claims that "language must be seen (and analyzed) as a political phenomenon" and that "politics must be conceived and studied as a discursive phenomenon" (2007: 129).

This inextricable bond between language and politics has its roots in the Greeks and Romans rhetorical tradition. In the *Politics*, Aristotle equated the political conduct with the possession of language:

> "But obviously man is a political animal [politikon zoon], in a sense in which a bee is not, or any other gregarious animal. Nature, as we say, does nothing without some purpose; and she has endowed man alone among the animals with the power of speech" (Aristotle 1992: 1-10).

> "Speech, on the other hand, serves to indicate what is useful and what is harmful, and so also what is just and what is unjust. For the real difference between man and other animals is that humans alone have perception of good and evil, just and unjust, etc" (The Politics, 1253a7, translated by T. A. Sinclair 1992).

Clearly, political activity can hardly exist without the usage of language. Bearing in mind significance of the political oratory for the victory in a case at the law or other political affairs, Aristotle defined the art of rhetoric as "the faculty of observing in any given case the available means of persuasion" and "a combination of the science of logic and of the ethical branch of politics" (Corbett, 1990: 1). Cicero shared the same view of rhetoric as a powerful tool for influencing political actions and attitudes. Thanks to the art of rhetoric and verbal persuasion people could actively participate in civilized communal life. In the same vein, James Farr indicated:

> "Politics, as we know it, would not only be indescribable without language, it would be impossible. Emerging nations could not declare independence, leaders instruct partisans, citizens protest war, or courts sentence criminals. Neither could we criticize, plead, promise, argue, exhort, demand, negotiate, bargain, compromise, counsel, brief, debrief, advise nor consent. To imagine politics without these actions would be to imagine no recognizable politics at all" (Farr, 1989: 48).

Chilton and Schaffner's recognition of language-politics nexus originates in the work of Thomas Hobbes, the founder of modern political science in the 17th century. In a subsequent period, this concept was further expanded by scholars like Orwell, Wittgenstein and Searle who also pinpointed the peculiarity of language that was frequently used as a political instrument for keeping power and shaping ideas. The first among them who drew attention to the potential of language (mis)use for political purposes was George Orwell. His postulation was presented in the article "Politics and the English Language" where he demonstrated various modes of language manipulation concluding that "political speech and writing are largely the defence of the indefensible" (Orwell 1946: 225). Moreover, in his article Orwell illuminated strong correlation between politics and language in terms of human behaviour:

> "People dislike one thing and want to express solidarity with another, but they are not interested in the detail of what they are saying. You can shirk it by simply throwing your mind open and letting the ready-made phrases come crowding in. They will construct your sentences for you, even think your thoughts for you to a certain extent and at need they will perform the important service of

partially concealing your meaning even from yourself. It is at this point that the special connection between politics and the debasement of language becomes clear" (Orwell, 1946: 160).

Nevertheless, it was not simply the manipulation that was under scrutiny, as Orwell was much more concerned with the goal of such manipulation particularly the one for political purposes in which ideologies and negative formulations were purposefully concealed and hidden. Representation and interpretation of the political reality was thus very much dependent on the linguistic selection as well as textual production. In a light of Orwell's "newspeak", appeared "nukespeak" based on the assumption that if one could manipulate with the language then one could easily manipulate with the mind (Wilson, 2005). In a same vein, Chilton tied up language and politics describing language as war with words. According to him, even a "declaration of war is primarily a linguistic act" (2004: 14). This is utilized either to gain public support or elicit their negative attitude and emotions against political opponents.

Consequently, in climate change debate politicians very often deploy language maximizing its potential for manipulation of opinions and attitudes of the audience aiming to achieve political goals and impose their agenda regardless of the fact it revolves around struggle for power or cooperation for peaceful problem resolution. By utilizing various linguistic means within political discourse, the main objective is to disguise the negative aspect of certain statements concealing the truth and misleading public into making different conclusions and judgments on climate causes and effects.

5.6. Discursive power: language functions in contemporary political discourse

As previously showcased, the use of variety of language resources in the political discourse may be employed for numerous purposes, with manipulative intent or simply for the conveyance of message. Vinogradov (1978) differentiates between three principal language functions of political discourse, communication, communication and impact. They are further distinguished by the underlying hierarchy of relevance based on which influence precedes communication. As the primary goal of politicians is to influence and win the public, transmitting of information comes second in their political agenda.

Another relevant classification of the functions of language is developed by Russian-American linguist Roman Jacobson (2006) and it includes communicative, emotive, motivational, phatic, metalanguage and aesthetic functions of language in political discourse. According to Jacobsen (2006), the communicative function plays a major role in terms of dissemination of information as political discourse typically contains important politics-related information that may be of interest to the audience. He further clarifies the emotive function stating that it is the process in which speaker expresses feelings or process in which emotions are provoked in the audience which is typically achieved by utilizing persuasive and manipulative speech and other linguistic devices. He further explains that motivational function can be reflected explicitly or implicitly, while the phatic function is normally linked with the establishment of the communicative contact. According to Jacobson, the metalanguage function serves to facilitate the expression of the meaning of a specific word while the aesthetic function, i.e. expressiveness of the speech plays an important role when it comes to perception of political information. This is particularly exploited to enhance the impact of the political discourse on shaping the public opinion and attitude.

According to Ruth Wodak (1989), political language seems to exist between two poles. On one hand, "it represents a special, functionally determined language whereas, on the other

hand, it can be treated as a political jargon of an ideologically united group of people" (Wodak, 1989: 138). This is often referred to as linguistic diglossia of political discourse and implies coexistence of two modes of political language.

5.7. Ideological undercurrents in political discourse

According to Van Dijk, there are only few areas in the social sciences that one can pinpoint as being closely linked as those of the study of discourse, politics and ideology (Van Dijk, 2006). He elaborates this standpoint by saying, "politics is one of the social domains whose practices are virtually exclusively discursive; political cognition is by definition ideologically based; and political ideologies are largely reproduced by discourse" (2006: 728). According to Van Dijk, "ideology, discourse, and politics form a triangle that poses interesting theoretical and analytical questions" (2003: 208).

This doesn't come as a surprise having in mind that this represents an arena where "different and opposed groups, power, struggles, and interests are at stake" (Van Dijk, 2006: 732). Even though the notion of ideology permeates media, scientific and public discourse, its framework doesn't always have clearly defined boundaries. Most often, its usage has distinctively negative connotation, which can be traced back to Marx and Engels who viewed ideologies as a form of "false consciousness" (Hassanm, 1986). Derived from the Marxist theory, the concept referred to the distorted and misrepresented reality of the working class often interpreted as a consequence of the indoctrination by those at power and in charge of means of production.

Nevertheless, ideology didn't initially carry this negative status or it wasn't always ascribed the negative meaning. The term was coined by the French philosopher Destutt de Tracy in 1796 to denote his "own science of ideas": ide´ologie (Garnham, 1973). His book *Eléments de Idéologie* was primarily addressed to young people – as he believed that it was rather difficult to make young people change their mind, as they are full of "fixed ideas". Extending on his basic concept of ideology as a system of ideas, Van Dijk formulated the definition reading, "Ideologies are the fundamental beliefs of a group and its members" (2012: 5). This interpretation of ideology as a "system of self-serving ideas of dominant groups" prevailed in social sciences as contrast to scientific knowledge and was swiftly embraced by politicians to denote "misguides or misleading beliefs" (Van Dijk, 2012: 5). "In other words, ideologies are the beginning and end, the source and the goal, of group practices, and thus geared towards the reproduction of the group and its power (or the challenge towards the power of other groups)" (Van Dijk, 2012: 27). Traditionally, the term *dominant ideologies* is used when referring to ideologies employed by dominant groups in the reproduction or legitimization of their dominance (Van Dijk, 2012).

> "Ideologies are basic frameworks of social cognition, shared by members of social groups, constituted by relevant sections of sociocultural values, and organized by an ideological schema that represents the self-definition of a group. Besides their social function of sustaining the interests of groups, ideologies have the cognitive function of organizing the social representations (attitudes, knowledge) of the group, and thus indirectly monitor the group-related social practices, and hence also the text and talk of its members" (Van Dijk, 1995: 248).

Nowadays, "ideology may refer to political ideologies like socialism, communism, (neo) liberalism, and more recently green politics or simply more general to ecological, feminist or racist ideology" (Van Dijk, 2006: 22).

However, not all ideologies are equally represented in the political processes. While some groups tend to formulate and showcase their ideologies explicitly, other are very often implicit, concealed or disguised. Therefore, decoding of the ideological discourse plays an important role in the political discourse analysis bearing in mind that the key feature of the political language is to influence the public in order for the dominant groups to gain or retain power, which is normally achieved through manipulation and persuasion.

5.8. Politicization of climate change

There are three different ways in which science may draw attention of the non-expert audience as well as news makers and journalists: "science may be the source of some kind of conflict, it may be used by political or social groups to support their arguments or it may be expected to resolve conflicts by providing an ultimate answer to the issue" (Peters, 1999: 253).

Climate change as yet another environmental issue in a myriad of economic and social calamities facing the world sparked sparse discussions on the global scene until the 1980s (Anderson, 2009). Overshadowed by priority matters, urgency of addressing and resolving the changing climate has been strongly underestimated and underprioritized on the global policy agenda. Its prominence and relevance for the future of the planet was by then recognized only by a scientific community and embedded mostly into a scientific debate without raising any particular interest or concern of the wider public (Jackson, 2007).

Notwithstanding, its salience on global scene increased once climate change entered political spectrum, that is, as it became politicized (Boykoff and Boykoff 2004; Carvalho and Burgess, 2005). That very moment is considered the initiation of a chain reaction that was about to reframe the dominant scientific paradigm and alter the course and dynamics of the climate change debate. Namely, as soon as this global phenomenon became inherent part of political agenda, its newsworthiness rapidly enhanced, drawing immediate attention of international media, resulting with increasing public awareness and concern for the warming trend (Pielke, 2010). In a similar vein, Corfee-Morlot, Maslin and Burgess argue that media attention for the changing climate was driven by "political attention" (2006: 2762 ff.).

Broadly speaking, politicization describes a process in which science is affected by politics (Brown, 2015). According to Isopp (2024), "a predominant meaning of politicization is an ideological distortion of scientific facts." According to Chris Mooney (2006), it is the process by which "scientific information becomes merely something to be manipulated to achieve a political end" (2006: 11). Similarly, Bolsen, Palm and Kingsland describe politicization as the process by which "an actor such as an elected official or interest group accentuates the inherent uncertainty of scientific evidence to cast doubt on the existence of a consensus" (2019: 150).

Political discourse is thus commonly regarded as the key factor contributing to mainstreaming of climate change into the public discourse as it galvanized the global climate engagement through recognition of the gravity and urgency of the problem.

The year of 1988 marks the turning point in the history and evolution of climate change understanding (McCright and Dunlap, 2000). It was no longer a question of mere science. Namely, during the course of 1988 climate change made a quantum leap from scientific into social-political hemisphere and consequently, all potentially disastrous economic, ecological and social implications of this phenomenon came to the fore (Jaspal and Nerlich, 2014).

According to Hulme, "since 1988, science, politics, culture and ethics have exerted changing influences on the idea of climate change. The ways in which climate change is deployed in public life have diversified and proliferated" (2013: 1). In his book *The Age of*

Global Warming: A History, Robert Darwall claims that "global warming's entrance into politics can be dated with high precision to year of 1988" (2013: 7). It is regarded as highly relevant milestone mainly for three reasons. Firstly, NASA scientist James Hansen testified at a Congressional committee on the human-induced warming. Secondly, Margaret Thatcher delivered dramatic "green speech" to the Royal Society. Lastly, Intergovernmental Panel on Climate Change was established (Boykoff and Boykoff, 2007; Jaspal and Nerlich, 2014; Bolsen and Shapiro, 2017).

On June 23, 1988, Dr. James Hansen, Director of the NASA Goddard Institute for Space Studies testified before U.S. Senate Committee on Energy and Natural Resources casting the light on the scientific evidence on complex relationship between global warming and greenhouse effect resulting with the changing climate (Rich, 2018). In his landmark statement titled "The Greenhouse Effect: Impacts on Current Global Temperature and Regional Heat Waves" he warned the public on the dangers posed by climate change primarily ascribed to human activities like exploitation of carbon-based fuel. On this occasion he noted:

> "I would like to draw three main conclusions. Number one, the earth is warmer in 1988 than at any time in the history of instrumental measurements. Number two, the global warming is now large enough that we can ascribe with a high degree of confidence a cause and effect relationship to the greenhouse effect. And number three, our computer climate simulations indicate that the greenhouse effect is already large enough to begin to affect the probability of extreme events such as summer heat waves……In my opinion, the greenhouse effect has been detected, and it is changing our climate now" (Hansen, 1988).

Even though Margaret Thatcher was remembered as the politician who frequently shifted sides in climate change debate during her mandate spanning from alarmism to skepticism, several months after Hansen's testimony during her short-lived green period (likely motivated by clashes with the coal unions and intentions to invest in nuclear power) she addressed The Royal Society on the relevant environmental topics and thus strongly contributed to mainstream climate change on the political agenda (Vidal, 2013). She noted:

> "For generations, we have assumed that the efforts of mankind would leave the fundamental equilibrium of the world's systems and atmosphere stable. But it is possible that with all these enormous changes (population, agricultural, use of fossil fuels) concentrated into such a short period of time, we have unwittingly begun a massive experiment with the system of this planet itself." (Vidal, 2013).

At the end of the same year, IPCC was created and it helped ensure that climate science remains on the political and public agenda shaping the international debate and policy on the most relevant climate-related matters (Jaspal and Nerlich, 2014).

Therefore, politicization of climate science is considered crucial legacy stemming from this period that has helped galvanize public and media interest and consequently climate policy-making a paramount issue on the international arena.

6. SCIENTIFIC DISCOURSE

6.1. Defining science

From the etymological point of view, the term *science* is derived from the Latin word "scientia" and has several meanings spanning from knowledge, knowing and expertness to experience. According to Garwood (1970), "the main concern of science is to classify clearly and to record what is consistently true and what may be reasonably predicted" (1970: 245). When addressing the question "what is science", Lederman and Lederman assert that science can be divided into "a body of knowledge, process/method and nature of scientific knowledge" (2012: 336). They further delineate that the body of knowledge encompasses the array of "concepts, laws, theories, and ideas" prominently featured in science textbooks; that the term "process/method" pertains to the actions scientists undertake to formulate this body of knowledge, and lastly that "nature of science refers to the characteristics of scientific knowledge that are directly derived from the process/method used to develop the knowledge" (Lederman and Lederman, 2012: 336). Function of the knowledge produced this way may be multifold ranging from decision-making to problem-solving. Hence, science relies upon the existence and usage of scientific discourse as it allows and enables professional scientific activities to be fully conducted, disseminated, contested and assessed.

6.2. Scientific system

Scientific system is characterized by binary coding *truth/non-truth (*Luhmann, 1992 as cited in Rhomberg, 2010: 57*).* In instances when the truth is paramount, science can provide guidelines and advice. In its publications and papers, "scientific system features use of special language-games" (Rhomberg, 2010: 61). According to Luhmann (1992, as cited in Rhomberg, 2010) these are mostly incomprehensible for the lay public for two main reasons, the language which is rife in special terms and prior knowledge which is considered prerequisite for understanding scientific argumentation. Scientific system plays a pivotal role in policy making as it:

> "Provides answers to problems that are debated in the mass media and other public arenas, and make a variety of public uses of science to legitimize action or inaction. Scientific knowledge is also utilized by a number of other social actors, including business and activists to justify particular programs" (Carvalho, 2007: 224).

The exception to this is a political system that is more or less self-reliant and self-sufficient. Political system relies upon scientific findings only when it "needs to justify decisions that are already taken" (Rhomberg, 2010: 59). Politicians can always choose an expertise and counter-expertise that suit their interests (Grundmann, 2006). Consequently, scientists don't make any decisions but rather present the key findings necessary for political decisions or fundamentals for justifying or legitimizing a decision. The media typically isn't specifically interested in scientific statements (Trumbo, 1996) unless experts are involved in political circles (Grundmann, 2006).

6.3. Scientific language

> "Every text, from the discourses of technocracy and bureaucracy to the television magazine and the blurb on the back of the cereal packet, is in some way affected by the modes of meaning that

> evolved as the scaffolding for scientific knowledge. In other words, the language of science has become the language of literacy" (Halliday and Martin, 1993: 11).

The principal hallmark of scientific discourse is its language. It makes it easily recognizable and distinctively unique. "Traditionally, the term scientific discourse has been used to refer to special purpose language employed by scientists in their laboratories or, perhaps more accurately, in their formal papers, journals, articles, and text books" (Roth, 2005: 50). This type of language is chiefly characterized by absence of emotionally loaded language, primarily value-laden words (Lopez Orellana, 2012). Moreover, scientific writing is devoid of all aesthetics. In that regard, ornamentation is considered redundant (Remache, 2013; Day and Gastell, 2011). As scientific writing implies transmission of clear signals to a recipient, "flowery literary embellishment – metaphor, similes, and idiomatic expressions in most cases contribute to confusion and are seldom used" (Remache, 2013: 40). Instead, scientific writing is necessary to reflect data in accurate and precise manner. Accuracy is therefore regarded a paramount in scientific discourse writing (Remache, 2013; Day and Gastell, 2011). This is further acknowledged by Burnhan and Hudson:

> "Accuracy is the degree to which a result agrees with the theoretical value. Precision indicates how well that result can be repeated. [...]. Both accuracy and precision are useful to know when evaluating experimental results, especially when introducing a new technique or measuring fundamental constants" (2007: 83).

Halliday (2004) further argues that scientific discourse, comprising of "various forms of discourse in which the activities of doing science are carried out" (2004a: 49), rests on the combination of "theoretical technicality with reasoned argument" (Halliday 2004b: 127). This is accomplished using explicit technical terminology, taxonomies, and its proper technical grammar, e.g., through nominalization (Holtz, 2009). According to Halliday, nominalization "is the single most powerful resource for creating grammatical metaphor" (2004c: 656). Nominalization may play a fundamental role within the scientific discourse in cases when it is employed as a strategic device to conceal the responsibility of the agent. In the environmental context, examples that best illustrate use of this discursive strategy in a scientific discourse are *climate change* and *air pollution.* In both cases, the agent is unknown and the scientific discourse is void of responsibility. "It allows scientists to develop the atomic bomb and attribute its (mis)use to politicians" (Lopez Orellana, 2012: 1).

Moreover, Bakhtin (1981) characterizes scientific discourse as "a professional stratification of language" which is deemed necessary for the domain of science as it allows particular type of reasoning and inquiry. On one hand, it facilitates insider-outsider communication but at the same time limits what can be communicated about across the groups.

6.4. Challenging authority of scientific discourse

According to philosophers of language Mikhail Bakhtin, Holquist and Emerson, a scientific discourse is typically viewed as an "authoritative discourse - a discourse that binds us, quite independent of any power it might have to persuade us internally, with hegemony that has long been indisputable" (1981: 343). Correspondingly, Bakhtin et al. define authoritative discourse as "hard-edged, a thing in its own right" marked by "semantic finiteness and

calcification"—in other words, "as centripetal and monologic as opposed to centrifugal, heteroglossic novelistic discourse" (1981: 344).

Even though scientific discourse presupposes that knowledge and evidence are represented in objective and bias-free manner, according to Bakhtin et al., "there are no *neutral* words and forms–words and forms that can belong to *no one*; language has been completely taken over, shot through with intentions and accents" (Bakhtin et al., 1981: 293). In a similar vein, Battey and Jensen contest traditional conception of scientific knowledge as neutral, arguing that "all knowledge has been acquired and is therefore a mix of *reality* and our own way of understanding - the glasses with which we observe, and distort reality" (Battey and Jensen, 1999: 406). They further elaborate science skepticism by pointing out that "science is interwoven with technology, and the argument that *science is pure, only its (technological) applications can be bad* might not be convincing for much longer in these distrustful times" (Battey and Jensen, 1999: 406). Lastly, they reiterate: "Science's way of understanding is to reduce things. Science summarizes reality as much as a football score sums up two hours of emotions, missed opportunities and referees' mistakes" (Battey and Jensen, 1999: 406).

This view is further strengthened by a recent linguistic research that unambiguously indicates that conventional perception of scientific discourse as objective or neutral is outdated (Fløttum, 2010a). According to Fløttum, scientific reporting has taken rhetorical form in a much higher degree and thus come a step closer to resemble a political discourse. Moreover, recent studies have discovered yet another similarity between the scientific and political discourse. Namely, polyphonic i.e. multivoiced construction is found to be common denominator for both discourses (Fløttum, 2010b; Fløttum and Gjerstad, 2017). In this particular case, polyphony implies that the speaker takes other standpoints or perspectives than his own into account (Fløttum, 2014). Nevertheless, despite the striking similarities in terms of deployment of rhetoric and polyphony, there are several distinguishing marks between the scientific and political discourse. While the central function of scientific discourse is to delineate and clarify facts and finding, the principal purpose of political discourse is to convince or to persuade someone to take action (Fløttum, 2010b).

6.5. Transforming scientific discourse into rhetorical discourse

In recent years, presence and increasing entanglement of rhetorical features within the scientific discourse was detected. This rhetorical surplus led to reconceptualization of their relationship, status and the concept. Once perceived as an oxymoron, the notion of "rhetoric in science" soon came to pervade the entire scientific system (Ornatowski, 2007). Seemingly incompatible and antagonistic, these two domains developed more solid common ground than previously thought. Opinions are however polarized. While there is less agreement between scientists on the extent of this interrelationship, rhetoricians generally agree that "science is indeed a rhetorical enterprise" (Selzer, 1993: 6).

Namely, one of the main arguments for the claim that rhetoric is an ingrained part of scientific discourse is based on the fact that science involves language (in addition to visuals) and as such inevitably entails presence of rhetoric in some form. According to Ornatowski (2007), rhetoric is embedded in every use of language and it constitutes the strategic aspect of discourse. This was acknowledged by literary critic Northrop Frye who asserted many years ago that "anything which makes functional use of words will always be involved in all the technical problems of words, including rhetorical problems. The only road from grammar to logic runs through the intermediate territory of rhetoric" (Frye, 1957: 331). This perspective is further

exacerbated by Evelyn Fox Keller (1985) who highlights that despite scientists asserting that data "speak for itself", this is far from the truth. Furthermore, data is rendered meaningless without proper contextualization. Data are conveyed by people facing multitude of challenges; what to say, to whom, with what purpose, in what manner/medium (Keller, 1985). All these dimensions are considered crucial aspects of rhetoric.

In terms of rhetorical view of science, Prelli (1989) distinguishes between five dimensions of scientific discourse. The first dimension of "symbolic inducement" indicates that scientists induce others to "share an orientation for evaluating and making sense of situated phenomena and the relationship among them" (1989: 90). The second rhetorical dimension of scientific discourse relates to situatedness and is rooted in the theory that all rhetorical acts are grounded in a situation consisting of an event or issue that needs to be resolved. The third dimension is that it is addressed. In comparison with other discourses, scientific discourse is transactional: seeks to gain acceptance for findings or secure interest in these findings. The fourth dimension is associated with the scientific criteria including problem-solving and evaluation as a vital component of rhetorical competence of scientists. The final, rhetorical dimension of scientific discourse assumes that the discourse is "invented" in a sense that scientist do not just stumble across facts but rather actively engage in the production process (Prelli, 1989).

As rhetoric is often linked with manipulation and persuasion, scientific rhetoric is defined as forms of reasoning or argumentation in scientific debates that employ persuasion to alter the belief system of an audience (Pera, 1994). According to Pera, science is a way of talking about reality and not a reflection of reality as it is mediated by language and other symbols. As it plays ever-increasing role in production of scientific-related information, addressing persuasion in the scientific discourse has become a relevant issue. Even in the scientific discourse, "the public is the consumer who is to be seduced. In this log, there is little difference between scientific news and washing powder" (Bauer, 2010: 5).

Moreover, Weingart Joubert and Connoway argue that "the *engagement discourse* has a prominent role in the science policy rhetoric in the European Union (EU), the United States of America (USA) and beyond, to medium-income countries such as South Africa (SA)" delineating the persuasive nature of metaphors and rhetoric which serve a multitude of actors and their interests (2021: 1). Bensaude-Vincent defines "the engagement rhetoric as *buzz*, having its origin in management and marketing" (2014: 239).

6.6. Shifting public attitude toward science

Public opinion surveys reveal that science has a prominent position in the eyes of the general public, holding a higher level of trust compared to politics and economics. This confidence, as highlighted by Peters (2008), does not stem from a widespread belief in the superior competence of science. Instead, it is rooted in the perception that science operates independently of vested interests and is fundamentally oriented toward promoting the common good (Peters, 2008).

According to Bauer (2009), scientific findings and evidence make the full sense in terms of raising awareness and enhancing engagement of the public only in cases when they have been correctly, sufficiently and rightfully interpreted and understood by the wider audience. Additionally, Sill et al. (2023) argue that in the context of climate change, science literacy plays an important role and includes increased public interest in the results and outcomes of the most significant scientific research. In order to take action in curbing GHG emission, implement mitigation or adaption measures or make political decisions, public must have a full account on

scientific developments, otherwise it is not qualified to take part in decision-making process process (Bauer, 2009; Sill et al., 2023). According to Bauer, "scientific ignorance, like political ignorance, only breeds alienation, demagogy and extremism" and is therefore not a desirable option (2009: 222). Involvement in any public debate on climate change thus presupposes that public as a vital voice has a considerable command of information and knowledge on the subject.

Over the course of the years, significant fluctuations in public understanding of the science have been observed. The public support of the science has oscillated in line with the falling and fluctuating trust levels relating to scientific myths either magnified or debunked by media or politicians. In 1985, an influential report of *The Royal Society of London* demonstrated a "public deficit", i.e. lacking public support followed by a "crisis in confidence", that is, lacking public trust to scientific institutions aggravated by negative attitudes all triggered by scientific debates on GM food and BSE crisis (Bauer, 2009: 225). In the aftermath of these events and in a bid to enhance public understanding and support to the science, *the Royal Society* has promoted the axiom: "the more you know, the more you love it".

Moreover, language barrier is considered as one of the contributing factors to the aggravated mistrust in scientific findings. Namely, to non-expert public scientific language may seem "foreign," opaque, alienating, all of which can foster mistrust toward the scientific community, especially when the complexities of scientific discourse seem unnecessary or a deliberately erected barrier to communication. According to Halliday and Martin, "the language of science, though forward-looking in its origins, has become increasingly anti-democratic: its arcane grammatical metaphor sets apart those who understand it and shields them from those who do no" (2003: 21). It can easily result with misconception and misunderstanding of the data further leading to anti-scientific attitude to the global problems.

In the context of climate change debate, due to its increasing and perpetual resemblance with political discourse over the years, scientific discourse has become subject to assessment of the rising public mistrust and distrust fueling authority crisis and thus greatly contributing to shape climate skepticism.

In the light of this, diminishing authority of scientists in science communication - especially in the online science communication process, has been confirmed to a certain degree by a number of studies (Atkinson, 1998; Myers, 2003; Yang, 2021). Manifestation of the crisis in authority discourse of scientists was demonstrated in decreasing "public unconditional trust" and "exclusive legitimacy" (Myers, 2003; Yang, 2021). Furthermore, the surge of anti-scientific counter discourses, such as climate skepticism or climate denialism or anti-vaccine movement rooted in pseudo-science or denial or delegitimization of scientific authority have contributed to undermine and diminish the scientific authority.

6.7. Communicating science for a wider audience

> "The fundamental purpose of scientific discourse is not the mere presentation of information and thought, but rather its actual communication. It does not matter how pleased an author might be to have converted all the right data into sentences and paragraphs; it matters only whether a large majority of the reading audience accurately perceives what the author had in mind" (Gopen and Swan, 1990: 550).

In that regard, scientists may be involved in two different types of science communication. The first one implies "popularization of research as the public reconstruction of scientific projects, discoveries, achievements and theories from a science-focused point of view;

the second is meta-discourses about science and technology and the science–society relationship" (Peters, 2008: 131).

One of the most critical points within the scientific discourse in terms of presentation and dissemination of the scientifically proven knowledge is related to the addressing of challenges arising from the public communication with the lay public and non-scientist audience. Scientific papers or publications are rarely the main source of information about the relevant scientific topics for wider audience. Moreover, non-expert or lay people show little interest in consuming scientific information regularly (Boczkowski and Mitchelstein, 2013). Correspondingly, only 16 percent of the public say they follow news about science and technology "very closely" (Mitchell et al., 2016), a percentage that has remained below 18 percent since 2000 (National Science Board, 2014).

In order to communicate science effectively, complex scientific findings need to be translated into accessible and comprehensible form. Science is "an encoded form of knowledge that requires translation in order to be understood" (Ungar, 2000: 308). However, it does not presuppose mere translation of technical jargon into language understandable to wider audience. In most cases, it is barely feasible without compromising the principal gist of the discourse. Process of simplification normally entails either reducing the amount of information or by reaching the optimal balance between abstract and concrete aspects. The varying choice of language is determined and dependent by the level of popularization it is required to reach. Nevertheless, simplification seldom occurs without influencing the text itself. Brand implies that "producing a popular scientific text basically means recontextualising and first and foremost reformulating the source in such a way that it is comprehensible and relevant to a different kind of audience" (2008: 37). Moreover, as science usually includes inter- and intra - communication with both "insiders" and "outsiders" of the scientific community, it needs to adjust its communication mode to a wide range of audience unknowledgeable about a particular subject. To do so, scientists have developed a number of communication strategies varying from monologic (communicating to the public) to more dialogic (communicating with publics) in order to efficiently and effectively present the scientific knowledge and beliefs (Trench and Junker, 2001).

Several studies carried out in Europe and USA have demonstrated that the prevalent communication mode between scientists and non-expert public is based on a so called "deficit model" (Davies, 2008). The interaction is made possible by "filling the knowledge gaps" through the model which operates on a premise that scientists and other experts are the one that possess the necessary knowledge that the lay public lack whereas the transmission is largely one-way. It also implies that more scientific knowledge is related to a positive attitude with respect to science, for example, feelings of trust (Nisbet and Scheufele, 2009). Nevertheless, nowadays the deficit model is regarded obsolete by communication experts (Nisbet and Scheufele, 2009). The deficit model has been criticized, among other things for its implicit assumption that scientific expertise and worldview are dominant over other forms of knowledge (Jasanoff, 2011).

6.8. Emotionalization of science

Living in a society where almost every aspect of life is dependent on science and technology makes it necessary for the public to have good understanding of the achievements of scientific research (Sapp et al., 2013; Sinatra et al., 2014). The practical application of scientific knowledge, however, extends beyond the framework of everyday life. In the context of climate change, communicating climate science in the most comprehensible way to the general public is

considered an indisputable imperative since the transfer of research findings to the wider audience is a prerequisite for policy-making. Not surprisingly, scientific institutions put a growing amount of effort to make their research results accessible and usable by shareholder, stakeholders, decision-makers and society in general (De Bruin and Bostrom, 2013; Garvey, 2014). Effective implementation of measures and success of research studies is thus primarily determined by perception and support of the public and policy-makers.

In order to make research results easier to grasp, scientific knowledge and scientific information in general, can be represented and consequently transferred in a variety of ways. Over the last few years, science communication has diversified substantially embracing a vast array of means and formats. In that regard, an important means of science communication is through emotionalization of information (Flemming et al., 2018). In this context, emotionalization refers to the process in which emotions are evoked purposefully to either encourage public to engage with a certain issue or to foster information processing (Baumeister et al., 2007; Myers et al., 2012). Bearing in mind that humans are first and foremost emotional creatures governed by emotions, this strategy is extensively used to spread scientific knowledge. Emotions are viewed as fundamental for human actions as they influence thinking and learning at the individual or collective level (Moser, 2010; Caillaud et al., 2016). Additionally, emotions are also key drivers in the cognitive decision-making process (Lerner et al., 2015) and action performance (Lewis, 2005). Consequently, they have become a significant factor in shaping people's attitudes and behaviors (Nabi et al., 2018). Moreover, a vast amount of evidence suggests that emotionalization may influence the three most relevant aspects of public opinion, i.e. knowledge, attitude formation, and risk assessment and thus play an important role in science communication and public understanding of science (Flemming et al., 2018).

In science communication, emotionalization can be accomplished using textual and visual features. The first method which is related to the use of stories and narratives may be particularly well-suited for communicating science information to non-experts (Dahlstrom, 2014). According to the narrative paradigm proposed by Fisher, humans are characterized as "homo narrans" - storytelling or narrative animals who are persuaded to make decisions based on the accuracy and consistence of the stories (Morris et al., 2019). Stories have pervaded human interaction for millennia and their efficacy as a communication mode is related to the how human brain processes, imposes structure on, and interprets information (Morris et al., 2019). Narratives are supposed to spark interest (Dahlstrom, 2014) and thus motivate people to keep reading. Moreover, some studies suggest that immersing in emotional stories and their characters may more effectively motivate pro-social behavior than informational frameworks (Morris et al., 2019). Additional contextual information, like names or settings may be embodied in narrative and thus serve as clues for information recall (Webb, 2008). Therefore, even though people may acquire knowledge from different sorts of texts, it is assumed that people would acquire more knowledge from a narrative than list of facts (Flemming et al., 2018).

Visual images, on the other hand, may be also utilized to induce emotionalization. Visuals, in particular, have the potential to trigger emotions to make the message more effective. A growing number of recent studies on climate visuals have acknowledged the role of emotions and construal level (i.e., the level of abstraction the visuals entail) in the visuals (Ruan and Bombara, 2021).

In a light of this, climate change discourse and a polarized climate change debate have been recognized as a fertile ground for emotionalization of information in particular trough visuals employed as a discursive strategy following its ability to persuade and manipulate the public in a desired direction of the dominant groups. There are several reasons for that.

Coupled with many other factors, lack of public engagement is viewed as one of the greatest obstacles to global emission reduction. Correspondingly, only 25% U.S. adults reports to make environmentally friendly changes to help protect the environment (Pew Research Center, 2019). According to researchers, the main barrier that has been identified to obstruct the climate action is the perception of climate change as an issue that is psychologically distant indicating that some people in some distant countries sometime in the future might be affected (Brügger et al., 2015). In that regard, "pushing the emotional buttons" plays a crucial role. Therefore, emotionalization of climate change through convergence of narratives and visual images is a widely utilized method to demystify a distorted perception of climate change as an abstract and intangible issue and hence motivate action. Accordingly, various pervasive images of devastating consequences of extreme weather events or thinning polar bears or human suffering caused by climate change have become the hallmark of media coverage of the issue. They are all strategically employed to communicate the changing climate as a more personal and tangible experience and elevate much needed public engagement by triggering certain emotions.

Emotionalization of the scientific-related content can however arouse both positive and negative emotions depending on the goal of communication. Emotional arousal in scientific communication is normally interpreted in the context of affect and valence. Emotional valence generally refers to the "positive" or "negative" character of an emotion, or to the character of some aspect of emotion (Colombetti, 2005).

Affect is a critical element of rationality and effectiveness of analytical processing depends on it (Damasio, 2003). On the other hand, valence is a key property of affect that describes the extent to which an emotion is positive or negative referring to the value or expected consequence of a certain piece of information (Barrett and Russell, 1999). Peters and Slovic however argue that despite the fact that people might be allured by the pleasant experience or positive emotional valence, emotions linked with negative valence, such as fear or anger, are the primary drivers of change and solutions to the problems (Peters and Slovic, 2000).

As previously mentioned, scientific information in relation to the changing climate may be designed in such way to elicit a wide range of emotions entirely depending on the sender/creator of the message as well as his intentions. Nevertheless, climate change depiction, particularly the one created by media outlets, rarely reflects the equilibrium between the positive and negative emotions. Specifically, emotional reactions that are predominantly aroused in the context of the warming planet are the ones that are associated with the negative experience. The prevailing emotional states that have been identified within the climate change discourse are *alarm, concern, doubt, skepticism* (Brulle et al., 2012; Leiserowitz et al., 2020), *anger, sadness, guilt* (Smith and Leiserowitz, 2014) *hope, fear, anxiety, compassion, worry* (Myers et al., 2012;) *anticipation and surprise* (Loureiro and Alló, 2020).

Consequently, fear appeal, i.e. fear-inducing text and images that almost exclusively focus on the gloomy climate predictions about the catastrophic consequences of climate inaction represent the most dominant communication pattern, i.e. "default strategy" in communicating climate change (Nisbet, 2009). Worst-case scenario is thus widely seen as the prevalent framing of climate change effects in media, political and scientific discourse as the varying degree of warnings pervaded the discourse for decades. This is further reinforced by the results of the research indicating that the occurrence of threat information was more than twofold compared to the efficacy-relevant information in the Summary for Policymakers (SPM) of the IPCC Fifth Assessment Report (Poortvliet et al., 2020). The alarmist trend was greatly embraced and echoed within the public domain with various manifestations observed in different spheres of society, spanning from the economic evaluation (Stern report, 2007) to popular culture, including films

and documentaries “An Inconvenient truth” (2006), “Ice on Fire” (2019), “Planet of the Humans” (2019), “Don’t look up” (2021). The alarmist narrative spearheaded by doom merchants using scaremongering tactics and strategies was further reinforced by the emergence of “climate emergency” as a new global phenomenon (McHugh et al., 2021). As the *climate emergency* as the 2019 Oxford dictionary Word of the Year gained momentum, it paved the way for further expansion and domination of alarmist narrative in the climate change discourse continuing the trend of fear-based communication in the public discourse.

This is particularly relevant in the context of climate change as media outlets tend to overemphasize the negative impacts of the increasing emissions focusing almost exclusively on the pessimistic, fatalistic and dramatic scenarios and possible outcomes. *Pathos* or appeal to emotions is recognized and widely embraced by media as a persuasive climate change communication strategy. Emotions are used extensively as means of manipulation to shape and influence public opinion on certain aspects of the climate change. Specifically, mixed emotional appeal or emotionalizing is used strategically to provoke engagement with climate change issue. Notwithstanding, fearmongering may foster both action and paralysis. Exploring the fear appeal in risk communication of climate change, research demonstrated that both threatening messages and efficacy information may be stimulating, i.e. counterproductive in terms of fostering climate action (Nabi et al., 2018).

7. THE LEXICAL DIMENSION

7.1. Introduction

There are myriad of ways in which climate-related concepts and meanings are reflected in lexical items. They are broadly deployed by media, politicians and academia to portray climate change, suggest possible interpretation and convey the message to the wider audience albeit with various purposes and functions. Correspondingly, lexical aspect represents an important component of this discourse. Firstly, lexical choices in multimodal texts may significantly contribute to meaning-making frames of climate change as well as large-scale decision-making in public policy. In that regard, there are countless examples from cognitive science and linguistics that demonstrate how audience perception can be affected by lexical choices (Wang and Culotta, 2019; Danescu-Niculescu-Mizil et al., 2012; Ludwig et al., 2013; Packard and Berger, 2017) and thus contribute to shape or reshape the general attitude and opinion on this matter. Due to these properties, lexical features are frequently utilized to communicate certain ideologies. The presence and the function of the ideological discourse within the lexical structure is thoroughly examined by a number of linguists. "In Halliday's linguistic theory, vocabulary or lexis is a major determinant of ideological structure" (Fowler, 1991: 80). Similarly, Reah notes that "lexical choice is one of the most powerful tools to construct ideology" (1998: 75-77). According to Fairclough (1989), ideology in a discourse may be embedded into various linguistic elements, both lexical, grammatical and textual. This standpoint is also shared by Teun Van Dijk (2007) who asserts that ideology can be often found embedded in the lexical structure. Extending Fowler's and Fairclough's ideas in the context of media coverage as the central point of his CDA approach, Van Dijk (2007) emphasizes ideologically-motivated lexical choices found in media texts. He notes that these lexical choices reflect not only ideological position of the text author but also his perception of the "ideological polarization between ingroups and outgroups" (Van Dijk, 2007: 115), that is, the text producer's strategy of positive self-representation and of negative other representation. In an essay entitled "Discourse, knowledge, power and politics" he underscored the fundamental role of lexicon to transmit ideology in a text:

> "The bottom line of all semantic and linguistic analysis is of course the way concepts, meanings or ideas are expressed in lexical items. Their selection may contextually depend on setting, participants and goals, but also on the knowledge and ideologies of the dominant authors and their groups" (Van Dijk, 2010: 14).

The term lexical structure is used with reference to the deployment and patterning of lexical items in a discourse. Fowler (1991) elaborates on vocabulary in cartological terms, indicating that lexicon, like a map, provides representation of the world by segmentation.

Also within the climate change discourse, lexical items are employed to discursively construct and propagate certain ideological representations of this phenomenon. With the aim to manipulate and persuade public, ideology within the lexical structure can be constructed by exploiting discursive strategies of nominalization, relexicalization/overlexicalization, technical jargon and neologisms. Not surprisingly, in the climate change context, lexical plotting can be conducted to suit the ideological purpose of the text creator and reflect their political views. As markers of ideology, lexical choices are therefore analyzed to unmask the writers' hidden meanings, intentions and messages camouflaged in discursive strategies employed both

intentionally and unintentionally. Emphasis is placed on the analysis of how the nexus between lexical choices and their ideological implications is manifested in the climate change debate.

7.2. Nominalization

In 2003, the concept of *global warming* was rebranded into **climate change** and Lakeoff explained it accordingly: "The idea was that climate had a nice connotation, more swaying palm trees and less flooded out coastal cities. Change left out any human cause of the change. Climate just changed" (Lakeoff, 2010: 71). This term was invented and proposed to Bush administration by Frank Luntz, also known as right-wing framist. In 2003 correspondence between Frank Luntz and Bush administration dubbed "Winning the Global Warming Debate", the underlying reasons for reframing were justified in a following way:

> "It's time for us to start talking about *climate change* instead of *global warming* . . .*Climate change* is less frightening than *global warming* . . . Stringent environmental regulations hit the most vulnerable among us the elderly, the poor and those on fixed incomes the hardest . . . Job losses . . . greater costs . . . American corporations and industry can meet any challenge, we produce the majority of the world's food, . . . yet we produce a fraction of the world's pollution" (Luntz, 2003: 142).

The memo prompted wide use of *climate change.* As Lakeoff acknowledged, this type of framing was primarily motivated to camouflage the primary cause and culprit of climate change by omitting the agent and transforming verb into the noun. This lexical process is known as nominalization.

According to Fowler et al., "nominalization is a transformation which reduces a whole clause to its nucleus, the verb, and turns that into a noun" (1979: 39). It is a "process of syntactic reduction" (1979: 41). Moreover, Fowler (1979) adds that nominalization can be accompanied by passivization in which case, both processes of transformation, are often ideologically charged.

Furthermore, Kress argues that nominalization can be employed as linguistic means for "transmission of ideological values and meaning" (1983: 129-134). When used for ideological purposes, manipulation of the reader is carried out by leaving out the main actor whilst using the nominal form to express the key actions. This way reader is left confused and in doubt.

> "By expressing an event in nominal form it is at once taken out of time, and therefore be readily assimilated to *timeless* sets of categories. The event is taken out of the world of the specific, concrete, and placed in the world of the general, abstract" (Kress 1983: 77).

In addition to the "primary nominalization" which is mostly triggered by an unconscious state of mind related to humans' inherent primary psychological condition, scholars also distinguish another variant, more commonly known as "ideological nominalization". It has especially drawn interest of critical discourse analysts, forefronted by Billig and East Anglian Group, who have summarized four types of ideological functions of this type of nominalization: "deleting agency; reifying; positing reified concepts as agents; and maintaining unequal power relations" (Billig, 2008: 783). The "deleting agency" implies that "speakers/writers can transform statements that identified agents of actions into agentless statements" (Billig, 2008: 784). Most prominent examples are the *air pollution* or *climate change* in which information of human agent is deleted through transformation. The "reifying" and "positing reified concepts as agents" means

that “speakers/writers can convey that the entities, denoted by nominalization, have a real and necessary existence”, and “can then use the abstract reified concepts as agents of processes” (Billig, 2008: 785). Fowler et al. (1979) note that official discourse often uses nominalizations this way, thereby conveying that present social arrangements are objective, unchangeable things. Through this kind of nominalization, the actual human agent hides himself, and so the critical discourse analyst views nominalization as a kind of ideological “deceit”.

7.2.1. Historical context

From the historical point of view, the pioneer research on nominalization is ascribed to linguist Jespersen (1924) who introduced the definition “nexus substantive” in his book *Analytic Syntax*. The term referred to nouns, which are transferred from verbs and adjectives. In a subsequent period, nominalization as a special lexical grammatical resource, became a subject of growing interest for a number of scholars who analyzed the notion from various perspectives, i.e. structural grammar, transformational-generative grammar, cognitive grammar and systemic functional grammar. In his essay *Remarks on nominalization* published in 1970, Chomsky extended research on the concept, distinguishing between gerundive, derived and mixed nominalization, however delimiting research to sentence level (Chomsky, 1970). Nevertheless, the most comprehensive definition of nominalization was proposed by Halliday from the perspective of grammatical metaphor.

> “We recognize that lexical selection is just one aspect of lexicogrammatical selection, or wording; and that metaphorical variation is lexicogrammatical rather than simply lexical. There is a strong grammatical element in rhetorical transference, and once we have recognized this we find that there is also such a thing as grammatical metaphor, where the variation is essentially in the grammatical level forms although often entailing some lexical variation as well.” (Halliday, 2000: 341-342).

Grammatical metaphor is a substitution of one grammatical class, or one grammatical structure, by another, for example, “his departure instead of he departed” (Halliday and Martin, 1993: 79).

In that regard, nominalization is described as the single most powerful resource for creating grammatical metaphor (Halliday and Matthiessen, 2004) and is most commonly analyzed within its framework. Nominalization refers to the fact that “any element or group of elements shifts to function as noun or group in a clause, which includes nominalized adjectives, verbs, clauses (finite or non-finite) and so on” (Halliday, 2000: 351). By nominalization, “process (congruently worded as verbs) and qualities (congruently worded as adjectives) are reworded metaphorically as nouns instead of functioning in the clause as Process or Attribute, they function as Thing in the nominal group” (Halliday, 2000: 352).

A very high degree of nominalization is pertinent to scientific language and discourse for several reasons. One of them is objectivity. Nominalization is favored due to its capacity to present information in a depersonalized manner, emphasizing a greater concentration on conveying experimental meaning rather than interpersonal elements. Secondly, the use of nominalization allows thematic progression indicating it is dynamic not a static one. According to Halliday and Martin:

> "The core of a scientific text is the development of a chain of reasoning (...) in which each step leads on to the next. But in order to lead on to the next step it is necessary to be able to repeat what has gone before and is now being used as the springboard for the next move" (1993: 131).

Thirdly, one of the advantages of nominalization is its capacity to synthesize the information, commonly referred to as language "distillation" (Martin, 1993: 230). In this context, distillation means condensation and indicates reduction of longer phrasal constructions, making language of science more compact, more synthetic and more functional. This synthetic language is accomplished by means of concise referencing and summary.

7.2.2. Different types of nominalization

According to Horsella and Pérez (1997: 104), nominalizations can be classified as:

a) nominalization by affixation:

1. by Latin affixation (to emit – the emission)
2. by -ing affixation (to warm – the warming)
3. by other type of affixes (to develop – the development)

b) nominalization by conversion

1. to change - the change
2. to increase - the increase
3. to rise - the rise
4. to record - the record

In the context of climate change, nominalization is widely exploited as a powerful tool for manipulation and persuasion given its capacity to purposefully conceal specific ideological agendas and political interests. Therefore, it is often analyzed as a carrier of opaque ideologies contributing to meaning-making in the communication of climate change to the wider audience. Utilizing nominalization to create implicit ideological discourse is realized through several strategies.

Firstly, as previously stated, the use of nominalization entails the omissions of agent. In that regard, nominalization is often viewed as the detachment marker as it allows the author to debate a certain concept without being involved personally or without being obliged to disclose participants (Prasithrathsint, 2014). This way focus is redirected from the "doer" to the "deed". In other words, nominalization is employed for the purpose of impersonalization. In case of climate change, instead of specifying actors, depersonalization of actions and events serves to obscure human agents responsible for particular actions or decisions.

> "Nominalization turns "X criticized Y" into "There has been criticism of Y". For example, *There was a rise in the price of milk* instead of *The authorities put the price of milk up*. Nominalization, thus, suspends or disconnects normal relations between participants, making it unclear who did what to whom. Nominalizations have the discourse function of allowing information to be packaged, which converts the verbal process with its ensuing participants into one nominal structure" (Stubbs, 1998: 369-70).

In combination with the use of passive voice, ideological effects of nominalization can be particularly aggravated. As the passive voice accentuates the action itself rather than the subject who performs the action denoted by the verb, it further contributes to obscuring of the agent responsible for the action, making it rather difficult to attribute blame or responsibility.

Therefore, nominalization may be exploited to reframe the issue of blame and responsibility in the climate change discourse. By hiding the agent, it implies that climate change is a naturally occurring phenomenon rather than being caused by human activities (burning of fossil fuels and deforestation). Think tanks and fossil fuel industries are thus vindicated thereby protecting their financial and political interests and obstructing transition to green alternatives. By shifting away the focus from human activities and responsibility, nominalization may be utilized to reinforce the discourse of climate skepticism and contrarianism rooted in claims that climate change is driven primarily by uncontrollable forces and natural factors. Moreover, by framing the issue as "out of human control", it downplays the sense of urgency for taking action and absolves industries or governments from accountability.

Nominalization may be employed by media and politicians to influence the public perception by minimizing, i.e. maximizing particular perspectives and viewpoints. The employment of nominalization can thus reinforce power discourse within climate change by creating a hierarchy between those who possess the specialized knowledge and those who do not, positioning certain groups as the *gatekeepers* of understanding. This can be used to manipulate the public perception and maintain existing power dynamics.

> "In a stark conclusion, scientists said for the first time there was a 66 per cent chance that the annual mean global surface temperature **rise** would temporarily surpass 1.5℃ above pre-industrial levels in at least one year by 2027" (Hodgson et al, 2023; *Financial Times*).
>
> "The record-breaking heat in the UK in 2022 was made 160 times more likely by the climate crisis, indicating the dominant influence of human-caused global **heating** on Britain" (Carrington, 2023; *The Guardian*).
>
> "Some of the most intense marine heat **increases** on Earth have developed in seas around the UK and Ireland, the European Space Agency (ESA) says" (Rowlatt, 2023; *BBC*).
>
> "Global CO2 **emissions** rose to a record last year as the **combustion** of fossil fuels continued to put the world on track for a dangerous level of global **warming**" (Mathis, 2023; *Bloomberg)*.
>
> "Maximiliano Herrera, a climate historian who tracks temperature **records**, tweeted that the episode is *one of the most brutal heat event[s] the world has ever witnessed*," bluntly writing that "**records** are being pulverized." In addition to Laos and Vietnam, widespread record heat is gripping Cambodia, Thailand and parts of China" (Capucci, 2023; *The Washington Post*).

7.3. Relexicalization

"Relexicalization is relabelling, the provision of a new set of terms, either for the whole language or for a significant area of the language; it provides a new perspective for speakers, often in specialized areas which are distinct from those of the larger social group" (Fowler et al., 1979: 210).

On 1 May 2019, United Kingdom Parliament declared, “an environment and climate change emergency”, becoming the first country in the world to pass such an extraordinary measure (UK Parliament, 2019). The Leader of the Opposition, Jeremy Corbyn, who put this non-binding motion forward in the House of Commons stated on the occasion: “This is no longer about a distant future, we're talking about nothing less than the irreversible destruction of the environment within our lifetimes” (UK Parliament, 2019). Following the national declaration on climate emergency, the British daily newspaper *The Guardian* and its Sunday edition T*he Observer* altered their editorial guideline concerning writing, editing and language usage related to the environmental issues. More specifically, editorial staff in *The Guardian* decided to abandon the term *climate change* in favor for **climate emergency, climate crisis** or **climate breakdown** as descriptors that are more suitable. In a light of this, *Guardian’s* editor-in-chief, Katharine Viner justified the change stating that: “The phrase *climate change*, for example, sounds rather passive and gentle when what scientists are talking about is a catastrophe for humanity” (Carrington, 2019). The shift in vocabulary promoting language that is more robust was prompted primarily to reflect the sense of urgency and severity of the ongoing global trend of rising temperatures in media coverage of the news. With the aim to “keep raising the alarm” in their media representation of the accelerating environmental crisis, *the Guardian* introduced a number of lexical changes that Viner further clarified: “We want to ensure that we are being scientifically precise, while also communicating clearly with readers on this very important issue” (Carrington, 2019). In that regard, *global warming* was replaced by **global heating** and *biodiversity* with **wildlife.** Additionally, media outlets were discouraged to use *climate sceptic* in favour for **climate science denier** and **fish population** instead of *fish stocks*. In the aftermath of the style update, an opinion piece published in *the Guardian* reinforced the lexical shift stating that the media coverage of *the climate crisis* should correspond with the one of “the start of the second world war” and that the duty of the news media is to “awaken the world to the catastrophe looming ahead of it” (Moyers, 2019).

Therefore, relexicalization or rebranding is often seen as a discursive strategy media resort to in order to frame or reframe the climate change in a certain way. In this particular case, new lexical pattern contributed to constructing alarmist discourse by embracing fear-inducing language, i.e., rhetoric of fear coupled with scaremongering. Once the new terms enter the mainstream lexicon, certain ideological viewpoints become prevalent in the polarized climate change debate and hence contribute to reshape the dominant paradigm.

In stark contrast to the full alarmist lexis featuring apocalyptic discourse exploited by media outlets in pursuit of their own ideological interests, another example of relexicalization surrounding environmental issues is quite the opposite: a case of calm-mongering the public. This time, however, renaming was observed within the political discourse. Namely, in 2002 the term *global warming* was rebranded into **climate change** and soon afterwards came into the international fore. As previously mentioned, the entire process of renaming was first initiated by the leading Republican consultant, Frank Luntz, who wrote a memorandum to Bush urging him to make a lexical shift and thus change the tactics on the environment. In his memo, Luntz acknowledged that the party had “lost the environmental communications battle” and encouraged politicians to persuade the public that the scientific consensus on the increasing risk of greenhouse gases was non-existent. Furthermore, he stated:

> “Voters believe that there is no consensus about global warming within the scientific community. Should the public come to believe that the scientific issues are settled, their views about global

warming will change accordingly. Therefore, you need to continue to make the lack of scientific certainty a primary issue in the debate" (Luntz, 2003: 137).

To achieve this political goal the issue was framed by the use of calibrated language indicating new "softened" lexica to mislead the audience about the scale and seriousness of the global greenhouse gas emissions. According to Luntz, *climate change* sounded "less frightening, like you're going from Pittsburgh to Fort Lauderdale" (2003: 142). By minimizing the potential effects of the global phenomenon, this discursive strategy was utilized as an instrument of legitimizing Republicans political authority and ideology in a heated climate change debate considering that the environment "is probably the single issue on which Republicans in general - and President Bush in particular - are most vulnerable" (2003: 132). "The scientific debate is closing [against us] but not yet closed. There is still a window of opportunity to challenge the science" (Luntz, 2003: 138). An attempt to discard the previous negative connotations that the term entailed in the public discourse and eclipse pejorified term *global warming* was thus successful. The predecessor soon became obsolete and *climate change* prevailed in the American vernacular. Renaming within political discourse also included the change into **conservationist** instead of **environmentalist** because "most people" think environmentalists are "extremists" who indulge in "some pretty bizarre behavior... that turns off many voters" according to Luntz (2003: 142).

Accordingly, both climate believers and non-believers have recognized the potential of relexicalization as framing device and used it to constitute and convey ideologies of the dominant groups by either downplaying or magnifying risk of climate change in their portray of the this global issue.

7.4. Overlexicalization

Fowler et al. define overlexicalization as "the provision of a large number of synonymous or near-synonymous terms for communication of some specialized area of experience" (1979: 211). It plays an essential role in critical discourse analysis as "it points to areas of intense preoccupation in the experience and values of the group which generates it, allowing the linguists to identify peculiarities in the ideology of that group" (1979: 212).

Over the course of the years, overlexicalization has become a commonplace within the climate change debate owing to the combination of several factors; increasing engagement of multitude of actors, heterogeneity of the discussion as well as complexity of the issue itself. This has consequently led to coinage and usage of an abundance of terms, labels and denotations coexisting within the climate change discourse. Nevertheless, due to widespread polarization and politicization of the issue, certain terms have been prioritized and foreground at the expense of others, chiefly depending on the media framing along with political and ideological stance of the creators of the message. In that regard, it is possible to differentiate between the two main categories of lexical denotation for climate change following the ideological and political divide in the debate.

Broadly speaking, a number of international organizations in addition to scientific community have adopted and declared climate change as the **existential threat** to the humanity. Relying upon the vast amount of scientific research grounded in empirical evidence on the magnitude of climate change impacts worldwide, UN chief António Guterres conveyed an ambiguous message:

> "Our world faced many trials and tests in 2022 – some familiar, others we might not have imagined just one year ago….. Climate change is another area where good news can be hard to find….. I call on every leader to step up – from governments, business, cities and regions, civil society and finance. They must come with new, tangible and credible climate action to accelerate the pace of change. The invitation is open. I have pulled no punches on the imperative for all of us to confront this **existential threat"** (*UN news*, 19 December 2022).

In a similar vein, in his second State of the Union address, U.S. president Joe Biden, emphasized the urgency of addressing climate change issue stating:

> "Let's face reality. The climate crisis doesn't care if you're in a red or blue state. It's an **existential threat**" *(The White House,* 8 February 2023).

The collocation was greatly embraced my media and embedded into mediated discourse of climate change reinforcing the alarmist rhetoric and narrative based on the emotionalisation, scaremongering and fear-inducing language. Framing climate change as an *existential threat* has thus become synonymous with climate alarmism demonstrating ideologically-laden perception of the possible solutions and necessary policy measures in terms of much-needed transition to green economy.

As the perception of gravity of the accelerating warming is not equivocal, neither is the lexical terminology used to depict the changes in the climate system. It reflects varying degree of concern and understanding of climate risks and consequences.

In that regard, the United Nations recently stated "climate change is the **defining issue** of our time, and we are at a defining moment" (UN, 2022). The term is embodied into political and media discourse of climate change primarily to depict the crux of the matter. Nevertheless, the term **environmental challenge** accounts as one of the phrases that has circulated longest in public discourse and that has evidently been overused and favoured by media and politicians in reference to the climate change. It appears in dissemination of media information and political speeches in several variations and versions. Correspondingly, Al Gore defined climate change as "the **biggest challenge** our civilization faces" on several occasions (Donnison, 2014; *BBC)*. Similarly, European Environment Agency refers to climate change as "one of **the biggest challenges** of our times" on its webpage (EEA, 2023). In a similar vein, *Forbes'* news article featuring climate change depicts the phenomenon as **the greatest challenge**: "Time To Tackle Humanity's **Greatest Challenge**: Climate Change" (Carlin, 2020; *Forbes*).

Covering the World Economic Forum at the beginning of each year in Davos, *CNN* reported on the climate change as "**the biggest risk** to business (and the world)" (Kottasová, 2019; *CNN*). Nonetheless, among the most preferred lexical choices with respect to climate change media coverage are the ones eliciting greatest emotional arousal. Emotional manipulation is thus achieved using terms reflecting the highest degree of approaching danger like **climate chaos, climate hell** and **global catastrophe**. In his address on COP27 Global Climate Summit held in Sharm El Sheik, Egypt, UN Chief Guterres warned:

> "We are in the fight of our lives, and we are losing. Greenhouse gas emissions keep growing, global temperatures keep rising, and our planet is fast approaching tipping points that will make **climate chaos** irreversible. We are on a highway to **climate hell** with our foot still on the accelerator." (UN, Secretary General, 2022).

Countless news media have reported on the COP27, particularly employing fear-inducing language, that is, certain lexical resources to further dramatize situation and accelerate the climate action. Just to mention some:

> "We're on a highway to **climate hell**", UN chief Guterres says, calling for a global phase-out of coal" (Frangoul, 2022; *CNBC*).

> "World is on brink of **catastrophic warming**, U.N. climate change report says" (Kapplan, 2023, *Washington Post*).

> "UN climate report: Scientists release 'survival guide' to avert **climate disaster**" (McGrath and Rannard, 2023; *BBC*).

> "**Climate Catastrophe** Will Hit Tropics Around 2020, Rest Of World Around 2047, Study Says" (Zuesse, 2013; *Huffington post*).

> "**Climate Doomsday** Is Nigh—Again" (*The Wall Street Journal*, 2022).

Overall, all these lexical choices contribute to various meaning-making process in the climate change debate and discursively construct the alarmist narrative.

As previously mentioned, *The Guardian* has adopted a new climate-related lexicon adjusted to the dramatic changes planet and people are undergoing introducing terms like **climate crisis, climate breakdown** and **climate emergency.** Many news media have followed in their footsteps embracing changes to fit their alarmist rhetoric supporting particular ideological interests and communication goals.

Another lexical term that resurfaced in the public discourse in connection with the climate change is **global weirding**. The concept of global weirding encapsulates all the "weird" manifestation of changes in the climate system indicating that is it not just simply about the rising global temperatures but about "freakish" weather events, including heat waves, cold waves, droughts and floods, with long-term impacts affecting entire global population in a higher or lesser degree. The term was coined by Hunter Lovins, co-founder of Rocky Mountain Institute. However, it came to the public fore thanks to New York Times op-ed columnist Tom Friedman who popularized the term in its column:

> "Avoid the term *global warming*. I prefer the term **global weirding**, because that is what actually happens as global temperatures rise and the climate changes. The weather gets weird. The hots are expected to get hotter, the wets wetter, the dries drier and the most violent storms more numerous" (Friedman, 2010; *The New York Times*).

Recognizing its quirkiness, media have quickly embedded the term in its coverage of the climate change-related news expanding the existing perspective in new frame of the issue:

> "If the green movement hasn't done much for the planet lately, it has given us some cool new expressions. One of the best is **global weirding**, the trendy new way of branding the apocalypse formerly known as *global warming*….And unlike some green scare propaganda, the global weirding hype is actually true—Politics, economics, international

relations, religion: Everything in our world is getting weirder, and the weirding is happening faster all the time" (Mead, 2011; *Business Insider*).

Similarly, the term appeared in other news reports depicting the absurdity and complexity of the global phenomenon.

"From a warm January to a frigid February: **Global weirding** could be another signal of climate change" (Noor, 2023; *The Boston Globe*).

Nevertheless, in terms of reporting on climate change, media ecosystem is by far not homogenous. Nor is it promoting one sided reference bias. Therefore, balanced reporting has led to emergence of lexical counterparts within the discourse of climate skepticism corresponding to those appearing in the discourse of alarmism. Referring to climate change as a **hoax** was firstly launched by the former US President, Donald Trump and tremendously popularized through right wing and conservatives newspapers and news outlets. In an interview with Stuart Varney on Fox Business Network, Donald Trump asserted that climate change is **a hoax** elaborating:

"In my opinion, you have a thing called weather, and you go up, and you go down. If you look into the 1920s, they were talking about a global freezing, okay? …..And then they go global warming," So now they just talk about climate change. The climate's always been changing." (Joyella, 2022, *Forbes*).

In a similar fashion, California's leading news outlet, *The Santa Barbara Independent* joined Trump to label climate change as a hoax in its section Voices.

"Climate Change: **An expensive hoax.** Activists Live in a Neverland of Climate Prediction" (Harris, 2016; *Santa Barbara Independent).*

Interestingly, in 2014 *The Guardian* news article featured climate change *as a* **myth** brining another perspective to the issue.

"Climate change is an obvious **myth** – how much more evidence do you need? Many people just refuse to accept the facts that surround them, even if we saw 100 more years of it plain and apparent" (Burnett, 2014; *The Guardian*).

Fox News is among the news media that has widely endorsed lexical choices that explicitly transfer the ideological stance of climate skepticism in the climate change debate. They have boosted dissemination and proliferation of the terms like *myth* and *hoax* in relation to the climate change, discursively constructing the narrative of climate denialism and contrarianism. One of the examples is Joe Bastardi's global warming debate on *Climate Change* ***Myths****: Separating Fact from Fiction (*Bastardi, 2013; *Fox news).*

Obviously, one of the bitterest opponents of the mainstream climate science, decarbonizing pathway and implementation of net zero policies is the fossil fuel industry. In order to delay the climate action, they have constructed the denial discourse resting upon underlying discursive strategies related to, among other things, lexical resources. In order to discredit the evidence and results of the relevant scientific research, fossil fuel companies often resort to aggressive PR campaigns using the legitimization strategy through dichotomization, that

is, deemphasizing the importance of its opponents and simultaneously emphasizing its own integrity and authority. Focusing on the lexical level, Exxon Mobile's tactic represents an evident example. In 2002, Exxon ran advertisements in *The New York Times* calling climate science **unsettled science** (Supran and Oreskes, 2017; *The New York Times).*

In order to influence the public perception of the climate change issue, fossil fuel companies have purposefully framed the issue as **manufactured scientific controversy** in order to raise doubt and uncertainty thereby eroding trust in the climate science (Ceccarelli, 2011).

As showcased, overlexicalization can be employed as a discursive strategy to shape the climate change discourse. Different actors in the debate resort to different lexical choices in order to frame climate change according to their own interests and often reflect their ideological and political orientation, that is, their opinion and attitude. Specifically, there are two contrasting examples of overlexicalization within the climate change debate, the language of alarmists and sceptics.

On one hand, those who view climate change as a pressing issue often employ lexical terms linked to alarmist rhetoric to communicate the sense of urgency and gravity of the problem. Terms like *existential threat, climate crisis, climate emergency,* or *climate breakdown* reflect potentially catastrophic implications of climate change. Emotional appeal is embedded into these lexical choices due to the urgent need to trigger immediate action and draw public attention. On the other hand, climate change skeptics resort to use of overlexicalization for the purpose of doubt-mongering. They employ terms like *hoax* and *myth* to express their skepticism about the scientific consensus on climate change. They believe that mainstream climate science is based on exaggerated and overblown claims and thus seek to belittle the significance and relevance of policy initiatives of climate scientists.

7.5. Technical jargon

As previously stated, "science and scientifically derived knowledge are commonly viewed as an encoded form of knowledge that needs to be translated in order to be understood" (Ungar, 2000: 308). Even though, in particular cases, science may be communicated through one-way transmission of the information to the intended audience, it normally presupposes the existence of dialogue through formal public engagement (National Academies of Sciences, Engineering and Medicine, 2016). Considering that public engagement and support to scientific endeavors is directly impacted and determined by effective communication of scientific finding to the non-expert public, bridging any potential communication gap is considered an imperative.

Specifically in the context of climate change, there are several factors that may impede the science comprehension and deepen the communication gap between the experts and lay public. One of the crucial obstacles that may hinder public understanding of the complexities pertinent to climate science is the presence of technical jargon in the representation of the issue. The use of jargon in science communication may have various ramifications but primarily it prevents the producer of the knowledge to "speak the same language" or "to be at the same page" with the target audience and thus obstruct conveying of the desired message. Therefore, reduction of jargon is seen as a prerequisite for effective communication of scientific findings to lay public.

Jargon typically refers to specialized, technical vocabulary terms that are linked to a situational context or purpose and rather rarely utilized outside of these particular circumstances (Sharon and Baram-Tsabari, 2014). Jargon is often used to reflect expertise as well as to communicate idiosyncratic knowledge and highly particularized ideas. In addition to being technical, jargon is also used primarily by members of a particular group or trade, such as

scientists, lawyers, or medical professionals, and is less frequently used or understood by individuals who fall outside of these groups (Sharon and Baram-Tsabari, 2014).

The use of jargon in science communication is problematic in many ways. One of the greatest challenges particularly in the climate change communication are the negative effects stemming from the public incomprehension of the jargon-laden information. Accordingly, jargon has a twofold impact in the process of communication. On one hand, it hinders people's capacity to fully comprehend the message, and on the other, it may pose challenges in terms of information processing (Bullock et al., 2019).

According to the research on processing fluency, it is possible to distinguish two divergent outcomes depending on the type of processing. When fluency is experienced as easy, affective responses are positive, eliciting the feeling of knowing, liking and efficacy (Shulman and Sweitzer, 2018; Schwartz and Metcalfe, 1994) which in turn is associated with naïve theory rooted in the concept that if something feels good, it must be safe and familiar (Schwarz, 2010). On the other hand, if processing is experienced as difficult, then it is associated with unfamiliarity, which leads to negative outcomes such as uncertainty, risk and a lack of confidence (Shulman and Sweitzer, 2018). This in turn may be the reason why some individuals are skeptical toward scientific information. When encountering something for the first time, skepticism arises as a natural response out of unfamiliarity (Song and Schwarz, 2009). Therefore, scientists who need to communicate new findings are confronted with a challenge, how to overcome a cognitive obstacle - things that are new feel unsafe (Song and Schwarz, 2009).

Nevertheless, science communication cannot be reduced to only include simple translation of jargon of science into language that public is familiar with. It is more complex than that. Specifically, one of the aspects that arises in the context of jargon interpretation and that is often problematized in the research refers to the criteria on the basis of which one should identify technical jargon when the definitions can have various meanings in the scientific community and the public (Somerville and Hassol, 2011). Though easily overlooked, these differences in meaning can have significant impacts on public interpretation and perception of science.

Use of technical jargon in climate change discourse is by far not accidental. On the contrary, specialized terminology is often employed as a discursive strategy for the variety of reasons, for instance, transmission of ideologies or public manipulation.

Firstly, the use of technical jargon is well-suited to establish the discourse of authority within the climate change discourse. Technical jargon is thus employed strategically to frame specific groups as sole authorities, presenting their ideological or political agenda as superior to opposing perspectives. Thus in turn may further aggravate dichotomization between polarizing views and opinions in the climate change debate. Furthermore, this may impact which perspectives public will perceive as marginalized and which as prioritized which may deepen the ideological clash between the actors in the debate.

With jargon, arguments of particular groups are portrayed as more objective and scientifically rigorous, in which case, public is manipulated to perceive certain viewpoints as more relevant, that is, irrelevant. Moreover, specialized terminology may serve as a demarcation line between the expert community and general public. Specifically, it may create a barrier between them, purposefully excluding lay people from the climate change debate, giving the impression that experts are more knowledgeable and authoritative and the only who have the knowledge to address the issue. By embracing technical jargon into climate change debate, particular individuals or groups strengthen their position of power and can more easily steer the narrative in the desired direction excluding the alternative opinions.

Nevertheless, technical jargon may be exploited for other purposes. There are cases, particularly in news media, when coverage of climate change is intentionally saturated with barely comprehensible information on the climate science research and findings, which may contribute to deliberate miscommunication, misrepresentation or misleading of the public. Correspondingly, media may purposefully take advantage of technical jargon to create confusion. Employment of technical jargon thus makes discourse more opaque making it difficult for public and policy-makers to fully understand or engage with the issues. In which case it serves to maintain the *status quo*. When leading to confusion and skepticism, jargon is thus often exploited to justify inaction.

Moreover, employing technical jargon can serve to redirect attention or shift the focus of the discourse. Certain concepts may be strategically emphasized or de-emphasized in order to frame or reframe discussion in a way that aligns with particular ideological beliefs. This may lead to distorted representation and manipulate the public perception of the issue.

Furthermore, media may resort to technical jargon for the purpose of emotional manipulation. In cases when they want to trigger specific emotional response, media may excessively use specialized terminology. By employing terms that trigger fear, anxiety, panic or uncertainty, media may garner public support for specific ideological positions.

7.5.1. Ratification

Following multiple events related to the global climate policy agenda and resulting in numerous binding international agreements, the term *ratification* came to the foreground. Nowadays, the term is regarded commonplace and is deeply embedded into political speeches, media reports as well as scientific papers on the status, implementation and challenges related to international accords and treaties on the combat of climate change. *Ratification* is a technical term typically used in legal and diplomatic contexts and generally refers to the formal validation or acceptance of a legally binding agreement or treaty by a country, signifying its commitment to comply with the obligations outlined in that agreement. In the context of climate change, it is often used to describe the process by which countries formally adopt and commit to the goals, targets and provisions of international agreements, such as the Paris Agreement or Kyoto Protocol. In the United Nations Treaty Collection Glossary of terms relating to Treaty actions, ratification is described as follows:

> "Ratification defines the international act whereby a state indicates its consent to be bound to a treaty if the parties intended to show their consent by such an act. In the case of bilateral treaties, ratification is usually accomplished by exchanging the requisite instruments, while in the case of multilateral treaties the usual procedure is for the depositary to collect the ratifications of all states, keeping all parties informed of the situation. The institution of ratification grants states the necessary time-frame to seek the required approval for the treaty on the domestic level and to enact the necessary legislation to give domestic effect to that treaty". (Arts.2 (1) (b), 14 (1) and 16, Vienna Convention on the Law of Treaties 1969).

Nowadays, the term *ratification* is almost exclusively used by media and politicians in collocations denoting official acceptance of the treaties and agreements related to climate change. Its deployment stresses the relevance and significance of the accords, particularly the commitment of the countries to climate change goals thereby differentiating between loose

agreements and legally binding treaties. Although seemingly non-discernible, these differences may have a major impact on the outcome of the climate negotiations.

Contrasting media framings of the process of ratification in news coverage may demonstrate ideological asymmetries in the climate change debate. This way, ideological imbalances are magnified depending on the perspective media outlets choose to take. Consequently, the term may be deployed strategically to pinpoint the alignment with a certain ideological or political stance. This way it may either attract or repel proponents and opponents of particular beliefs. Therefore, agreements ratified by different governments normally indicate the side countries are taking in the debate. Additionally, the term may serve as a signal to forge alliances and build coalitions between the countries that share common ideological goals.

Moreover, the term may be utilized to reinforce the narrative of responsibility of political elite enhancing their reputation and status on the global stage by demonstrating their commitment to international norms. Their legitimacy and accountability are consequently strengthened in the public discourse thereby manipulating public opinion. Moreover, the process of ratification itself may be the subject of biased reporting depending on the ideological narrative and framing. As media, politicians or certain groups may choose which aspect, perspective or detail from the agreement will be foregrounded or downplayed, the signing, that is, withdrawal from the accord should be viewed through ideological lens as they all seek to provide legitimization to the certain decisions and measures. Therefore, it is not uncommon that the term is exploited to discursively construct the ideological discourse and convey hidden agenda of the political elites.

> "We've seen this before. Think back to Kyoto. Clinton did not have the support of the Senate. Yet, Clinton delegated his UN Ambassador to sign it. And we know what happened – they signed it and so did many other countries, but the difference between the signatories is that U.S. signature means nothing without Senate **ratification**. That was true then and it is still true today. The Obama Administration should take note. History repeats itself. If Secretary Kerry signs the Paris Agreement, as we all expect him to do so, it will be an act in defiance of lessons from the past and in defiance of the best interests' of the American people - all while achieving no meaningful impact on global temperatures" (*US Senate Committee on Environment and Public works*, 21 April 2016).

> "Although a crucial piece of legislation with good intentions, the treaty nonetheless experienced difficulties from the outset. Built into it was a stipulation that it would become legally binding only once it had been **ratified** by 55 separate countries, but also by enough Annex 1 countries to collectively account for 55 percent of global greenhouse gas emissions. The withdrawal of the U.S. was a huge blow to Kyoto. The treaty did eventually become legally binding, in February 2005, when the 55 percent emissions stipulation was met by Russian **ratification** (the 55 countries stipulation had been met in 2002) (Sussman, 2007; *CNN*).

> "Paris climate deal to take effect as EU **ratifies** accord" (Schiermeier, 2016; *Nature*).

> "China **ratifies** Paris climate change agreement ahead of G20" (Phillips, 2016; *The Guardian*).

7.5.2. Acidification and Deoxygenization

Two other terms that are frequently utilized in the media, political and public discourse in connection with the representation of the climate change impacts on the ocean and marine resources are *acidification* and *deoxygenation*. Regardless of the fact that both terms, technically, belong to the scientific jargon, they are greatly embraced by news outlets and politicians to convey the gravity of global alterations in the ocean ecosystem due to the changing climate. Terms *acidification* and *deoxygenation* are typically employed to communicate the risks and hazards of anthropogenic climate change in the context of oceans and increase public awareness of the problem. As it covers more than 70% of the Earth's surface, global ocean has remarkably high heat capacity, meaning that it absorbs more than 90 percent of the warming (excess heat) trapped in the Earth system due to the man-made global warming (Lindsey and Dahlman, 2023).

Ocean acidification takes place as a direct consequence of these occurrences. Specifically, ocean acidification refers to a "reduction in the pH of the ocean, which is normally around neutral, over an extended period of time, caused primarily by uptake of carbon dioxide from the atmosphere" (NOAA, 2024). In this process seawater becomes more acidic because of the excess carbon dioxide it is absorbing. As the atmospheric concentration of the carbon dioxide increase, so do the levels in the ocean. It is chiefly a result of the burning of fossil fuels and land use change. Ocean acidification affects the entire world's oceans, including coastal estuaries and waterways particularly threating the economies dependent on fish and shellfish. Therefore, ocean acidification is often dubbed as "climate change's equally evil twin" (Smithsonian, 2018). On the other hand, *ocean deoxygenation* refers to the process of reduction of dissolved oxygen in seawater (Scripps Institution of Oceanography, n.d). It is often illustrated by saying "ocean is getting out of breath" (Scientific American, 2019). Deoxygenation is causing a wide range of effects on marine life, including "reducing the quality and quantity of suitable habitat, also known as habitat compression, reducing growth rate, changing visual function, interfering with reproduction, and increasing disease susceptibility" (Scripps Institution of Oceanography, n.d).

In media and political discourse, both terms may be used as discursive strategies with the manipulative purpose of conveying and strengthening certain ideological agendas. News media excessively take advantage of these technical terms primarily to construct and legitimize the discourse of authority through expertization. Expertization is thus exploited to convince the public on the credibility and competency of certain groups or individuals and thus convey their ideological or political stance.

Moreover, terms ocean acidification and deoxygenation are utilized to communicate the urgency and magnitude of the climate change consequences on marine ecosystems and biodiversity through emotionalization. As both words have exceptionally negative connotations, emotions of fear and dread are provoked in order to convey a sense of alarm to the wider audience. Correspondingly, they may shape the alarmist discourse and rhetoric. Consequently, emotional appeal is used strategically to mobilize action and engagement of the policy-makers on this particular issue. Through expertization and emotionalization, both terms are deliberately used to communicate the need for policy changes and implementation of technological solutions. Moreover, hyperbolized framing is simultaneously used to highlight the threats posed by ocean acidification and deoxygenation and thus influence the decision-makers to accelerate the concrete action.

"The Arctic ecosystem, already under pressure from record ice melts, faces another potential threat in the form of rapid **acidification** of the ocean, according to an international study published on Monday" (Doyle, *2013; Reuters).*

"The Trump order deletes a preamble to the Obama policy that emphasized how vulnerable our marine environments are, called for improving the nation's capacity to respond to climate change and ocean **acidification**, and stressed the need for a national policy to ensure the protection, maintenance, and restoration of the health of ocean, coastal, and Great Lakes ecosystems" (Malakoff, 2018; *The Science).*

"The new study is the first to use climate models to predict how and when **deoxygenation**, which is the reduction of dissolved oxygen content in water, will occur throughout the world's oceans outside its natural variability" (American Geophysical Union, 2022; *The Science Daily).*

"Researchers expect many places to experience a decline in species diversity, ending up with just those few species that can cope with the harsher conditions. Lack of ecosystem diversity means lack of resilience. **Deoxygenation** is a big problem, Pauly summarises" (Jones, 2023; *BBC*).

7.5.3. Decarbonization

One of the words that has become an imminent part of the media lexicon as well as joker of political campaigns for weaponizing fossil fuel industry is the term *decarbonization*. One of the key measures in the fight against climate change implies meeting the emission reduction targets as well as the reduction of carbon footprint emanating from the burning of the fossil fuels (Lobus et al., 2023). Therefore, *decarbonization* emerged as the depiction of the process. *Decarbonisation* is the term used for removal or reduction of carbon dioxide (CO2) output into the atmosphere (Cho, 2022). *Decarbonisation* is achieved by switching to usage of low carbon energy sources. Over the course of history, it has become a global paramount and a priority for governments, businesses and society as it plays a crucial role in limiting global warming (UN, n.d.). The 2015 Paris Agreement set an ambition to limit global warming to well below 2°C above the pre-industrial levels and pursue efforts to limit warming to 1.5°C, either by pursuing carbon neutrality or introducing energy efficiency measures (IPCC, 2018).

Nowadays, the term *decarbonization* is ubiquitous in media, political and public discourse of climate change and it is closely linked to the concept of net zero emissions, that is, process of energy transition from fossil fuels-based systems of energy production and consumption to renewable energy sources, like solar and wind.

Due to the meaning of the term, media often frames decarbonization-related topic in a positive light justifying the much-needed energy transition. Carbon neutral world is typically portrayed as an imperative of the global community as opposed to fossil fuel-dependent economy, which is demonized and dramatized. The term *decarbonization* is thus deliberately used to promote the green transition as the only "exit" from the "worst case climate scenario" and thus reinforce the narrative and rhetoric of the mainstream climate science. Moreover, as the term is often associated with the deployment of new technologies, such as renewable energy sources, carbon capture and storage, or energy efficiency measures, it is often utilized to advocate for these approaches by justifying the necessity of transition. Furthermore, *decarbonization* is also positively framed in economic terms emphasizing new green opportunities in various sectors.

Consequently, decarbonization can be framed as a moral and ethical responsibility to future generations and the planet constructing ideological discourse of sustainability and climate action.

> "Look, together, you know, we — we can keep the goal of limiting warming to just no more than 1.5 degrees. It's within our reach if we make progress on the four key things that we have to discuss today: **decarbonization**, decarbonizing energy; ending deforestation; reducing non-carbon greenhouse gas emissions; and improving carbon management" (Remarks by President Biden at the 2023 Major Economies Forum on Energy and Climate, *The White House*, 20 April 2023).

> "How the Fourth Industrial Revolution will accelerate **decarbonisation**" (Henderson, 2022; *The Financial Times*).

> "Carbon markets are an essential mechanism for accelerating global **decarbonization**, but stakeholders should collaborate to make them robust, transparent, and trustworthy" (Gregorie, 2023, *The Wall Street Journal*).

7.5.4. Carbon sequestration

When covering scientific topics such as climate change, media often adopts technical terms in their original form without any further interpretation or clarification thereby allowing public to ascribe it various meanings out of personal belief and preknowledge. *Carbon sequestration* accounts as one of them. It is initially "borrowed" from technical jargon and deeply embedded into climate change discourse to facilitate transfer of hidden ideologies and implicit manipulation. It appears frequently in mediated representation of particularly one aspect of the combat of climate change concerning reduction of GHG emissions. Correspondingly, *carbon sequestration* refers to the process of capturing, removing and storing carbon dioxide from the atmosphere or other sources and preventing its release into the air (US Geological Survey, n.d.) This can be achieved through accumulation and transfer into the wetlands as soil organic matter, i.e. physical and biological processes. Such method plays an important role in mitigating climate change by reducing the amount of greenhouse gases, particularly carbon dioxide that contributes to global warming.

The use of term in media discourse implicitly reinforces the IPCC science, that is, the authority of researches and the accountability of scientific agreement based on the claims the human-induced activities are the main cause of the warming planet thereby discrediting the counterargument of natural variability proposed by climate deniers and sceptics.

Delegitimization of the discourse of climate skepticism is accomplished through expertization, which is utilized to legitimize the mainstream climate science and thus reinforce the perspective on the nexus between the rising emissions and the increasing warming of the planet.

Due to its positive media framing, *carbon sequestration* is often exploited to promote the "green" ideology concealed in the expertization rhetoric thereby persuading the public on the necessity and relevance of achieving net-zero emissions. Accordingly, it may be intentionally employed to promote specific political agenda and advocate for specific solutions by dismissing other methods as inadequate or costly demonstrating legitimization through dichotomization.

> "Scientists have discovered a new and tiny marine predator which is capable of naturally **sequestering carbon**" (*The Sky News*, 15 March 2022).

7.5.5. Desertification

Another climate-change related term that permeates the public discourse is *desertification*. Also referred to as desertisation, it helps to constitute an ideological discourse that underlie climate change narrative in media and politics. IPCC defines desertification as "land degradation in arid, semi-arid, and dry sub-humid areas, collectively known as drylands, resulting from many factors, including human activities and climatic variations. The range and intensity of desertification have increased in some dryland areas over the past several decades" (Mirzabaev et al., 2019: 251).

Consequently, this type of land degradation is often viewed as a consequence of unsustainable land and soil management, like deforestation and irrigation practices, but most commonly a combination of these factors. However, the concept doesn't imply expansion of the already existing deserts but various processes that pose risk to dryland ecosystems. Arid and semiarid ecosystems are typically marked by sparse or variable precipitation. However, climatic changes, i.e. changes in temperature and precipitation pattern may result with prolonged period of drought and thus rapidly reduce biological productivity of those ecosystem (Mirzabaev et al., 2019). Considering that dryland environments can be used for a variety of human purposes, the various activities can aggravate the problem of desertification and bring about lasting changes to dryland ecosystems.

Desertification poses a serious international threat owing to the fact it has negatively affected 36 million square km of land (Pal et al., 2023). Around two billion people depend on ecosystems in dry land areas, with 90% living in developing countries. As these systems become degraded, impact can be devastating. Accordingly, this phenomenon is viewed as one of the greatest environmental challenges of our time due to its adverse implications for people, livestock, biodiversity, poverty eradication, socio-economic stability and sustainable development. Therefore, combating desertification often presupposes investigating its linkage with climate change and subsequently implementation of effective policies (carbon trading and carbon sequestration) aiming to curb the production of greenhouse gases.

As an integral part of technical jargon, the term is employed in media and political discourse primarily as a persuasive tool to influence the public view of climate change impacts, i.e. certain ideological positions hidden in the discourse. It emphasizes the nexus between land degradation and severe weather event such as drought resulting from the rising temperatures, i.e. climate change, strengthening the perspective of IPCC scientific research. By relying on empirical data, it emphasizes expertise and thus reinforces integrity of the scientific discussions in contrast to lay debates. Nevertheless, media often resort to this technical jargon in order to dramatize consequences of the warming planet particularly focusing on the hyperbolized framing of climate refugees and resource shortages. Emotional appeal is thus exploited to communicate the ideological stance of climate alarmists and convince the wider audience regarding green policies and carbon reduction.

> "Let us recognize that resisting **desertification**, preserving drylands and nurturing the communities that depend on them lies at the core of sustainable development. But to do this we need enhanced investment in halting **desertification** and reclaiming degraded lands" (UN, Secretary-General Ban Ki-moon remarks at High Level Meeting on Desertification, 20 September 2011).

7.6. Acronyms

Acronyms are often considered the trademark feature of the climate change discourse as well as scientific discourse in general and are increasingly embedded in the public communication. Particularly, media coverage of the climate change has seen a surge in all sort of abbreviated terms when addressing issues pertinent to the increasing temperatures and emissions, in a broad and narrow sense. Nevertheless, in analogy with specialized jargon, acronyms can also be obscure thereby creating confusion and potentially misleading the public.

Acronyms are commonly defined as an umbrella term for abbreviations stemming from sequences containing multiple words "that include capital letters" (Barnett and Doubleday, 2020: 4), most notably including *acronyms, initialisms,* and *alphabetisms* (Imre, 2022). However, as *initialism* is considered an older term, "that has never caught on in wider usage" (Zimmer 2010), acronyms are typically used as the covert term for the entire category.

As mentioned, acronyms stem from multiword sequences that start with initial uppercase letters and form a new word, which can be pronounced as a whole word (COP – Conference of the Parties or ENSO - El Nino Southern Oscillation). On the other hand, in contrast to acronyms, initialism can't be pronounced as words, but are rather pronounced letter-by-letter (IPCC – Intergovernmental Panel on Climate Change or UNFCC – United Nations Framework Convention on Climate Change). They typically refer to names of organizations and institutions which are contracted to become a single word entity.

Accordingly, this is the only feature that distinguishes these two categories and is often indicated as "orthoepic, or letter-sounding" and "alphabetic, or letter-naming" (Kreidler, 2000: 957).

Alphabetism is normally defined as the "use of initials as a signature or assumed indication of authorship" (Trumble and Stevenson, 2002: 61), but is "most commonly used interchangeably with initialism" (López Rúa, 2004: 118).

Interestingly, "acronyms are also known as words that almost never appeared in dictionaries but, of course, were known to be valid strings" (Taghva and Gilbreth, 1999: 191) and the term acronym "has remained maddeningly ill-defined for its entire existence" (Zimmer, 2010), characterized by "overlap," "vagueness," and "lack of agreement" on its scope (López Rúa, 2004: 110).

With respect to the length of acronyms, according to algorithm developers, they may be of variable extent, ranging from two or three to nine or ten uppercase letters the most (Imre, 2022). Moreover, they may encompass "non-alphabetic characters, most commonly digits and specific signs and symbols, such as period, hyphen, slash, and ampersand" (CO2 - carbon dioxide or CH4 - methan) (Barnett and Doubleday, 2020: 4). Certain differences however exist in terms of punctuation between the American and British use of acronyms. Normally, full uppercase acronyms should not be separated by space or period (Thomas, 2021). Nevertheless, this is no longer considered a norm as *The Washington Post* frequently uses U.S. and not US ("the United States of America") (Irma, 2022).

Acronyms or initialisms are often viewed as the "most peripheral to word formation" (Carter and McCarthy 2006: 482). Moreover, some scholars describe them as a sort of "non-word with meaning" (Izura and Playfoot, 2012: 864) or similar to "irregular" words (Laszlo and Federmeier, 2007: 1161). As such, they are either "highly familiar to the language user" (Izura, and Playfoot, 2012: 862) or "often used without our knowing what the letters stand for" (Quirk et al., 1985: 1582), and their frequent use in "scientific communication" is "mostly unnecessary" as

“they can confuse and alienate unfamiliar audiences” (Hales et al., 2017: 22) and are often viewed as an “obstacle in reading” (Thomas 2021: 467).

Among the most ubiquitous acronyms are those referring to institutions, phenomena or concepts closely linked to the climate science. Among the most frequently used acronyms are the following:

AAO	Antarctic Oscillation
AMO	Atlantic Multi-Decadal Oscillation
AO	Arctic Oscillation
AR	Assessment Report
CBD	Convention On Biological Diversity
CBDR	Common But Differentiated Responsibilities And Respective Capabilities
CCA	Climate Change Adaptation
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism
CDR	Carbon Dioxide Removal
CEI	Climate Extremes Index
CH4	Methane
CO2	Carbon Dioxide
COP	Conference of the Parties
DRR	Disaster Risk Reduction
ENSO	El Nino Southern Oscillation
EWS	Early Warning System
FFF	Fridays for the Future
GCF	Green Climate Fund
GCM	Global Climate Mode
GHG	Green House Gases
IPCC	Intergovernmental Panel On Climate Change
MDGS	Millennium Development Goals
NAM	Northern Annular Mode

NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NDCs	Nationally Determined Contributions
PPM	Parts Per Million
SST	Sea Surface Temperature
UNFCC	United Nations Framework Convention On Climate Change
WMO	World Meteorological Organization
XR	Extinction Rebellion

In climate change discourse, acronyms may also refer to international accords and treaties, policy measures or initiatives, for instance COP - Conference of the Parties or NDCs - Nationally Determined Contributions which represent the commitments made by countries to reduce their greenhouse gas emissions under the Paris Agreement.

Moreover, acronyms may be employed to represent organizations, institutions, and programs dedicated to addressing climate change (NASA - National Aeronautics and Space Administration, NOAA – National Oceanic and Atmospheric Administration, GCF - Green Climate Fund).

Furthermore, acronyms may be utilized in relation to climate change advocacy campaigns and movements to create memorable slogans or catchphrases. For example, "350" refers to the target of reducing atmospheric carbon dioxide levels to 350 parts per million, which is considered a safe level to avoid dangerous climate change. Acronyms like "Fridays for Future" (FFF) and "Extinction Rebellion" (XR) have become synonymous with youth-led climate activism, mobilizing climate engagement both locally and globally.

> "**Cop28** climate conference in numbers as historic deal struck to transition away from fossil fuels" (Middleton, 2023; *Independent*)
>
> "Climate change: Covid pandemic has little impact on rise in **CO2**" (McGrath, 2021; *BBC*);
>
> "**IPCC** report: 'now or never' if world is to stave off climate disaster" (Harvey, 2022; *The Guardian*);
>
> "At the recent pace, we'll hit 450 **ppm** in a mere 16 years, and 500 **ppm** 20 years after that. That's well within dangerous territory for the climate system," Keeling added (Miller, 2018, *CNN*);
>
> "**NOAA** Confirms June Was Earth's Hottest on Record" (Erdenesanaa, 2023, *The New York Times*).

Among the scholars, there are arguments for and against the use of abbreviations, acronyms, and initialisms. Panajotu asserts that they are "gaining ground in every language because they accelerate communication as they are clear and time saving" (Panajotu, 2010: 160).

They capture attention rather easily due to their structure based on full uppercase letters which in turn makes them easier to remember and save space (Irma, 2022). Yet, others tend to focus more on the negative aspects, as abbreviations and acronyms can be "alienating or ostracizing" (Hales et al., 2017: 22) and "difficult to read" (Thomas, 2021: 467).

7.7. Neologisms

> "Words, being but symbols by which people express their ideas, are an accurate measure of the range of their thoughts at any given time. The date when a new word enters the language is in general the date when the object, experience, observation, or whatever it is that calls it forth has entered public consciousness" (Baugh and Cable, 2002: 301).

According to Aitchinson, "vocabulary items tend to be added, replaced, or changed in meaning more rapidly than any other aspect of language" (2005: 16f). Moreover, Crystal adds that "our feelings about words change. And not just over long periods of time. It need only takes a day. In October 1957, ask anyone what 'sputnik' was, and they would have been mystified. A day later, the word was on everyone's lips" (2006: 3).

For decades, the most relevant linguistic research described neologisms in a rather simple and straightforward manner referring to them as "new words" or just "new coinages" without any formal definition or explanation (Marchand 1969; Cannon 1987). Even though situation changed in recent years, with several researchers offering various definitions, neologisms remained a vague concept.

One of the most widely accepted criteria for the acknowledgment of neologism is however determined by Bauer and Renouf who suggest that "word is deemed to be new when it appears for the first time in the chronologically stored, cumulative database" (2001: 102). Nevertheless, they draw attention to the distinction between words that appear only once, "nonce words" and neologisms by stating: "At the moment when a word is coined, it may not be possible to tell what its eventual status will be in a language: it may become part of the norm of the language and turn out to have been a neologism, or it may not, and remain as nonce word" (2001: 102).

"What's a new word?" represents a question that "can never be answered satisfactorily" (Tulloch, 1991: v). Therefore, in lexicographical terms, neologism is considered a form (word and phrase) that has not yet been added to general dictionaries. Namely, the entrance of word in general dictionary depends primarily on frequency use and communication context. Algeo and Algeo (1991), in the introduction to their dictionary of neologisms, elaborate on what forms should be viewed "a new word":

> "The form of the word itself may be novel, a shape that has not been seen or heard in English (flextime, phillumenist, ecotage), or the newness may lie in a novel use of the existing form. In the latter case, the novelty may be in what the word refers to (turf as 'a location, subject, or responsibility claimed as one's own'), the word's grammar (looney tunes developing from the name of an animated cartoon to an adjective 'erratic, absurd'), or even its relationship to those who use it (British toyboy entering American use via supermarket tabloids)" (1991: 5).

According to Hargraves, the editor of New Words, the fundamental question that should be affirmatively answered in relation to the proclamation of the new word is: "Is there something

genuinely innovative about the word? Has the word escaped a relatively narrow field of usage? Is the word likely to enjoy continuing currency?" (2004: viii).

The importance of coining new words with the lasting impact and inserting them into language was illustrated and remarked by *The New York Times* columnist Thomas Friedman (2007): "In the world of ideas, to name something is to own it." Climate change discourse definitely doesn't suffer from any shortage of neologisms. Changing eco-landscape along with media reporting on the climate change debate in particular, elicited inventing of the new words but also reinventing and repurposing of the old ones to fill gaps in environmental-related vocabulary. Newly discovered phenomena presupposed new ways and new words of discussing it. However, despite the fact that process of word coining within the media discourse of climate change emerged out of pure necessity, it was seldom unintentional with the exception of the very few examples of happenstance or occasionalism. The obvious motivation behind the new word formation is often identified to be social context. Political and social settings are found to play crucial role that may trigger the coinage of new words in the climate change context. In most cases, neologizing was an attempt of expressing either political stance or ideological beliefs reflected in the coinage. In case of climate change, news media stand out as an inexhaustible generator of neologisms fulfilling the ever-increasing demand for new words.

7.7.1. Blissonance

According to the latest analyses carried out by NASA and NOAA, the long-term warming trend is highly unlikely to cease. Namely, Earth's global average surface temperature in 2023 reached "exceptionally high levels" besting the previous 2016 record (Copernicus, 2024). With the global average temperature of 14.98°C, 2023 was the first year with all days surpassing 1°C above the pre-industrial level (Copernicus, 2024). In addition to December 2023, being the warmest on record, historic warm winter spell was observed during New Year's Eve and New Year's Day celebration across the globe. Unseasonably warm weather in 2021 was humorously described by some UK papers as "ridiculously" warm as St. James park in London saw 16.2°C (Giordano, 2022).

This unusually but pleasantly warm weather particularly during winter season was welcomed by many as a mood- and energy-booster and inspired creation of the neologism *blissonance*. On its website, *The Bureau of Linguistic Reality* offers two definitions of the *blissonance*. The first interpretation refers to an episode in which:

> "An otherwise blissful experience in nature is wedded to or disrupted by the recognition that: One is having an adverse impact on that place they are enjoying by being there, or the understanding of how the place will be negatively affected in the near future by: urbanization, climate change or other disrupting factors".

Additionally, *blissonance* can be described as "the blissful short term experience of sunny, dry, pleasant weather that can accompany severe drought or other long term climate changes— for which, the experiencer, has long term concerns and which portends doom for all living creatures that depend on water in that area". In this context *blissonace* can be used synonymously with Psychic Corpus Dissonance or Schadenfebruary".

Blissonance is thus mostly used to denote a bitter-sweet experience of enjoying the prolonged period of "unseasonably" sunny and warm weather being struck by realization that it is a dire consequence of the changing climate. For the short-term blissful moment, the planet is

paying the price. As paradoxical as it may sound, "enjoy the moment before it becomes a memory" has never been more accurate in the context of climate change as *blissonance* exhibits. Therefore, it is often seen as a discursive strategy employed as a wake-up call for policy-makers to take some serious action before it is too late demonstrating how climate change effects already pose an imminent risk. As the term frames the threat of climate change as observable, discernible and tangible, it concurrently communicates the deadline rhetoric, that is, the frame of limited time for climate action. It reinforces the alarmist discourse as it highlights the contrast of the present blissful moment and approaching danger in terms of the unabated climate change. Simultaneously, it is utilized to dismiss climate skepticism resting upon notion that climate change isn't real.

As for the formation of the word, *blissonance* is compound by blending with fore-clipping, so that the whole part of the first splinter is kept and the last part of the second splinter (second element is fore clipped to sonance), so that "bliss" and "dissonance" become *blissonance*. The term blissonance is described as a portmanteau word and is compound of the words "bliss" and "dissonance."

> "To be a teenager in this moment is, to put it teenagerly, a lot. You're supposed to be planning for your future at a time when it's scary to imagine what that future will be. Models that predict world-changing sea-level rise and droughts and wildfires and ocean acidification tend to use dates that feel very real to you: 2030, when you might be starting to have children; 2050, when you might be reaching middle age. Other generations, like those practicing duck-and-cover under their desks or facing a wartime draft, had plenty to worry about, too, of course. But it's a unique experience to know that every day the world is generating the emissions that will disrupt the basic workings of your only home, and that many of the things that adults treat as normal are actually making things ever more precarious…. They also came up with **blissonance** (what you might feel while enjoying a pleasantly warm day in winter but wondering what unpleasant things it bodes about the future" *(*Jarvis, 2020; *The New York Times).*

7.7.2. Cassandrafreude

One of the portmanteau word coinages that perfectly captures the essence of the true paradox facing scientific community in the context of climate change is *cassandrafreude.* Often seen as an ill omen, scientists' opinions are very often disregarded as silly prophecy. Professor Katharine Hayhoe, a renowned climate scientist at Texas Tech University, has come up with the definition of the word on X (Twitter) platform: "The bitter pleasure of things going wrong in exactly the way you predicted, but no one believed you when it could have made a difference" (Pierre-Louis and Schwartz, 2020).

From the point of view of word-formation, *cassandrafreude* is a result of blending by merging meaning of the two words "Cassandra" and "schadenfreude." Due to its universal concept, s*chadenfreude* is widely recognizable German loan word borrowed into English in the late 19th century denoting malevolent pleasure, joy and self-satisfaction at the misfortune of others. It's a compound of the German noun "Schaden", which means "damage/harm," and "freude", which means "joy." According to the structural typology of blends, it can be classified as a fused blend with one base reduced. The whole part of the first unreduced base is kept and inserted into the other, i.e. the last part of the second splinter. Syntactically, this is a coordinative blend since both bases belong to the same lexical class.

Moreover, idiosyncratic character of mythological figure Cassandra proves that she didn't appear outright accidentally in this blend regarding climate change. Namely, according to the Greek mythology, Cassandra was an exceptionally beautiful daughter of King Priam and Queen Hecuba, the rulers of Troy during the legendary Trojan War. Smitten and seduced by enchanting and alluring beauty of Cassandra, God Apollo granted her with the gift of prophecy in an exchange of sexual advances. In that regard, famous words "Beware of Danaos (Greeks) bearing gifts" are very often ascribed to her, as she was the first to foresee and point out the destruction of Troy by the Greeks thanks to her newly acquired prophetic abilities. Unfortunately, no one in Troy believed her, and the horse was admitted in the city. As Cassandra turned down the courtesy of Apollo, in the act of vengeance, the gift of foretelling was turned into a curse so that all her predictions would be met by disbelief. Similarly, as her warnings to Agamemnon were repeatedly ignored, shortly after the fall of Troy, Agamemnon was murdered by his wife and her lover, Aegisthus (Padmann, 2023).

Modern interpretation of the urban climate change myth rests upon the similar grounds: despite a great deal of scientific evidence based on the complex assessments obtained from climate models and scientific research, public discourse is marked by strong disbelief in scientific predictions, i.e. prophecies.

Semantically, *cassandrafreude* hence refers to the bitter taste in climate researchers' mouth after witnessing countless strikes of catastrophic climate-related events in an aftermath of their dire warnings that have been unequivocally rejected and dismissed. Sadly but simply put, it is just another term for "I've told you so".

Aside from the Greek mythology, Cassandra complex (variously labeled as syndrome, metaphor, or phenomenon) can be also found in psychology referring "to a belief that things could be known in advance" (Schapira, 1988*).* This psychological phenomenon was named by French philosopher Gaston Bachelard in 1949 to describe the situation in which an individual's accurate prediction of a crisis is ignored or dismissed.

Cassandrafreude is yet another example of how lexical devices can be utilized as discursive strategies to shape the public perception of the climate change impacts by enhancing certain frames through manipulation of the narrative. By drawing attention to the Troy's fall, neologism conveys a sense of monumental destruction, i.e. loss of epic proportions creating an alarming frame, which in turn reinforces the discourse of doom and gloom advocated by climate alarmists. It draws attention to the striking similarities between Troy and climate change, in terms of the approaching danger and seeks to persuade the public on the analogy in relation to the disregarded prophecies, that is, scientific projections on the future consequences. Moreover, it strengthens the alarmist discourse by magnifying potential risks and losses in a light of scientific fatalism. Concurrently, neologism is employed as a carrier of ideology implicitly embodied into climate change discourse supporting proponents of green transitioning and net zero carbon future. Dramatization of the climate change impacts through evoking of negative emotions is strategically used first and foremost to ignite action and mobilize public support.

> "Also this week, a fancy new word sums up the moment. Every once in a while, you encounter a word that seems very much of the moment. **Cassandrafreude** is one of those words. And yes, there's a climate change angle" (Schwartz, 2020; *The New York Times*).

7.7.3. Climatarian

As previously demonstrated, climate change may have fairly diversified environmental impacts and implications that may directly or indirectly affect human lives and accordingly provoke varying degree of concern for their resolution. Food insecurity, that is, disruptions in the food availability and food production are considered one of the most alarming consequences of the shifting temperature and rainfall patterns as they put the world at the risk of the rising global hunger (FAO, 2015). In that regard, to expose the gravity of the issue, extreme weather events such as prolonged drought or floods are very often framed in the context of reduced agricultural productivity of particularly popular crops indicating long-term shortage of cocoa beans, coffee and olive trees (FAO, 2018). However, apart from the food production, media very often tend to underscore the interrelationship between the food consumption and climate change. With respect to that, media often emphasizes unequal contribution of various foods to GHG footprint and utilizes negative and positive frames, respectively. On one hand, animal-based foods account for 57 percent, and on the other, plant-based foods make up 29 percent of those emissions (Takacs et al., 2022).

In a light of this, climate change has made a big entrance into gastronomy as a *delicate* issue making food connoisseurs highly polarized. Vegans, vegetarians, freegans, rawists, breakfastarians, fruitarians and pescetarians were suddenly overshadowed by the newly emerged and growingly popular group of quirky *climatarians.* According to *Cambridge dictionary*, *climatarian* is "as a person who chooses what to eat according to what is least harmful to the environment" (Cambridge Advanced Learner's Dictionary and Thesaurus). Despite the overblown hype in media and public discourse, it soon became a widespread reality. The origin of the term can be traced back to *The New York Times* list of new food-related words for 2015 (Moskin, 2015), which accordingly led to its entrance into *Cambridge dictionary* the same year. Soon afterwards, the term evolved into a healthy lifestyle movement promoting sustainable eating habits dubbed as *climatarianism.* Simultaneously with the popularization of climate-friendly lifestyle appeared a trend related to food dieting inspired primarily by sustainable consumption. *Climatarian diet* thus became the new buzzword spreading the concept of transitioning to plant-based food in terms of "avoiding beef and lamb in everyday meals and cutting down on meat overall" to curb the rising emissions. "One bite at the time" rhetoric thus prevailed with the spread of the term *climatarian*.

The use of the term *climatarian* demonstrates how certain lexical choices are used as discursive strategies to construct the underlying ideological discourse and thus promote and transmit specific perspectives aligned with opinions of specific groups. Although considered merely a life style movement, *climatarian* is deployed to convey the message of importance of individuals' contributions for emission reduction. With the debate moving into the plates, climate change became a "kitchen table" issue, in a literal sense. Framing "what people eat matters for the environment" in the context of the rising emissions was soon deeply embedded into media discourse and strategically employed to legitimize the climate science.

Specifically, this label is attached to carbon-conscious foodies who are overly concerned with the well-being of the planet and reducing carbon emissions by reconsidering food waste, food consumption and food production in an attempt to fight climate change. The term highlights the nexus between food choices and climate change, as the production of certain foods, particularly meat and dairy products, can contribute significantly to greenhouse gas emissions, deforestation, and water consumption. The animal-based foods are responsible for the largest share and mostly stem from agriculture and land use, including methane emissions from cattle's

digestive process, nitrous oxide from fertilizers used for crop production, carbon dioxide from deforestation and expansion of farmland (UN, n.d.)

Analyzing the word-building, this portmanteau presents another example of lexical blending and is coined according to the pattern used in similar phrases denoting people practicing various diets, in this particular case, *climate* and Latin suffix *–arian*.

The surge in the use of the term was particularly associated with the release of the 2022 UN special report on climate change stressing the importance of individuals' contribution in the context of "healthier diet for a healthier planet". In this context, media employed the term strategically to address the problem of the food system, which accounts for one third of the global greenhouse gas emissions (FAO, 2018). Accordingly, the term promotes the shift to the plant-based food as one of the solutions for mitigation of climate change.

> "The Rise of the **Climatarian**. Never mind tracking steps. What about your carbon footprint?" (Braff, 2021; *The New York Times).*
>
> "New 'religion' of '**climatarians'** are eating to save the planet" (*Sky news*, 30 January 2023).
>
> "There are many reasons for environmentalists — ***climatarians*** and *climavores* included — to target the meat, egg, and dairy industries. But when we restrict our focus to *carbon footprints*, we make it easy for the meat industry to deflect blame. As activists, scholars, journalists, and informed citizens, we need to stop indulging the meat industry's arguments about its role in climate change and, instead, make it answer for the sweeping environmental destruction it has caused" (Kateman, 2022; *Forbes*).

7.7.4. Cli-fi

The majority of scientific predictions about the long-term future changes in the climate system are made taking into account observations of the past climate and projections of the possible effects based on the greenhouse gas emission trajectories and different climate scenarios. Following the "business_as_usual" or RCP 8.5 (worst case) scenario with zero mitigation actions and ever-increasing GHG emissions due to the unabated burning of fossil fuels has resulted with dire predictions about the future of the planet. With all the doomsday narratives and apocalyptic imagery, media has designed the climate future blurring the boundaries from the climate fiction. Never before, have high-impact low-probability events become both reality and fiction and never before have they made such loud echoes in the modern literature, media and movies.

Amid such fictionalized reality, the genre *climate fiction* emerged and it didn't take long for SF fans to get hooked to this new SF-subgenre. Even though the baptized term of the genre is *climate change fiction* (albeit preferred chiefly by the academics), it is most commonly referred to as *cli-fi*, i.e. abbreviated form of the climate fiction. Word-formation wise, neologism illustrates specific type of "complex or median clipping in which the word consists of two back-clippings (apocopation) so that final parts of the compound are dropped and written with hyphen <cli-fi>climate fiction as in <sci-fi>science fiction" (Veisbergs, 1999: 160).

The term *cli-fi* was coined by news reporter and climate activist Dan Bloom in 2011 in a press release of Jim Laughter's novel *Polar City Red* addressing the issue of climate refugees in a post-apocalyptic Alaska set in the year 2075 (Leikam and Leyda, 2017). Even though the book was labeled cli-fi, the term didn't gain any immediate prominence following the commercial failure of the book. However, the term got into mainstream media use in April 2013 thanks to

Christian Science Monitor and NPR who popularized stories about a new literary movement of novels and films revolving around man-made climate change, however without any clear reference to Bloom's work (Glass, 2013). Interestingly, Bloom coined the term back in 2007 and described it as "a new genre term for novels, short stories and movies that stands for works of art and storytelling that deal with climate change and global warming concerns" (Thorpe, 2012). Accordingly, he developed the term to be entirely different and separate from science fiction genre since there wasn't any obvious link with aliens and outer space which was his first association to SF. Bloom explained that *cli-fi* was created purposefully as a fiction genre that could be helpful in waking people up and serving as an alarm bell to avert the climate change.

In the history of literary production, environmental topics broadly speaking, in particular climate change has somehow always been underrated in terms of its potential to catalyze, inspire and launch monumental work of arts or authors. According to environmentalist Bill McKibben:

> "Climate change has never been able to capture the literary imagination in the same way as the nuclear and political pathologies of the last century. Global Warming has still to produce an Orwell or a Huxley, a Verne or a Wells, a Nineteen Eighty-Four or a War of the Worlds, or in film any equivalent of On the Beach or Doctor Strangelove" (Holmes, 2014).

Nevertheless, the rising popularity of *the cli-fi* unraveled potential of climate change to mark a new era in modern media, film and literature production. It showed climate doom and gloom from another perspective to lay people making environmental challenges more relatable and accessible.

Throughout the past decades, *cli-fi* established itself as an autonomous subgenre attracting ever-increasing number of fans extending from the climate change and global warming around the recurring topic of dystopian and post-apocalyptic future visions at the intersection of the climate reality and fiction. Among the most notable films revolving around the climate-related disasters are *The Day after tomorrow*, *Interstellar*, *Leave the world behind*, *Snowpiercerer*, as well as *2012*. On the other hand, *cli-fi* books that made the list are *The Ministry for the Future* by Kim Stanley Robinson, *Implanted* by Lauren C. Teffeau as well as *McSweeney's Issue 58: 2040 A.D* by various authors.

Neologism *cli-fi* is employed by media as a discursive strategy to communicate the impending climate crisis and persuade the wider audience on urgency and gravity of this global threat. Accordingly, it is used to construct the discourse of alarmism by framing the scientific forecasts on dire implications as the "end of the world prophecy". Specifically, neologism is utilized to assure the public on validity and authority of the scientific claims, but also to strength and protect the authority, expertise and integrity of scientific community. Scientific research is legitimized primarily through scaremongering tactics. In that regard, scientific perspective is reinforced through the discursive strategy of hyperbolization, i.e. exaggeration and emotionalization. It reinforces the alarmist rhetoric by eliciting fear, panic and hysteria and by magnifying the scope and scale of the future consequences of climate change. *Cli-fi* is hence used to build the discourse of fear thereby manipulating public perception on the full-blown climate breakdown. The use of neologism thus exposes the concealed ideological discourse of the proponents of the green transition. Therefore, *cli-fi* genre is mostly exploited to justify mainstream climate discourse, underscoring the need for urgent action and policy implementation to prevent the irreversible consequences.

“Cli-fi (climate fiction) on the big screen changes minds about real climate change” *(*Christensen, 2019*; CNN).*

“Cli-Fi Is Real” (Thill, 2014; *Huffington Post).*

“Can **'cli-fi'** movies save the planet?” (Maybe 'Cliffies' can help) (Evans, 2014; *USA Today*)

7.7.5. Clexit

During the course of the Donald Trump’s mandate in the White house, there wasn’t any shortage of political, economic and social wrongdoings associated to his work and work of his administration. However, in terms of climate policy, among the most notorious single events that environmentalists ascribe to his era was his firm decision to formally withdraw from the Paris Climate agreement. On June 1, 2017 United States President announced that the US would withdraw from the Paris climate accord and cease all implementation, stating that the agreement would “undermine” the U.S. economy, and put the U.S. “at a permanent disadvantage” because of the unfair economic burden imposed on American workers, businesses, and taxpayers by U.S. pledges made under the Agreement (The White House, 2017). The withdrawal took effect on November 4, 2020, one day after the 2020 U.S. presidential election. With this decision he derailed from the Obama climate agenda thereby making the USA the first country in the world to formally leave the Paris climate agreement.

The Paris Agreement is a legally binding international agreement on climate change, named for the city of Paris in which this landmark global treaty was adopted by 196 Parties at the twenty-first session of the Conference of the Parties to the United Nations Framework Convention on Climate Change (COP 21) (UNFCC, 2016). It was adopted on 12 December 2015 and entered into force on 4 November 2016 (UN Climate Change). On the other hand, Brexit refers to the United Kingdom’s withdrawal from the European Union after 47 years of having being its part on 31 January 2020 following the results of the referendum held on 23 June 2016 (Walker, 2021).

The neologism *clexit* was coined shortly after by blending the words “climate” and “exit”. The *exit* as the second element in blended words was first used to refer to the potential withdrawal of various other countries from the Eurozone or the EU – Frexit, Itexit, Dexit, etc (Oxford English Dictionary, 2024). *Clexit* combines the concept of climate change with the notion of withdrawal or exit. It is often employed by individuals or groups who are skeptical of or opposed to the commitments and actions outlined in the Paris Agreement.

Even though seemingly unrelated, these two events, have been a major source of inspiration and subsequently, stepping stone for the inception of the specific transnational organization – *Clexit* (Petley, 2023). Shortly after nearly 52% Brits voted in favor for the EU break-up, a group of prominent climate change deniers established the organization determined to follow in Brexiteers footsteps, but instead of exiting the EU, they advocated for exiting and boycotting the UN Paris Agreement on climate change. Namely, with the strikingly similar agenda promoting climate exit under the slogan: “We need our own Clexit – climate exit from the energy vandals of Europe. Brexit was Britain’s answer to the growing over-reach of EU bureaucracies. Clexit is our answer to the push for global control through climate hysteria” (Thiman, 2017). The secretary of Clexit, Mr. Viv Forbes from Australia, said that widespread enforcement of the Paris climate treaty would be a global tragedy.

The Clexit Campaign aims to prevent ratification or local enforcement of the UN climate treaty (Media comment, 2016). They are not targeting the denial of global warming or climate change such as other groups tend to do, instead they are focused on the UN Paris Agreement and the EU in relation to being skeptical about climate change.

It didn't take much time before neologism *clexit* sneaked into the public debate on climate change as an unambiguous manifestation of rhetoric clearly supporting and leaning toward climate skepticism. Therefore, neologism can be frequently found embedded into climate change-related stories as a manipulative tool to vindicate Trump's decision (in a broad sense climate contrarians) to pull from the Paris accord and thus reshape the public opinion on the matter. Its employment contributes to the distorted representation of the international climate treaties to combat climate change by negatively framing the Paris agreement and putting the focus on unfavorable economic conditions. This negative framing emphasizes the short-term economic challenges, impacts and costs as well as potential sacrifices associated with transitioning to a low-carbon economy and implementing climate mitigation measures.

The framing of climate change and the Paris treaty in terms of economic losses instead of economic opportunities serves as a legitimization of the discourse of climate sceptics. Legitimization of the climate sceptic narrative and rhetoric is further reinforced by dichotomization strategy. Climate science is dismissed by downplaying the significance of the climate targets emanating from the Paris treaty on one hand, and underlining the economic stability and advantages from withdrawal on the other.

The neologism is clearly exploited for ideological purposes as it reflects the view of the climate sceptics who criticize the green transitioning due to the raising concerns over job losses in industries heavily dependent on fossil fuel, such as coal mining or oil extraction.

> ***"Clexit**:* Former oil boss may be only hope of stopping Donald Trump from ditching Paris climate change agreement" (Johnston, 2017; *Independent*).
>
> "Rejection of experts spreads from Brexit to climate change with **Clexit"** (Nuccitelli, 2016; *The Guardian*).
>
> "The two greatest obstacles to a **Clexit** (climate exit from U.N. Paris agreement) are probably Ivanka and Tillerson," wrote Marc Morano, a former Republican Senate staff member who now runs Climate Depot, a fossil-fuel-industry-funded website that promotes the denial of climate science, in an email (Davenport, 2017; *The New York Times*).

7.7.6. Coolcation

When it comes to leisure activities, another climate change-related term that has emerged is *coolcation*. The term was coined to describe the dramatic shift in the travelling trends due to the adverse impacts of the changing climate. Specifically, it denotes the trend change in relation to perception of places that were once considered among the most popular vacations spots on the planet. This radical change occurred as once glamorous and luxurious tourist destinations turned into places marked by unbearable heat, humidity and drought making vacation for thousands of tourists a real nightmare. The 2023 was officially the hottest year on record with the boreal summer (June-August) also the warmest on record globally thereby affecting most of the planet and further aggravating the ongoing climate crisis. Even though the onset of the heat waves is

fueled by El Nino effect, scientists concurrently emphasize the fact that heat waves are attributed to human-induced climate change.

Consequently, hotspots like the French Riviera or Sicily are replaced with destinations such as Scandinavia and Scotland (Allard, 2023), that is, destinations with average temperatures less likely to set any records and more favourable weather conditions have thus become more appealing tourist destinations primarily due to its stable climate devoid of extremes.

Word-formation wise, the term is coined by blending of "cool" and "vacation" with the first part of the second element being clipped to form the neologism.

The neologism is primarily used to frame the climate change as an imminent danger challenging the misconception of climate change as an unobtrusive and distant phenomenon. Accordingly, the term is employed to legitimize the mainstream climate science thereby illustrating how the worst climate scenarios may turn into reality unless warnings are taken seriously by decision-makers. Moreover, by showcasing the destructive potential of climate change effects, the term is used to justify the implementation of adaptation and mitigation policies that would contribute to somewhat abate the worst consequences. Consequently, employment of neologism can therefore be interpreted as yet another wake-up call by climate believers seeking to communicate the urgency and seriousness of the immediate action.

> **"Coolcationing**. With the intense, record-breaking temperatures of recent years, however, many are considering traveling in the opposite direction: booking **coolcations** in temperate destinations, which also benefit from being less crowded" (Allard, 2023).

7.7.7. Eco-anxiety

The accelerating pace of the global climate change with many of the changes being unprecedented and irreversible in combination with Earth reaching ominous climate milestones have made the era of *Anthropocene* fertile ground for alarmingly rapid spread of fear for the future of the planet and people. All these catastrophic changes have induced a wide range of psychological consequences and turned benign fear into intense, persistent and exaggerated worry or dread for the ecological destruction of the planet caused by man-made climate change. The newly discovered condition where people reported on feeling psychological strain got its name *eco-distress, climate anxiety* or *simply eco-anxiety* (Pearson, 2024).

At the moment, there is no standard definition for *eco-anxiety* and different terms are used interchangeably in the literature, such as *Climate Change anxiety* (CCA), *Climate Change worry*, *environmental distress, ecological grief,* or *ecological stress.* As a consequence, different definitions are used, including "a chronic fear of environmental doom" (Clayton et al., 2017), "extreme worry about current and future harm to the environment caused by CC" (Duggal, 2022), "heightened emotional, mental or somatic distress in response to dangerous changes in the climate system" (Climate Psychology Alliance, 2022).

According to The American Psychology Association (APA) (2017), *eco-anxiety* is defined as "the chronic fear of environmental cataclysm that comes from observing the seemingly irrevocable impact of climate change and the associated concern for one's future and that of next generations." Furthermore, APA (2017) specifies that psychological impacts of climate crisis may manifest with varying degree of severity in some people. Eco-anxiety symptoms can take the form or are closely associated with many difficult emotions, such as grief, guilt, anger, and despair.

Even though many people have been diagnosed with eco-anxiety given the multiple crisis triggered by the changing climate, young people were found to be anxious and distressed not only due to the environmental degradation but also for the inadequate government response to these climate issues resulting with broken trusts, betrayal and climate inaction (Hickman et al., 2021). As noted in a report by psychology professor Susan Clayton at the College of Wooster, "the ability to process information and make decisions without being disabled by extreme emotional responses is threatened by climate change" (Ro, 2019).

According to the APA (2017), "the mental health consequences of events linked to a changing global climate include mild stress and distress, high-risk coping behavior such as increased alcohol use, and, occasionally, mental disorders such as depression, anxiety, and post-traumatic stress." The term eco-anxiety has been coined to describe the feelings of frustration and helplessness some people experience when contemplating climate change.

Neologism *eco-anxiety* soon became distinction mark for all the climate believers being overwhelmed by the sense of quilt about the situation of the planet. Namely, according to some psychologists, eco-anxiety was elucidated as a healthy and rational response to existential threat posed by climate change.

Even though variety of terms has been used interchangeably in the news media, like *climate grief*, *environmental despair* and *eco-guilt* referring to the same anxiety-related conditions, most people nowadays use *eco-anxiety* (and *climate anxiety*), to a lesser extent *climate distress* despite the continual appearance of new proposals like *Anthropocene Horror* (Timothy Clark, 2020).

Media outlets use excessively terms *solastalgia* and *eco-anxiety* to communicate the gravity of the climate change effects and its interconnectedness with human well-being. Namely, both terms frame climate change within the context of its negative impact on human health with a particular emphasis on the mental toll it takes. Correspondingly, both terms reinforce the frame of climate change as the mental health crisis. The discourse of mental health crisis is further shaped by provoking strong emotional response (fear and panic) and by focusing on the psychological distress, discomfort and unease caused by environmental degradation. Considering that emotional appeal is the key driver of the climate action, these terms are embedded into the discourse to convey the sense of alarm and urgency and thus increase public engagement. As they reinforce the rhetoric of hysteria and panic, sensationalization of the discourse is inevitable.

> "Terrified of Climate Change? You Might Have **Eco-Anxiety**. Under the bright white lights of a central London exhibition space, a few dozen people are sorting themselves into groups. An instructor tells those that feel extremely worried about climate change to go to the far end of the room. Those that are less worried should stay closer to her. Moments later, she is mostly alone. Thirty feet away, strangers awkwardly cram together, signaling that they suffer **eco-anxiety**" (Nugent, 2019; *TIME*).

> "Climate change also affects mental health. Call it eco-anxiety. Climate change doesn't just threaten the planet. It also affects the mental health of those grappling with the consequences" (Wong, 2022; *Tampa Bay Times*).

7.7.8. Morbique

Another climate-related neologism that swiftly gained prominence within the media discourse and consequently came into the public fore is *morbique*. Considering the gloomy

scientific predictions rooted in the vast amount of evidence on the slow-onset, rapid-onset and sudden-onset climate hazards, there is hardly any place on Earth that will remain intact considering the pace and scale of these events. Therefore, judging by the dire climate forecasts, the planet is no longer going to look like the way we remember it. Major shift in climate system is highly likely to fundamentally transform the existing ecosystem and infrastructure. In that regard, particularly threatened are the so-called climate change hotspots. According to Giorgi, hotspot is defined as "a region whose climate is especially responsive to global warming" that is, "a region that is particularly vulnerable to current or future climate change impacts and where human security is or may be at risk" (De Sherbinin, 2014: 22). According to the Royal Meteorological Society (2021), the highest ranked climate hotspots are Murcia (Spain), Dhaka (Bangladesh), Mphampha, (Malawi), Longyearbyen (Norway) etc.

In view of this, the term *morbique* was conceived. In *the Bureau of Linguistical Reality*, *morbique* is described as the:

> "Morbid desire to travel to places to experience them before they are radically altered by climate change or other manmade changes. The morbidity of this desire or action is often exacerbated by the fact that the mode of transport required to reach these places often burns fossil fuels, thereby accelerating the destruction of the very place one desires to visit".

Paradoxically, the increasing number of extreme weather events resulting with devastating loss and damage boosted popularity of the term particularly driven by the eco-conscious campaigns of travel bloggers and social media influencers keen on checking off the exotic places from their bucket list. *Morbique* was soon embedded into climate change discourse as a neologism denoting longing to visit certain locations before they are altered or destroyed by climate crisis.

From the etymological point of view, the word comes from the Latin *morbidus*/morbid "which is characterized by or appealing to an abnormal and unhealthy interest in disturbing and unpleasant subjects, especially death and disease" (Encyclopedia, 2018). It is compound of the Latin "morbid" and suffix –"ique".

Morbique is thus mostly utilized to construct the deadline discourse highlighting the finite time available to address climate change by exposing vulnerability and fragility of the planet. As fight against climate change is portrayed as time-sensitive, this neologism is primarily employed to communicate the sense of alarm and thus persuade the policy-makers to take immediate action. It is mostly embraced by climate alarmists as it demonstrates the magnitude of planet destruction triggered primarily by human-induced climate change. Furthermore, as the term serves to magnify the hazards of the accelerating warming, it helps to shape the hyperbolized narrative thereby igniting a range of negative emotions among the public, including panic, fear and shock. Furthermore, the neologism *morbique* is employed to demonize the fossil fuel industry and the fossil fuel-dependent economies and consequently delegitimize the claims of climate sceptics of the non-existent human factor in the changing climate.

> "Climate change has started to influence our language. Here's how. **Morbique**: The morbid desire to travel to places to experience them before they are radically altered by climate change or other manmade changes" (*ABC news*, 29 May 2019).

7.7.9. Snowmaggedon/floodmagedon/firemaggedon

Each year, climate change manifests through extreme weather events, including droughts, floods, torrential rains, cold snaps, heat waves, wildfires, landslides, typhoons and hurricanes. The widespread occurrence of this weather-related extreme events around the globe is unprecedented. Therefore, they are often considered as a telltale sign of adversely disrupted climate system that is likely to persist unless some serious abatement strategies are widely implemented. As a result, for the first time, the IPCC's sixth assessment report (AR6) includes a chapter dedicated solely to weather extremes.

IPCC describes *extreme weather event* as the one "that is rare at a particular place and time of year" and an *extreme climate event* as "a pattern of extreme weather that persists for some time, such as a season" (Seneviratne et al., 2021: 1522). Once isolated events, affecting remote parts of the planet, have become widespread, more intense and frequent as stated in the latest IPCC AR6 (Seneviratne et al., 2021: 1522). Fueled by climate change, the number of disasters (related to a weather, climate of water hazard) surged by a fivefold over the 50-year period claiming lives and causing millions in losses daily, according to a comprehensive new report from the World Meteorological Organization (UN news, 2021). In other words, "extreme weather events have become the new norm" (WMO, 2023).

Extreme weather events have become more extreme, and so is the language accordingly. Media coverage of these extreme episodes represents a special genre often classified as *sensational* journalism resting upon fear-based rhetoric and pathos (Frye, 2015). Accordingly, it is most often associated with scare tactics most commonly referred to as fear-mongering (Haw, 2019). In this particular case, fear-mongering entails intentional instilling of fear surrounding the weather events for the manipulative purpose. In a light of these extreme events, media have coined fear-inducing neologisms such as *snowmaggedon*, *snowpocalypse*, and *snowgodzilla*. As these terms are not considered standardized or official meteorological terms, dramatic language is used deliberately in a sensationalized manner. These terms are widely embraced by media and swiftly embedded into alarmist discourse to denote record-breaking amount of snowfall.

Snowmaggedon, *snowpocalypse*, and *snowzilla* are coined in connection with the severe winter weather events that have had remarkable economic and environmental impact. *Snowmaggedon* is a portmanteau of "snow" and "Armageddon". It refers to a snowstorm of exceptional intensity or duration that often results with significant disruptions to transportation, infrastructure, and daily life. The term reflects a sense of catastrophe or apocalypse given the severity of the snowstorm. *Snowpocalypse* is a blend of "snow" and "apocalypse". Similarly to *Snowmaggedon*, it is used to describe a particularly intense or severe snowstorm. The term elicits a sense of an impending disaster or catastrophic event linked with the heavy snowfall. *Snowgodzilla* combines "snow" and "Godzilla" with respect to the fictional giant monster. The term is normally used humorously or metaphorically to describe a tremendously massive or monstrous snowstorm. It depicts an overwhelming snow event, emphasizing its immense size or impact.

In the same fashion and with the same purpose of lexical blending, the word "Armaggedon" has been used as a splinter and concatenated together with "flood" to form a portmaneu *floodmaggedon*. In line with *snowmaggedon*, media and social media in particular have contributed to the popularization and spread of neologism referring to the episodes of flooding, flash floods or overflow caused by heavy rainfall accompanied by life-threatening storms and thundershowers. The use of the term within media and public discourse is closely related to alarmist rhetoric in an attempt to draw the attention to interrelationship between climate

change and altered precipitation patterns. It compares it with a large-scale historic event such as armaggedon to highlight its magnitude and severity.

In terms of extreme weather conditions, human–induced climate change is suspected to be the main culprit also for the increased risk and likelihood of the wildfires. In 2021, record-breaking wildfire season was observed across the world with wildfires raging in Greece, Turkey, Italy, Spain, Russia, California and Lebanon forcing thousands to flee their homes and causing untold damage to lives and livelihoods. The outbreak of the forest fire in Greece was described as the "disaster of unprecedented proportions", California fires have burned 1.1 million acres equal to about 5 New York *Cities* whereas fires in Siberia ranked as the third largest on record for Russia. Similarly to the blending mechanism of the neologisms *snowmaggedon* and *floodmaggedon*, in public discourse appeared the coinage *firemaggedon* combining words "fire" and "Armaggedon" in order to illustrate the destructive power of the wildfires with thousands evacuated and enormous fire-stricken areas.

Lexical choices in terms of neologisms like *snowmaggedon, firemaggedon,* or *floodmaggedon* are mostly employed by media outlets to frame the extreme weather events in the context of unchecked climate change. Therefore, they are often utilized to communicate the warning of climate scientists and the scientific community. Accordingly, neologisms are used to construct the discourse of fear and thus contribute to negative emotionalization of the climate change effects thereby manipulating the public perception. Emotional appeal is triggered by fear-inducing language accompanied by hyperbolization and dramatization of the narrative which constitutes a discourse of sensationalism in the climate change coverage. Moreover, scaremongering is directly set in the context of alarmist rhetoric emphasizing the most catastrophic and dramatic aspects of climate change. Consequently, they are primarily utilized to convey the sense of urgency and emphasize need for immediate action. On the other hand, deployment of neologisms reflects the critical stance toward climate controversies manufactured by sceptics and deniers thereby dismissing the counterargument on the non-human cause of climate change.

As they effectively communicate fear, which has become a dominant climate change communication strategy in the public discourse, these neologisms are rather prevalent in the coverage of the extreme climate events due to their manipulative potential to create alarming frame and influence public perception of the perils of the climate change.

> "**Snowmageddon**: Buffalo buried under feet of snow*"* (*CNBC* staff, 18 November 2014).
>
> "10 years ago, it was '**Snowmageddon'**: 'Do you understand what's going on on Lake Shore Drive right now?" (Lee, 2021; *Chicago Tribune*).
>
> "**Snowzilla** makes history from Northern Virginia to New York" (Samenow, 2016; *The Washington Post*).
>
> "9 Ways Obama Can Capitalize on the Snowpocalypse" (Berger, 2015; *Fox News*)
>
> "**Firemageddon**: Oregon conifers suffer record die-off as climate crisis hits hard". (Cannon, 2022; *The Guardian*).
>
> "**The Floodmaggedon** caused by Storms Frank and Desmond raise a series of questions about inadequate flood defences, when it's right to withhold insurance cover, climate

change blindness and the consequences of planning failures by successive local governments" (Devlin, 2016; *Independent Ireland*).

7.7.10. Solastalgia

Apart from the newly coined terms that mostly reflect to what degree and in what ways climate change consequences already have or are likely to affect planet, ecosystem, animals and biodiversity, within the climate change discourse is identified another group of prominent neologisms that possibly illustrate the most significant aspect of climate change, i.e. the health impacts. There is a growing amount of evidence indicating the interrelationship between the climate change and human's health. In February 2022, the Intergovernmental Panel on Climate Change warned that as of 2040 climate change would pose countless risks to natural ecosystems and human health globally (IPCC, 2022). In a similar vein, World Health Organization asserted that "climate change is the single biggest health threat facing humanity" (WHO, 2023). Additionally, the 2021 research led by the international health expert consortium *Lancet Countdown* and co-published in the United States by the American Public Health Association found that trends from the previous reports are "getting worse and exacerbating already existing health and social inequities. In other words, the report gives a code red for health" (Romanello et al., 2021). Overall, climate change is viewed primarily as a health crisis.

Gradual surge in extreme events, changes in temperature and precipitation patterns, worsening air quality and spread of infectious diseases, food and water shortage etc. have taken toll on people's health and well-being. And there are myriad of ways in which human health is influenced by the changing weather and climate, "primarily through direct impacts (injuries, diseases and deaths due to extreme weather events), indirect impact through natural system (airways diseases and allergens, food-and-water born diseases, vector-born diseases) and indirect impact through socio-economic system (food and water insecurity and undernutrition, forces displacement, stress and mental illnesses)" (PAHO/WHO, 2017). The situation is equally dire when it comes to the future projections of the climate change impacts on health.

Consequently, worrisome figures obtained from scientific charts in conjunction with the increasing climate-sensitive health risks have helped to accelerate the need for emergence of the tailor-made terms reflecting health conditions predominantly related to and caused by climate change. In the light of this, it is not uncommon to refer to the 21st century as the *age of solastalgia*, a new concept paving the way for deeper understanding of climate change - health nexus. The origin of the concept and neologism itself can be traced back to eco-philosopher Glenn Albrecht who coined the term while working at University Newcastle in Australia on his 2005 book entitled "Solastalgia: a new concept in human health and identity". However, he was not alone to notice the changes that were taking place in front of his very eyes. Glenn conceived the term jointly with his wife Jill Albrecht while contemplating on the intersecting social and ecological crisis they were witnessing in their home region of Upper Hunter Valley, New South Wales, Australia (Lamb, 2020). Specifically, they were both concerned over the threat posed by the open-pit coal mining and power plant pollution to the environment and its long-term impact on people's physical and mental health. In connection to that, Albrecht wrote "In the Upper Hunter, people were suffering from both imposed place transition (place pathology) and powerlessness (environmental injustice." (Albrecht, 2005 as cited in Lamb, 2020). Specifically, addressing the suffering of Indigenous people faced with this ecological distress Glenn wrote:

> "for Indigenous people who have been dispossessed of their lands and culture, the nostalgia for a past where former geographical and cultural integration was both highly valued and sustainable is an ongoing painful experience…Both the loss of country and the disintegration of cultural ties between humans and the land (their roots) are implicated in all aspects of the 'crisis' within many Indigenous communities in contemporary Australia" (Albrecht, 2005 as cited in Lamb, 2020).

Therefore, Glenn and Jill were in need of the term that would describe sorrow and helplessness due to the changing environment and their inability to prevent it someway, somehow. Consequently, they invented *solastalgia* to describe distress and sadness due to painful realization and experience that irreversible changes have occurred in the familiar environment.
Further clarification of "the relationship between ecosystem health, human health and control (hopelessness and powerlessness) and negative psychological outcomes" was provided in his 2007 paper "Solastalgia: the distress caused by environmental change". As opposed to the term "nostalgia" introduced by Johannes Hofer in 1688 for soldiers who were homesick, *solastalgia*, was outlined as "distress caused by environmental change without ever leaving home environment" (Albrecht et al., 2007: 98). Therefore, the term soon became interchangeable with climate homesickness denoting environmentally-induced distress.

In the *Bureau of linguistically reality*, *solastalgia* is described as:

> "A form of homesickness one gets when one is still at home, but the environment has been altered and feels unfamiliar. The term is specifically referencing change caused by chronic change agents like climate change or mining. Used primarily to describe the negative psychological effect of chronic environmental destruction on an individual's homeland, or the place they call home. The condition is often exacerbated by a sense of powerlessness or lack of control over the unfolding change process".

From the etymological point of view, the word is derived from the Latin *solacium* (comfort) and Ancient Greek *algia* (pain). Moreover, it combines the two concepts of "solace" and "desolation". *Solace* refers to the stress relief or provision of comfort or consolation in the distressing event while *desolation* describes the feeling of loneliness. The suffix *-algia* suggests pain or suffering. Hence, *solastalgia* is a form of "homesickness" like that experienced with traditionally defined nostalgia, except that the victim has not left their home or home environment (Albrecht, 2006: 17).

> "There's actually a word for the climate change-induced despair you've been feeling. Eventually, Albrecht coined the term **solastalgia** — a neologism that combines the words nostalgia, solace and desolation — to describe their profound sense of loss and isolation, and the overwhelming feelings of powerlessness that came with it" (Wick, 2020; *Los Angeles Times).*

> "Have you ever felt **solastalgia**? Ever feel unease that the natural environment around you is changing for the worse? There's a word for that" (Kenyon, 2015; *BBC Future*).

7.8. Concluding remarks

In this chapter, the research has indicated that the manipulative discourse of climate change is also articulated through utilization of wide array of lexical devices. Hence, the research focus has been on the role of nominalization (as grammatical-lexical feature), (re/over)

lexicalization, technical jargon and neologisms in climate change communication and shaping the scientific, media and political discourse of this global phenomenon. The lexical structure has proved to be fertile ground for the construction of ideological discourses within the climate change which are mostly rooted in strategic framing and narratives achieved by meticulous selection of lexical elements. Accordingly, each of the mentioned lexical devices is found to serve as discursive strategy to create a frame in favour of certain groups or to suit group interests which is manifested in various ways.

In the context of climate change, manipulating public opinion is executed in the lexical structure by: deliberately obscuring the agent of the action through nominalization and thus distorting the perception of the responsibility narrative, that is, ascribing surge in air temperatures to natural variability rather than human activities thereby reinforcing the discourse of denialism and skepticism; through (over/re) lexicalization by intentionally representing a vast number of contradictory labels, definitions and denotations for the climate change, spanning from "existential threat" to "manufactured scientific hoax" thereby misleading the public on the existence of polarized views despite the scientific consensus; exploiting complicated technical jargon to assure the public and policy-makers on the authority, credibility and integrity of the scientific community; through neologisms by illustrating how the changing climate has penetrated in the language, by purposefully reinforcing the climate alarmism.

Consequently, the choice of lexical devices has proved to be exploited by scientific, media and political discourse for the manipulative purpose due to their communication power to convey various implicit messages transfer specific ideological aspirations, or advance certain agendas which is accomplished by emphasizing or downplaying specific aspects of the climate change issue.

8. THE RHETORICAL DIMENSION

8.1. Rhetoric and science of climate change

As previously indicated, pairing science with rhetoric seemingly appears "oxymoronic" (Ornatowski, 2007: 1). Considering that that strategic use of language lies at the core of rhetoric, persuading people seems to collide with the science communication involving two categories of "true" and "false" (Leßmöllmann and Hanauska, 2022). However, many scholars argue that the rhetorical aspect of science is premised on the fact that science isn't the world or the nature itself, but a representation of it and as such, it "involves strategies of representation" (Ornatowski, 2007: 2). According to Gross, role of the rhetoric in public understanding of science is twofold: "it is both a theory capable of analyzing public understanding and an activity capable of creating it" (1994: 3).

> "In its analytical role, rhetoric reveals two dominant models of public understanding: the deficit model and the contextual model. In the deficit model, rhetoric acts in the minor role of creating public understanding by accommodating the facts and methods of science to public needs and limitations. In the contextual model, rhetoric and rhetorical analysis play major roles. Rhetorical analysis provides an independent source of evidence to secure social scientific claims" (Gross, 1994: 3).

Given this context, the analysis presented here focuses on the rhetorical use of language in constructing, representing and interpreting climate change discourse across media, politics and science. The selection of the research corpus is conducted taking two principal criteria into account, the temporal and the thematic framework. Accordingly, material for the study is delimited to the period from 2010 onwards due to the increased media coverage and enhanced significance of the climate-related issues in addition to the climate debate in the public discourse in the context of the highly relevant political and social events. Secondly, the thematic criterion involves selecting materials directly or indirectly linked to the concept of climate change, under the premise that they deploy metaphors (such as war, sports, and gambling), hyperboles, and irony. The corpus encompasses materials sourced from US and UK scientific, media, and political discourses of climate change which are publicly available on the internet. It comprises news stories, articles, and opinion pieces from leading US and UK media outlets, as well as press releases and speeches from key figures in the scientific and political arenas concerning climate change. The identification of relevant news stories was based on the detection of climate change-related terminology in headlines or opening paragraphs containing either specific terms, expressions or collocations frequently or stereotypically used in the public discourse of climate change (*fight/war/battle, *fossil fuel/green transition/net-zero, *catastrophic/apocalyptic, *doom and gloom/doomism, *COP/IPCC etc.). The focus was primarily on the analysis of headlines within a broader context, aiming to unravel the ideological and political stance of the author, message creator or media outlet along with their underlying purpose.

8.2. Metaphors

8.2.1. Defining metaphors

The study of metaphors is often characterized as one of the most dynamic study areas across several disciplines, linguistics, discourse analysis and communication broadly (Perrez, Reuchamps and Thibodeau, 2019).

The word metaphor is derived from the Greek word *metapherein* and means "transference", "transfer" or "carrying across" (Merriam-Webster Dictionary, 2024). This definition prevails even in the current metaphor theories as it encapsulates the essence of a metaphor typically referring to "the transfer of meaning".

According to Aristotle's account, metaphors' utility was mostly associated with its decorative function as it predominantly served as a linguistic ornament and poetic embellishment (Costello, 1995). This view mostly corresponds with the traditional perspective, according to which, metaphor is a rhetorical device with artistic purpose largely used for decoration, or as Saeed put it "metaphor was something optional and outside normal language" (2007: 346). The traditional view of metaphor was mostly based on five premises: metaphor is a linguistic phenomenon; it is used for rhetorical purpose; it is grounded on the comparison between two dissimilar thing; it is deliberate choice and use of words, and lastly, it is irrelevant in human thought and reasoning, only used as a special effect in everyday human communication (Kövecses, 2002). Therefore, the classical perspective is also known as "the decorative view of metaphor" (Deignan, 2005: 2).

Conversely, the romantic view regards metaphor as "integral to language and thought as a way of experiencing the world", highlighting the fact that "all language is seen as metaphorical" (Saeed, 2007: 346). Regardless of the fact that current metaphor theories dismiss this concept of all language being metaphorical, they may be seen as an extension of the romantic view (Saeed, 2007).

The paradigm shift that took place in the traditional view of metaphor was foremost associated with the development of a Conceptual Metaphor Theory (CMT) developed by George Lakoff and Mark Johnson and introduced in their 1980 seminal study *Metaphors We Live By*. Their conception became known as "cognitive linguistic view of metaphor". Based on the theory, metaphor was no longer considered an artistic resource but a cognitive mechanism well-suited for conceptualization of the world. Lakoff and Johnson challenged the traditional concept claiming that:

> "(1) metaphor is a property of concepts, and not of words; (2) the function of metaphor is to better understand certain concepts, and not just some artistic or esthetic purpose; (3) metaphor is often not based on similarity; (4) metaphor is used effortlessly in everyday life by ordinary people, not just by special talented people; and (5) metaphor, far from being a superfluous though pleasing linguistic ornament, is an inevitable process of human thought and reasoning" (Kövecses, 2002: viii).

Accordingly, Lakoff and Johnson defined metaphor as a phenomenon pervasive both in thought and everyday language, emphasizing that "our ordinary conceptual system, in terms of which we both think and act, is fundamentally metaphorical in nature" (1980: 2).

Another significant definition is proposed by Kövecses who describes metaphor as "understanding one conceptual domain in terms of another conceptual domain", whereas conceptual domain refers to "any coherent organization of experience" (2010: 4). Consequently,

any metaphor includes two conceptual domains, the source and the target domain. The two domains are "quite distinct and distant from each other" (Goatly, 2002: 72) in terms that the target domain is typically an abstract concept while the source domain is usually a tangible or physical concept (Kövecses, 2010; Lakoff and Johnson, 2003). These two domains are connected through "a set of systematic correspondences" or mappings (Kövecses, 2010: 7). Mappings are paths along which meaning is transferred from one domain to another.

8.2.2. Metaphors in science communication

The use of metaphors in science isn't much different from the metaphors in language and thought. Metaphorical language is one of the most prominent features of the scientific discourse and similarly to metaphors in non-technical genres, scientific metaphors have the ability to "highlight and hide" various perspectives of their topic (Lakoff and Johnson, 1980: 13). However, one of the peculiarities of metaphors in science is that they "frame our way of thinking" (Cuddington, 2001: 464) and are therefore more powerful than those explicit metaphors. Consequently, scientific metaphors are seldom neutral but rather ideologically or politically motivated and loaded and as such may serve as a powerful discursive tool to influence and shape public opinion. Therefore, metaphors can be employed to communicate specific opinions and attitudes.

Moreover, they play an important role when it comes to postulating new hypotheses and developing scientific thought (Boyd, 1993; Brown, 2003). According to Brown, "metaphor is at the very core of what scientists do when they design experiments, make discoveries, formulate theories and models, and describe their results to others – in short, when they do science and communicate about it" (2003: 14).

Nevertheless, perception and the use of metaphor for science communication differ widely between the scientific community on one hand, and non-scientific public on the other (Boyd, 1993). While metaphors were found to "lose their metaphoricity" among the scientist, the same metaphors were more "opened up" among the lay public (Boyd, 1993).

Apart from science communication, conceptual metaphors may be utilized for the conceptualization of the world in political and media discourse and then they mostly refer to significant social issues, such as diseases, political questions or crises (Nerghes et al., 2015; Semino et al., 2018).

Cox (2012) distinguishes three ways in which metaphors can be used to construct public discourse: to simplify complex or abstract phenomena; to influence the cognitive processing of information; and to persuade the audience of a certain perspective, idea or argument, "if audience members accept the applicability of a metaphor, then the course of action suggested by the metaphor is seen as a viable option" (Cox, 2012: 5).

8.2.3. Metaphorization of climate change discourse

The fact that coverage of climate change discourse in media and politics is rife with metaphors became a well-established fact acknowledged by a number of researchers. The reference *Greenspeak* was first used by Romaine describing a discourse in which she addresses "the role metaphorical thought plays in the scientific as well as popular discussion of key environmental issues such as global warming and loss of biodiversity" (1996: 175). In her article, she examines "the use of different conceptual metaphors in environmental discourse and how they are ideologically loaded" (1996: 176). Furthermore, Harré, Brockmeier and Mühlhäusler

(1999) also refer to Greenspeak when discussing environmental discourse in their book *Greenspeak.* They use "a catch-all term for the ways in which issues of the environment are presented, be it in written, spoken or pictoral form" (Harré, Brockmeier and Mühlhäusler, 1990: vii). According to them, it "has become a worldwide cluster of dialects" (1990: vii). One of the objectives of the book *Greenspeak* is to "raise the critical awareness of the way environmental matters are presented" as environmental crisis is "at the root a discursive phenomenon" (1999: 2-3). Harré, Brockmeier and Mühlhäusler assert that metaphors are a matter of degree, that is, assuming that "the boundary between the literal and the metaphorical uses of language is group and culture specific" (1999: 92). They pinpoint the fact that sentence "Human beings are apes" may have two different interpretations depending on who utters it, evolutionary biologist or Jehovah's Witnesses. In the first case, it would be understood literally, and in the latter more metaphorically.

Metaphorical framing as a discursive strategy in the representation of climate change-related issues is excessively used in the media but particularly in political discourse. There are several reasons for that. Unlike weather, that is, sunny spells, snowfall or thundershowers that are directly perceptible in everyday life, the changes in the climate are hardly discernible for a variety of reasons: the timescale of the changes may vary from several decades to millions of years; the invisible cause (rising GHG emissions); manifestations of the global warming such as ocean acidification or blooming Antarctica are either intangible or affecting remote areas and consequently impossible to experience directly. Therefore, climate change falls under the category of unobtrusive issues first and foremost due to its intangible and imperceptible nature (Schäfer, 2015).

In a light of this, as an abstract concept – as most notions in science, climate change must be understood imaginatively. Namely, according to Vollmer, macrocosmic structures such as carbon emission or the greenhouse effect are not part of mesocosm as they are entities imperceptible by means of everyday life (Vollmer, 1984). Therefore, "as a bridge between experience and scientific concepts" metaphors play a vital role in understanding such a complex issue such as climate change (Vollmer, 1984: 88).

Not surprisingly, climate change communication is hence replete with metaphors. They are deployed primarily to facilitate communication and understanding of climate concepts. There are "hothouses and greenhouses, atmospheric blankets and holes, sinks and drains, flipped and flickering switches, conveyor belts and bathtub effects, tipping points and time bombs, ornery and angry beasts, rolled dice, [and] sleeping drunks." (Russli, 2011). The FrameWorks Institute that conducted a research on the use of a series of metaphors discovered that "rampant versus regular CO2," "osteoporosis of the sea," and "climate's heart" were the most apt for building an understanding of climate change (Volmert, 2014).

Consequently, due to their ability to evoke pathos, that is, emotional appeal and connect unfamiliar issues with the familiar ones, news media have embraced it as a discursive tool to communicate challenges facing humanity.

Nevertheless, the use of metaphors in climate change communication can be a double-edged sword. Namely, metaphors in climate science communication may often be misleading rather than elucidating. In certain instances, metaphorical framing may intentionally disguise certain issues or dangerously simplify an issue to a sports game with winners and loser. In a light of this, use of metaphors may sometimes be counterproductive as in certain cases they have proved not to be persuasive enough to mobilize climate action and influence policy makers as their appeal is based on pathos often leading to action paralysis.

8.2.3.1 War metaphors

Militaristic metaphors are ubiquitous in scientific, media and political discourse of climate change. Their omnipresence is however differently motivated depending on the purpose and target group. These metaphors are widely recognized as an effective rhetorical tool for communicating risks and impacts of climate change, especially for magnifying the potential hazards arising from the future environmental challenges (Silden, 2017; Skinnemoen, 2009; Forgács and Pléh, 2022). In that regard, warfare metaphors of *war*, *battle*, *fight*, *threat*, *target*, *attack* are analyzed in the representation and coverage of climate change.

Employment of such metaphors is however not accidental. Accordingly, war metaphors are deployed to discursively construct the climate change discourse by framing it in specific ways, minimizing or highlighting certain aspects (Skinnemoen, 2009; Flusberg, Matlock, and Thibodeau, 2017; Auge, 2023). Specifically, they can be utilized for ideological purpose in the context of the climate change debate and thus influence how public relates to and perceives the risks, gravity and urgency of the problem, global response as well as the resource allocation (Silden, 2017). Additionally, they may serve to draw attention of the public and prepare them for possible calamities comparing it with the war condition while politicians may use it to legitimate their own decisions, measures and policies.

Apart from their capacity to capture attention, war framing is a recurrent discursive strategy due to its potential to invoke emotional response (Flusberg, Matlock, and Thibodeau, 2017; Skinnemoen, 2009). Correspondingly, as warfare metaphors may often have hyperbolic effect ("war against fossil fuels", "common enemy") they are often utilized to sensationalize and dramatize the message in order to capture the interest of the widest possible audience and consequently shape their opinion on the matter. Simultaneously, manipulative effect of the militaristic metaphors is reflected in their ability to provoke *pathos* (Silden, 2017) and by arousing panic, fear and frenzy, their ultimate goal is to persuade the public to change their attitude toward the proposed policies or ideas.

> "Decarbonization is no longer framed as the **enemy** of economic growth. Instead, it is seen as an engine of economic growth. The "green economy" is becoming just "the economy." (Marris, 2023; *The Atlantic*).

In this example, militaristic metaphor *enemy* is used to reframe the concept of decarbonization that has become the buzzword synonymous with the fight against climate change. Scientists and researchers have moved it to the forefront of their agenda as an imperative for meeting net-zero targets, particularly carbon-neutral economy. On the other hand, decarbonization has always been depicted in a negative light in the discourse of climate deniers and sceptics who have repeatedly demonized the side-effects of this environmental strategy for emission cuts. Namely, *enemy* discourse constructed by the climate deniers is premised on the negative portrayal of decarbonization in the context of economic loss and thus used as the key argument against the economy and economic growth. Therefore, warfare metaphor is primarily employed to reframe the negative narrative as well as the fear-inducing rhetoric of climate sceptics and thus reshape the public perception on decarbonization. Accordingly, the green transition is metaphorically framed in a positive manner undermining the claims of sceptics who emphasize the negative economic impact seeking to delay transitioning process and protect interest of fossil fuel industry. The metaphor shapes the ideological discourse thereby exposing polarization between the two narratives of science believers and non-believers. Conceptualization

of decarbonization in the context of war metaphor *enemy* suggests that climate sceptics resort to this discursive strategy not only to magnify potentially negative consequences but also shape public perception through emotional appeal articulating a discourse of fear. This negative perspective on decarbonization is hence rejected, the entire political narrative of climate sceptics is dismissed, and the ideology of fossil fuel advocates is challenged and marginalized.

> "Climate change is a common **enemy,** the US and China must fight together" (Tubiana, 2021; *The Financial Times*).

War metaphor *enemy* is primarily used to communicate the necessity of unity and cooperation in the combat against climate change. It stresses the importance of being "on the same side" in this fight and it refers to climate change as the combatant in the war. Simultaneously, it amplifies how critical and serious it is to "win" this common opponent. Therefore, it conveys the message that climate change should not be divisive factor between US and Chine but rather "common goal" in order to abate the dire consequences both countries face unless serious mitigation actions are taken. Metaphorization is thus purposefully used to frame climate change as a common threat that may equally jeopardize economies of both countries and that joint efforts are needed to avert the future changes. Moreover, persuasiveness of war rhetoric is used purposefully to shape the climate change discourse as high priority issue for both countries and thus showcase their vulnerability and exposure to climate change consequences.

> "As countries gear up for international climate talks in November, money is an increasingly important issue, but one that threatens to split rich and poor nations even further. So Guterres is suggesting fossil fuel companies as the common **enemy** for a world he called in peril and paralyzed." (Borenstein, 2022; *Associated Press*).

Secretary-General of the United Nations, Gueterres intentionally uses war metaphor *enemy* to draw attention to the harmful effects of the fossil fuel companies. By doing so, he indicates that he holds them accountable and responsible for the further exacerbation of the climate problem, and concurrently attributes the blame to the proponents of the fossil fuel industry for the current state of the affairs in the world. In other words, fossil fuel industry supported by climate deniers and sceptics is metaphorically framed as the main culprit of the climate crisis exposing political and ideological agenda behind the campaign. Employment of warfare metaphor thus contributes to the construction of blame discourse pointing the finger at the decisions of politicians and policy-makers driven by fossil fuel interests.

> "Climate Change and Poverty Are Our Era's Existential **Battles**" (Biden, 2023; *Bloomberg*).

Comparing climate change with poverty, *Bloomerg* uses militaristic metaphor *battle* to emphasize the dangers of both global phenomena. With war metaphor evoking emotions of fear, anxiety and worry, emotionalization is purposefully used to persuade the public on the scale and magnitude of both challenges as well as seriousness and urgency of addressing them simultaneously by showcasing their interdependence and interrelatedness. Persuasive power of emotional appeal is utilized to frame the climate change as a long haul with no easy fix. Correspondingly, war metaphor provides justification for the radical measures that might get imposed or are already inflicted due to "battling" such multiplied risks of climate change in conjunction with achieving net-zero emissions.

> "Biden's **battle** against climate change is working – it's a shame American voters just don't care" (Callaway, 2023; *Independent*).

Similarly, political discourse of climate change is metaphorically framed in order to influence how public perceives engagement of politicians on such an important issue. Metaphorization in the war domain is exploited to emphasize the efforts of the U.S. President Joe Biden and in particular Democrats in the fight against climate change by persuading the public that President did utmost in his power to bring to changes but that other factors were prevailing. Militaristic metaphor is thus used deliberately to persuade the public on determination, dedication and consistency of the political effort of the Democrats and legitimize their actions and proposed measures in the combat against climate change. On the other hand, by emphasizing that "American voters just don't care" discourse of blame avoidance is created exculpating Biden and the Democrats for all the hitherto policy failures and lack of initiatives.

> "A Republican 2024 Climate **Strategy**: More Drilling, Less Clean Energy" (Friedman, 2023; *The New York Times*)

On the other hand, in its headline *The New York Times* uses war metaphor to negatively frame the politics of the Republican Party exposing its close relationship with the fossil fuel industry. Namely, this metaphorical framing reveals that political ideology of the Republicans aligns with the interests of advocates of carbon-intensive industry as Republicans' climate strategy is mostly based on exploration and extraction of gas, oil and coal ("more drilling"). Metaphor concurrently showcases that the issue of renewable energy sources ("less clean energy") is evidently underprioritized and thereby suggests that Republicans are not taking effective action to avert climate change. Republicans are hence framed as adversaries, that is, opponents of climate action, analogous to the enemies in the war as they are contributing to environmental degradation and not putting any effort to address the risk posed by the climate change. Moreover, persuasiveness of war metaphor is used to reinforce the negative image of Republicans regarding their stance on the climate issue.

> "Shareholders and board members repeatedly questioned the **strategy shift** ...shift from hydrocarbons—or oil and natural gas—to renewables" (McFarlan, 2021; *The Wall Street Journal*).

Warfare metaphor *strategy shift* indicates that the discourse pertinent to the climate debate in the fight against climate change (fossil fuel or renewables) is represented as highly polarized and contested. Actors in the debate are portrayed as adversaries, similar to an enemy in the war due to their clashing opinions on the energy transition. Metaphorization of the discourse is utilized to showcase the conflict as well as to deepen the existing polarization by revealing the ideological interests behind the dichotomy. Namely, "shareholders and board members" are purposefully framed as climate sceptics reluctant and resistant to shift from hydrocarbons to renewable energy sources emphasizing their interests to maintain the fossil fuel hegemony. This framing is used to shape public opinion and form negative view on the ineffectiveness and skepticism of policy-makers and decision-makers.

> On 3 August 2015, president Obama made the following statement at the press conference: "And today, we're here to announce America's Clean Power Plan -- a plan two years in the making, and the single most important step America has ever taken in the **fight** against global climate change. …….They'll claim this plan is a "**war** on coal," to

> scare up votes -- even as they ignore my plan to actually invest in revitalizing coal country, and supporting health care and retirement for coal miners and their families, and retraining those workers for better-paying jobs and healthier jobs" (The White House, press release, 2015).

Accordingly, rather explicitly and unambiguously, the US government resorts to the war rhetoric in order to communicate its domestic policy initiatives on climate change. Warfare metaphor *fight* is used strategically to frame the climate change as an enemy that needs to be confronted. Moreover, war metaphor is used to amplify the importance of being well-prepared, well-informed and well-equipped in order to effectively address the challenges to combat climate change. In that regard, Clean Power Plan is framed as the main weapon in the fight. This metaphorical framing represents the government as the key player that seeks to mobilize action to phase out fossil fuel. Militaristic metaphor "war on coal" is utilized to expose the underlying mechanism of the aggressive plan of the fossil fuel opponents by negatively framing all attempts to transition to green economy, among others, Clean Power Plan. Moreover, militaristic metaphor is used to showcase fear-appeal as the prevalent manipulation strategy of climate deniers to gain public support.

> Similarly, in connection with the publication of IPCC Working group II report, Hoesung Lee, Chair of the IPCC remarked: "This report is a dire warning about the consequences of inaction. It shows that climate change is a grave and mounting **threat** to our wellbeing and a healthy planet" *(*IPCC; 28 February 2022).

With militaristic metaphor *threat*, climate change is framed as an imminent danger which poses a significant risk to the people and the planet. It conveys the sense of urgency and gravity and consequently mobilizes the more concrete climate action as well as more biding international agreements and accords. Fear appeal is evident as it triggers emotions of anxiety, dread and panic in order to make climate change consequences more relatable and tangible to the wider audience. Through hyperbolization, war metaphor serves to communicate the warning of the present perils as well as the future consequences of the climate change, and thus discredit the denialism and delayism of climate non-believers. Simultaneously, it exposes the ideological discourse of climate alarmism with doom and gloom rhetoric and serves to legitimize the climate policies supporting renewable energy transition.

> "With Climate Crisis Generating Growing **Threats** to Global Peace, Security Council Must **Ramp Up Efforts**, Lessen Risk of Conflicts, Speakers Stress in Open Debate" (UN, 13 June 2023).

In this example, climate change is framed as a destabilizing factor for international peace and security. Namely, war metaphor is strategically employed to communicate the hazards of climate change as a "threat multiplier" with far-reaching consequences for the global peacekeeping. Namely, the focus is set on the climate-security nexus emphasizing various aspects of how these domains intersect and interact. Accordingly, climate change amplifies severe weather events such as droughts, floods, heat/cold waves which lead to disruption of availability and distribution of the most essential resources, water, food and energy which in turn causes displacement of people (climate refugees) and may eventually destabilize regions and potentially cause a conflict. Therefore, through emotional appeal, warfare metaphor serves to raise global concern for the possible global political and geopolitical implications and thus catalyze global action to avert climate change. This metaphorical framing also serves to persuade the public on

the importance of addressing climate crisis in the security context emphasizing the fact that global peace can only be maintained by taking concrete actions to mitigate the destabilizing effects of climate change.

> "The world is losing the **war** on climate change." (*Climate center*, 10 August 2018).

> "Climate Is Now a Culture **War** Issue." (Krugman, 2023; *The New York Times*).

> "Insight: World's **war** on greenhouse gas emissions has a military blind spot" (Mcfarlane, Volcovici, 2023; *Reuters*).

In all the examples above, the fight against climate change is conceptualized as *going to war*. Correspondingly, this framing suggests that the world is facing a significant and escalating threat that requires a forceful response. It is purposefully used to dramatize and magnify the risk as well as the consequences of the increasing emissions and temperatures as well as to illuminate the complexity, seriousness and challenging nature of this strategic and collective response. Fear-inducing language suggests that the fear discourse of climate change is created to influence the public perception of the urgency, seriousness, and challenges associated with climate change.

> "The **Conflict** Over Vandalizing Art as a Way to Protest. Activists have **targeted** well-known paintings to bring attention to climate change. A panel at Art for Tomorrow debated whether the **tactic** works. …… Yet the **attacks** also upset many members of the public concerned about art damage, and led the directors of top world museums to issue a stern statement, raising the question of whether art actually is an effective vehicle for protest. And the list goes on."(Nayeri, 2023; *The New York Times*).

In a same vein, to communicate the severity of the crisis, *The New York Times* employed militaristic metaphor describing numerous art attacks by climate activists. Evidently, militaristic metaphors are utilized primarily to draw attention of the public to the climate activism as one way of fighting against climate change. Namely, warfare metaphors such as *conflict*, *target*, *tactic* and *attack* frame art vandalism as a strategy to combat the global phenomenon, highlighting the severity and urgency of the issue. Simultaneously, this framing supports the idea of confrontational approach, albeit as an act of rebellion, as much-needed in order to resolve the climate conundrum simultaneously criticizing insufficient political engagement on the issue.

8.2.3.2 Gambling metaphors

Gambling metaphors permeate media and political discourse of climate change and are employed to communicate various messages.

In June 2022, addressing the Major Economies Forum on Energy and Climate (MEF) in Washington DC, the UN chief, Antonio Guterres drew attention to the economic paradigm of disparity between the increasing growth and decreasing amount of resources noting that:

> "The time for hedging **bets** has ended. The world has **gambled** on fossil fuels and lost" (UN news, 2022).

The use of the gambling rhetoric, that is, gambling metaphors such as *bets* and *gambling*, clearly suggests that the climate change debate is framed as a competition in terms of binary system with winners and losers. Specifically, gambling metaphor is utilized here as a discursive

tool to pinpoint that the world (synonymously used for planet and the people) is "defeated" primarily due to the political inertia, that is, "business as usual" scenario with insufficient and inadequate climate response and policies. Moreover, when talking about the world, gambling metaphor suggests that the stake in the betting game was tremendously high referring to the loss in environmental, economic and social terms. In a light of this, metaphor is employed to assign the blame on political and ideological opponents of the climate science, that is, proponents of profit grounded on dependence on gas, oil and coal, and thus negatively frame the fossil fuel industry responsible for the rising emissions and warming of the planet. Concurrently, with these gambling metaphors, Guterres frames policy makers as reckless risk-takers implicitly criticizing their high-stakes decisions resulting with highly negative and costly outcome emphasizing the fact that the entire world is paying the price for their betting mistake. By dramatizing the negative outcome of the gambling, metaphor exposes that the long-shot bet on fossil fuels was bound to fail. Simultaneously, metaphors trigger strong emotions of anger and outrage due to the misjudgment of decision-makers and are hence employed to shake the public trust in policy-makers, world leaders and politicians in charge. Accordingly, metaphors are used strategically to discursively construct the ideological divide between the "us" and "them" narrative, that is, ideologically loaded dichotomy within the climate change discourse. By emphasizing wrongdoings of fossil fuel advocates, gambling metaphor is purposefully exploited to persuade the public on the harmful effects of burning of the fossil fuels and thus weaken the controversy narrative driven by climate contrarians and sceptics. Consequently, metaphorical framing exposes climate change as political gambling between the opposing sides competing for power, influence and authority, thus deepening the existing polarization in the climate change debate. Specifically, the frame of "placing a wrong bet" in reference to a carbon-dependent world strengthens the idea that heavy reliance on carbon-based energy sources is a risky and ill-advised choice. Consequently, it is used to delegitimize the arguments of proponents of fossil fuel industry and persuade the wider audience of the approaching murky future unless concrete measures to reduce emissions are taken. Therefore, metaphor is primarily employed to shape public perception of low-carbon and carbon-free future in positive terms.

Another example of gambling metaphors is linked to the use of the term *jackpot*. According to the Cambridge dictionary, jackpot is defined "a large amount of money that you win in a game or a lottery", or "a top prize in a game or a contest" as defined in Merriam-Webster dictionary (2024). In the context of climate change, media very often resort to the use of the term, as it is apt for several purposes.

> "UK handed energy **jackpot** as Scotland's huge goldmine could export £25bn a year to EU" (Askhenaz, 2022, *Express*).

The article of the UK paper, *Express* focuses on the UK energy boost due to the Scotland's green hydrogen production in a bid to shift away from fossil fuels and possibly reach net zero carbon emissions by 2050. Hydrogen production as a specific climate solution to achieving decarbonization goal is thus metaphorically framed in rather positive terms emphasizing the solution as a "winning strategy" in the competing market. The green energy transitioning is compared to "hitting the jackpot" and positive portrayal is thus utilized to persuade the public on the favourable outcome of the renewable energy and further motivate engagement among public and policy makers. By triggering a positive emotion of hope along with a clearly positive connotation, metaphor is used to reinforce a discourse of hope within the

climate change debate shifting from the scaremongering rhetoric of doom and gloom to the narrative of opportunity and possibility.

> "Fossil Fuel Exec Brags of Hitting the **Jackpot** as Natural Gas Prices Surge Amid Deadly Crisis in Texas" (Stancil, 2021, *Common Dreams*)

This example demonstrates the underlying media strategy of using metaphor as a discursive tool for the purpose of sensationalism and emotionalization of the climate change narrative. Accordingly, due to its hyperbolic effect, *jackpot* metaphor easily captures attention of the public, leading to sensationalist news coverage, that is, over-hyped and exaggerated representation of the issue and as such is well-suited for manipulation of the public opinion and attitudes. Namely, due to an exceptionally cold snap in 2021, millions of Texans experienced power outages following frozen wind turbines which resulted with skyrocketing demand on natural gas. The metaphor suggests that the fossil fuel executive "got lucky" as winning the jackpot in a game as he clearly reaped substantial financial profit. This framing emphasizes the profitability of the fossil fuel industry, even during a crisis and the fossil fuel executive is negatively framed as a crisis profiteer implicitly emphasizing the suspicious ethical aspect. Moreover, the metaphor is utilized strategically to criticize the priorities of the fossil fuel industry lobby as the "deadly crisis in Texas" is juxtaposed to their financial success. Emotionalization is attained by triggering emotional responses like frustration, anger, and dissatisfaction to shape a negative view of representatives from the fossil fuel industry.

Another gambling term that is deeply embedded in the climate change discourse is the term *underdog*. Underdog also falls under the category of recurring gambling metaphors mostly pervading the media discourse of climate change. In Cambridge dictionary, underdog refers to "a person or group of people with less power, money, etc. than the rest of society". On the other hand, Merriam-Webster Dictionary (2024) provides a more nuanced definition expanding the meaning to "a loser or predicted loser in a struggle or contest".

> "COP27: The **underdogs** did most of the work in week one. Now what" (Ghantous, 2022; *Energy Monitor).*

Firstly, the employment of metaphor suggests that the climate talks at COP27, that is, climate negotiations are marked by uneven power distribution implying that certain parties possess more decision-making authority than other. The *underdog* metaphor thus exposes the concealed power dynamics and inequities present at the Conference of the parties. Namely, *the underdogs* represent the countries or parties that are portrayed as less powerful and among the most vulnerable to climate change. Suggesting that the underdogs are doing the majority of the work, it underscores that they have the leading role in addressing climate change. This framing is ideologically charged as the focus is shifted from rich countries and major economies to underdogs, that is, small nations, thus challenging the traditional power dynamics in the climate negotiations. Gambling metaphor reveals that parties (nations and countries) facing the most severe impacts often put the most effort, despite having limited capacity to introduce ambitions targets. Simultaneously, metaphor is utilized strategically to criticize the world leaders, politicians and policy makers in the developed countries for their inadequate climate commitments and response for tackling climate crisis. Accordingly, lack of political will and action among the leaders of the countries in the developed world is ideologically framed as the root cause of the flawed global climate policy that has taken most toll on the developing

countries. The question “now what” in the headline implies that the final result of the climate negotiations should translate into more ambitious climate action. Therefore, metaphor reflects ideological and political agenda of pushing for more concrete climate commitments and goals to meet the climate targets. Moreover, the phrase “now what” raises the question of responsibility by assigning blame to the representatives of the rich countries for insufficient concern for the challenges the most vulnerable developing countries are facing. Accordingly, it serves to redefine the narrative of climate justice and equity by redistributing responsibility in addressing climate change. Overall, climate talks are portrayed as a competition and the metaphor is primarily used to frame different actors in a positive or negative light influencing how people perceive their role and hidden agendas. The gambling metaphor is thus used to frame the underdogs as heroes and show other parties in a less favorable light thereby influencing public opinion and attitude. Furthermore, manipulation through emotionalization is accomplished by provoking emotional reactions of empathy and compassion for the unfair position of the underdogs persuading the wider audience to support their interests.

> “In climate fight, we are the **underdog**” (Uhoefer, 2019, *AP).*

Similarly, in the opinion article gambling metaphor is utilized to discursively shape the public perception of the progress made on climate change adaptation and mitigation. Firstly, the climate change combat is framed as a battle or a contest with contestants clearly having different odds of winning. By referring to “we”, author implicitly suggests that underdogs are those advocating for climate action highlighting their unfavorable position in the global climate talks due to political, ideological and financial interests. Moreover, metaphor is employed to reveal the power inequalities indicating that the climate sceptics, deniers and contrarians along with fossil fuel lobbyists are frontrunners in the climate race as they are more powerful and influential actors in the decision-making process. Simultaneously, it holds them accountable for all the emissions and rising temperatures due to the reliance on fossil fuels. Moreover, emotional appeal plays an important role as metaphor evokes sympathy for those framed as “underdogs” in the climate change discourse trying to resonate with the public in order to mobilize global efforts. Overall, this gambling metaphor serves as a powerful persuasive rhetorical device as it has the potential to manipulate and influence the public perception of the villains and victims in the climate change debate.

> “50-50 **odds** that Earth reaches critical climate-change threshold by 2026, scientists say” (Barker, 2022, *Fox Weather*).

Another metaphor which is borrowed from gambling glossary appears in the *Fox weather* article on the latest WMO report. The article addresses the likelihood of Earth reaching a critical climate change threshold. The headline is crafted to manipulate the public perception in terms of excessive use of numbers and time expressions. Resembling the real gambling game, with the likelihood, i.e. probability expressed in numbers, putting an emphasis on the situation where there is an equal chance for both scenarios, *Fox news* as the media outlet notoriously known for its climate skepticism manipulates the public perception on the scientific uncertainty as the key driver of controversy surrounding the scientific consensus on manmade climate change. Specifically, the gambling metaphor is used as a discursive tool to ideologically frame the narrative of uncertainty of climate science and thus reinforce the discourse of climate skepticism and contrarianism relying upon the uncertainty as the main counterargument in the climate

change debate. Metaphor is employed intentionally to persuade the wider audience that even scientists have "second thoughts" and despite the overwhelming scientific agreement they may be unsure about the future impacts of climate change. By emphasizing scientific uncertainty, metaphor is concurrently used to cast the doubt on the research results, climate models and scientific forecasts, in general, framing them as unreliable in predicting the future climate events. Accordingly, metaphorical language is strategically employed to underscore the narrative of skepticism within climate science. Metaphorical framing which highlights the unpredictability in climate research is used as discursive strategy to discredit scientific findings as exaggerated predictions and consequently portray climate scientists as alarmists. This framing is often employed by opponents of the climate science who seek to manipulate public perception of the authority of climate science, cast doubt on the severity of climate change, and obstruct any climate action. By framing climate change in terms of the odds, this metaphor suggests that addressing climate change is very much alike playing a game of chance, where outcome is mostly based on luck rather than evidence-based science. This is a widespread strategy among climate deniers who seek to persuade the wider audience that there is no climate consensus or evidence to warrant substantial climate investments or action.

8.2.3.3 Sports metaphors

Sports metaphors represent another significant subcategory of metaphors that are excessively used in scientific, media and political discourse to depict climate change. Representing climate change in terms of sports is a communication strategy utilized primarily to facilitate understanding and disentangle the complexities pertaining to the concept of climate change. Sport is a domain that almost everyone is familiar with or follows to a lesser or greater extent and thus helps to "simplify" the issue and ensure people can more easily grasp certain concepts.

Therefore, metaphorization, more specifically sportization is among the discursive strategies widely utilized in the climate change discourse as it makes such complex issue relatable to the wider audience. As the climate change debate is highly divisive and partisan with a vast number of actors clashing due to divergent underlying motives and hidden agendas, debate is often conceptualized as a contest. Accordingly, climate change is portrayed as a game and all these participants are players who only have two options, to win or to lose.

Competitive nature of the international climate talks, climate negotiations as well as the climate debate itself is hence illustrated with the employment of sports metaphors. With regard to this, metaphorical framing of climate change as a global political competition is often ideologically loaded as it exposes the oscillation mode of power dynamics as well as how different actors are striving to outperform one another. As they are rarely devoid of bias, sport metaphors are viewed as carriers of ideology which can present reality in a certain way, create own reality or distort the reality in a certain way.

With regard to use of sports metaphors in the political discourse, Semino and Masci note: "Within sports metaphors, the complexities of ideological and ethical issues are backgrounded and politics is presented as a relatively simple domain with clear participants (the party 'teams'), unproblematic goals (winning) and unambiguous outcomes (victory or defeat) (1996: 250).

Even though nearly all sports are grounded on the premise of competing, differences arise in terms of the game concept and are therefore variously manifested in the climate change discourse. Accordingly, different sports may appear as source domain depending on which aspects of the target domain are set to be underlined.

Metaphorization in the sports domain within the climate change discourse is also well-evident in the following examples:

> "Climate battle will be **won** or **lost** in cities, says U.N. climate chief" (Suliman, 2018; *Reuters*);
>
> "The world is **losing** the war against climate change" (*The Economist*, 2 August 2018);
>
> "We're **losing** our climate battle. We have no one but ourselves to blame" (Robinson, 2019; *Washington Post*);
>
> "Biden celebrated a major **victory** on climate this year. But this issue could prove insurmountable" (Nilsen, Sangal, 2022; *CNN).*
>
> "And when it comes to fighting the climate change, I will not take no for an answer. I will do everything in my power to clean our air and water, protect our people's health, to **win** the clean energy future." (The White House, Remarks by President Biden, 2022).

The above examples showcase that media and political discourse are replete with sports metaphors. All these news media intentionally use them (win/lose/victory) to portray climate change as a sports game in which numerous actors with different agendas (politicians, governments, world leaders, stakeholders, scientists, activists) compete against each other. Specifically, climate change debate is framed as polarized and competitive game with winners and losers. Accordingly, these rhetorical tools are used as discursive strategy to illustrate that competitiveness stems from the fact that climate change is viewed as a source of conflict on the major issues on the cause (natural variations or man-made changes), climate policy (green or fossil fuel industry/transition) and the root cause of the divergent approaches between the actors of the debate.

In a light of this, proponents of the green transition are framed in a positive light, while advocates of the fossil fuel industry and climate deniers are often framed negatively for being most responsible for climate delayism in terms of implementation of adaptation measures.

In other words, winner frame is ascribed to those who are striving to reduce the negative impacts of the climate change and secure a decarbonized future. On the other hand, those who are not taking adequate actions or aggravating the problem through unsustainable practices are framed as "losers".

With the deployment of these sports metaphors both discourse and counter-discourse of climate change are articulated, highlighting the demarcation line between the climate science and pseudo-science. Moreover, the divide reflects the rhetoric of climate alarmists on one hand, and climate deniers/sceptics on the other. Sports metaphors are thus used to expose the false dichotomy pervading the climate change debate revolving around the planet and the profit often reflected in frames of winners and losers deliberately manufactured by media and politicians to manipulate the public perception and persuade the audience that regardless of the outcome of the game (debate) losses and gains are inevitable.

Framing the climate change debate within the framework similar to "game theory", the use of sports metaphors thus reveals that both victory and defeat entail certain underlying costs for the people and the planet. Moreover, these headlines also demonstrate that climate change

narrative is metaphorized jointly through the domain of sports and war (losing the war against climate change, losing the climate battle) in order to emphasize the gravity of the situation and importance of triumphing over the anti-climate change movement advocating for fossil fuel industry. Both metaphors suggest how the debate may take the form of the ruthless and aggressive game between the opposing actors.

With sports metaphors implying that we are losing or world is losing, the blame is indirectly ascribed to the policy-makers and politicians for irresponsible and reckless climate policy and for not "putting sufficient effort" to defeat the opponents, that is, oil companies still dominating the energy production and thus aggravating the consequences of climate change.

> "Global Warming: Like 'Weather on **Steroids**' (*ABC news*, 8 February 2012);
>
> "Weather on **steroids**': potential for 40C in UK is here, says expert" (McKie, 2019; *The Guardian*);
>
> "Is weather on **steroids** the new normal?" (*CBS News*, 2 November 2012);
>
> "Pakistan Facing Monsoon 'on **Steroids'** Climate Catastrophe" (UN, 2022).

In all the examples above, sports metaphors communicate about the perils and hazards of climate change impacts. The term steroid here refers to the anabolic steroid described as "an artificial hormone (a chemical substance) that increases the size of the muscles, sometimes taken illegally by people who play sports" (Oxford Learners Dictionary). By drawing parallel to the steroids as a "performance and image enhancing drug", personification metaphor suggests that episodes of severe weather events with devastating impacts for the people and their livelihoods have worsened and become more intense explicitly linking them to the boost in GHG emissions causing climate change. By implying "doping of the atmosphere", the hyperbolic effect of the metaphor is thus particularly pronounced reinforcing the alarmist discourse accompanied by scaremongering rhetoric. Fear appeal is concurrently utilized to dramatize the surge in severe weather events and thus ascribe the blame to anti-climate change movement defying the manmade changes and purposefully delaying the climate action. By hyperbolizing, media have exploited metaphor to catastrophize and melodramatize the event and consequently persuade the public and policy makers on the authority of the climate researchers and climate science. Furthermore, by emotionalizing science, media have exploited persuasive power of metaphor to dismiss the claims of climate opponents by providing arguments for the accelerating climate change consequences and thus influence public perception on the matter.

> "Temperature analysis shows UN **goals** within reach" (McGrath, 2020; *BBC*).
>
> "The Paris Agreement sets long-term **goals** to guide all nations to substantially reduce global greenhouse gas emissions to limit the global temperature increase in this century to 2 °C while pursuing efforts to limit the increase even further to 1.5 °C, to avoid or reduce adverse impacts and related losses and damages" (WMO Press release, 2023).

These news excerpts and headlines represent yet another example of sportization of climate change, that is, employment of sports metaphor in the political and media discourse. The term *goal* is among the sports metaphors most widely and deeply embedded into the climate change discourse as conceptualization of climate change is very much alike scoring goals with "joint effort". As scoring goals implies teamwork in sport, fight against climate change similarly

indicates need for global cooperation. Metaphor is thus primarily utilized to frame the climate change as a collective battle of nations, communities and individuals. Simultaneously, metaphor suggests there is a clearly defined and quantifiable target explicitly indicating that the goal is attainable if the current trajectory and path are changed. Correspondingly, responsibility is ascribed to policy makers as the only ones in charge for implementing necessary set of mitigation, decarbonization and net zero measures for cutting emissions. The term *goal* concurrently emphasizes the urgency of addressing the climate change issue and its interlinkage with the narrative of limited time. Similarly to sports, where there is a finite amount of time to accomplish a goal, fight against climate change is also time-bound. Metaphor suggests that there is a timeline, and if the goals are not met within that timeframe dire consequences await which concurrently reflects a hyperbolic tone of the narrative.

> "And while so many governors and mayors have been strong partners in this fight to **tackle** climate change, we need all governors and mayors." (White House, 2022).

Another sports-related word, *tackle* is found permeating the climate change discourse. Considering that the term is originally borrowed from the American football or rugby and therefore rather familiar, President Biden used it to "simplify" and "clarify" US government climate actions. In sports, *tackling* is used to describe a player who is forcefully confronting an opponent to stop their progress. Correspondingly, in the context of climate change, *tackling* is employed strategically for political and ideological purposes to communicate that direct and forceful action will be taken to address the issue. Moreover, metaphor is utilized to imply that Democratic endeavor to combat climate change is an active effort not a passive undertaking. Furthermore, it reinforces the narrative of Democrats promoting their political agenda of dedication and consistency in pursuit of climate goals. Correspondingly, sports metaphor is purposefully used particularly due to its persuasive power to positively frame Democrats and their climate effort and thus influence how audience will perceive their climate agenda and strategy.

8.3. Irony

8.3.1. Defining irony

In a diachronic perspective, irony has long been regarded an attractive object of interest and extensive study within cross-disciplinary research such as linguistic and literature theory, rhetoric as well as art and philosophy. In 1841, by submitting a doctoral thesis titled "Om Begrebet Ironi med stadigt Hensyn til Socrates" (On the Concept of Irony with Continual Reference to Socrates), Danish philosopher Søren Kierkegaard drew attention to the versatility of irony noting that it is neither exclusively linguistic nor static concept (Palacio, 2020).

Considering the lingering interlinkage between irony and rhetoric, rhetoric is often considered a cradle of irony and thus very often associated with Ancient Greece and Rome (Palacio, 2020). From the etymological point of view, the word irony has a noteworthy historical roots. It stems from the Greek comic character Eiron (Britannica, 2024). Eiron was a clever underdog who intentionally underperformed in its role by downplaying its abilities to outsmart the enemies. The word came into English in the 16th century from the Latin *ironia*, which was derived from the Greek *eironeia*, that is, *eiron* meaning "dissembler" (Britannica, 2024).

Even though there isn't any consensus on the standardized definition of irony, in conjunction with metaphor and hyperbole, in semantic theory, irony is often classified as a rhetorical device and a form of non-literal language (Saeed, 2009). Accordingly, irony, sarcasm and metaphor are often defined as siblings in the family of rhetorical "figures of speech", especially in the analysis of political rhetoric (Charteris-Black, 2014: 45-49).

The Oxford English Dictionary (2024) encapsulates irony as "a figure of speech in which the intended meaning is the opposite of that expressed by the words used." Similarly, the Merriam Webster dictionary (2024) defines irony as "the use of words to express something other than and especially the opposite of the literal meaning." Even though it summarizes its essence, the Bedford Glossary of Critical and Literary Terms expands this definition describing irony as "the subtlest rhetorical form," as "a contradiction or incongruity between appearance or expectation and reality" (2018: 221). In a similar vein, Muecke explains the use of irony as "ways of speaking, writing, acting, behaving, painting, etc., in which the real or intended meaning presented or evoked is intentionally quite other than, and incompatible with, the ostensible or pretended meaning" (Muecke, 2002: 61). It appears to be rather ironic, that "irony itself is often characterized as pragmatic insincerity while it is actually a sincere, if masked, evocation of the truth (Milanowitc, 2020: 205). Interestingly, even the irony of Socrates demonstrates the classic paradox: "I know that I know nothing" (Milanowitc, 2020: 205).

Moreover, Dews extends on the use of irony stating that: "Speakers choose irony over literal language in order to be funny, to soften the edge of an insult, to show themselves to be in control of their emotions, and to avoid damaging their relationship with the addressee." (Dews et al., 1995: 347).

According to Kreuz and Roberts (1995), over the years, the meaning and use of irony has evolved and expanded to include at least four types of distinct notions: Socratic irony, dramatic irony, irony of fate, and verbal irony. Kreuz and Roberts assert that these four types are the basic descriptor of irony as they share a common feature, discrepancy between mental representation and the state of affairs.

8.3.2. Ironization of the climate change discourse

Ironization of the climate change narrative is yet another rhetorical strategy frequently used to discursively shape the media and political discourse of climate change. It may maintain, that is, reinforce a certain frame or aspect (irony bias) or purposefully create a counter narrative pertinent to particular groups and thus expose their underlying ideological or political aspirations. Accordingly, irony is widely embedded into public discourse as one of many linguistic devices utilized to communicate scientific information and hence either contribute to constructing or deconstructing the climate crisis.

In his "Linguistic Guide to English Poetry", Leech (1969) refers to irony, hyperbole, metaphor and litotes as "honest deceptions", as they imply saying something that is untrue while attempting to tell the truth. Leech adopted the definition of irony introduced by H. W. Fowler in "Modern English Usage", stating that "irony is a mode of expression which postulates a double audience, one of which is *in the know* and aware of the speaker's attention, while the other is naive enough to take the utterance as its face value" (1969: 171). Moreover, Leech talks about "the mask of irony" clarifying that the mask of approval may be referred to as the *overt* or *direct* meaning, whilst the disapproval behind the mask suggests the *covert* or *oblique* meaning (1969: 171-172).

Correspondingly, irony (often coupled with sarcasm and satire) may be used to shape the *attack* discourse almost unavoidable in the polarized climate change debate (Anderson and Huntington, 2017). The attack discourse is primarily created with the purpose of "discursive construction of positive self-presentation and the negative presentation of others" (Wodak, 2011: 40). In that regard, function of irony and sarcasm is to serve as discursive strategy to provoke, mock or criticize others with a different view (Wodak, 2011) and may be employed by both climate alarmists and sceptics. Specifically, irony may be utilized as a rhetorical weapon to attack political opponents and thus delegitimize or undermine trust in their authority, credibility or integrity. The widespread strategy of dividing into "us" and "them" is thus most evident in the climate change discourse.

According to Maciuszek (2018), it is more common to use irony to criticize than to compliment. This may stem from a social accord imposing politeness rather than rudeness between the language users in social interactions (Maciuszek, 2018). Therefore, ironic criticism commonly referred to as "blaming by praise," leaves an impression of being positive in spite of a genuinely negative message that is being conveyed (Milanowicz, 2020). Due to that property of implicit and indirect criticism, irony is deeply embedded into political discourse of climate change and is often exploited to negatively frame political actors in the debate, their actions or intentions by ironizing certain situation, perspective or a remark.

In a similar vein, Wilson and Sperber note that irony "invariably involves the expression of an attitude of disapproval" (1992: 60). Or as Grice explains: "irony is intimately connected with the expression of a feeling, attitude, or evaluation. I cannot say something ironically unless what I say is intended to reflect a hostile or derogatory judgment or a feeling such as indignation or contempt" (1978: 124). Moreover, Grice asserts: "To be ironical is, among other things, to pretend (as the etymology suggests), and while one wants the pretense to be recognized as such, to announce it as a pretense would spoil the effect" (1978: 125). According to Grice, irony is hence a kind of pretense.

Consequently, irony is most often deployed to communicate a belief, attitude or an opinion, particularly the negative ones and rarely the facts. Therefore, irony can be efficient device to persuade and manipulate the public as it disguises meanings, underscores certain features and forms public opinion and taste.

Consequently, irony reflects "ambiguity between the *known* versus the *unknown*, *joking* versus *criticizing*, inclusion of those who understand the irony versus exclusion of those from outside the group: these were the reasons why Socrates was put on trial by the Athenians" (Milanowicz, 2020: 206).

Headline from *The Guardian* "**Climate crisis is real but you wouldn't know from watching Fox Weather**" (Gabbatt, 2021) illustrates how irony as a rhetoric device can be utilized by media to discursively (re)articulate communication and representation of climate change risks and impacts, that is, discursively frame the media (un)balanced reporting of specific news media. Firstly and most obviously, irony is employed to expose the deepening divergence in media coverage of the climate-change related news among different media outlets deconstructing the power dynamics and underlying motives of the specific interest groups in the media ecosystem. The ironic discourse thus illuminates juxtaposition between *The Guardian* and *The Fox Weather* as a borderline between climate believers and non-believers, which translates into a deeply sharp ideological divide existing between the scientific community and climate denialism, that is, proponents and opponents of the anthropogenic climate change. Simultaneously, ironic discourse reflects highly pronounced political divisiveness in the climate

change debate and its interlinkage with the increasing polarization in the news coverage of the climate change issue. Accordingly, aim of ironization is to expose the media bias deeply embodied in the climate change reporting which contributes to further deepening of the ideological and political clash in the public debate. Therefore, *Guardian* journalist draws attention to the *Fox Weather's* biased coverage arguing that despite the overwhelming scientific consensus, the news channel miraculously manages to convey entirely the opposite, leaving audience either widely confused or ignorant on the issue. On one hand, irony is deployed to frame climate change as an undeniable scientific fact. On the other, irony is utilized to construct the attack discourse and criticize the news media (*Fox Weather*) for intentional misrepresentation of the "undeniable" facts in the climate change coverage. Specifically, irony is deployed to mock the *Fox news* attempt to mask, ignore and neglect the existence of man-made climate change and hence reinforce the discourse of climate controversy by purposefully misleading public on this scientific issue. Accordingly, discourse is ironized to reveal opaque media manipulation, in particular their persuasiveness and "anesthesia mechanism" to expand its scope of influence in terms of spreading the climate denialism and belittling the climate science. Moreover, irony showcases how climate change can be intentionally miscommunicated to the public in order to downplay urgency of the problem and hence delay the response and concrete action. By doing so, irony emphasizes the blame frame linked directly to the *Fox Weather* (operated by Fox News Channel), for promoting climate denialism and fueling controversies and uncertainty related to the warming planet. It demonstrates the persuasive and manipulative potential of the anti-climate change movement and rhetoric for denying the obvious. Accordingly, the irony highlights the paradox of the discordance between the climate science and climate science communication as the root problem for the low engagement on the issue.

"**The end of the world is coming, even if you've heard it all before**" is the title of the Column featuring *Los Angeles Times* (Goldberg, 2023) demonstrating yet another example of how ironization can be embedded into media discourse of climate change. The author states: "This is the stuff of apocalyptic books and cataclysmic sci-fi movies. There's no big secret about the parade of catastrophes that will follow if emissions continue to rise unabated: more out-of-control storms, dangerous heat waves, harrowing floods, raging fires and other extreme events unprecedented in the observational record." By referring to the future effects of the climate change as "the end of the world", author underlines the scaremongering frame as the dominant narrative in the media coverage. However, by employing irony, author acknowledges the fact that "end of the world" prophecy about the approaching cataclysm can be in many instances overhyped and over-frequent ("you've heard it all before"). In a light of this, he further acknowledges that this apocalyptic frame, which shapes the alarmist discourse and the discourse of fear due to its negative emotional appeal, may have counterproductive effect on the public. The frequent recurrence of doomsday rhetoric in media may thus result with declining trust in scientists' predictions and warnings and consequently undermine their efforts to mobilize climate action. It may often lead to disengagement, that is, "climate change fatigue" (Saab, 2023). Nevertheless, he emphasizes that even overdramatized threat should trigger a public concern. By ironizing the "apocalyptic scenario" author aims to justify the climate hysteria suggesting that the exaggerated rhetoric and a paradoxical narrative in which apocalypse is announced on a rather frequent basis cannot and do not necessarily diminish the danger of the human-induced climate change ("the end of the world is coming"). Moreover, ironization is used to reframe the media narrative of negative outcome of the climate change impacts emphasizing the inevitability of certain effects regardless of the style of media reporting. Irony is hence used to legitimize the

scaremongering tactics of the climate alarmists by highlighting the underlying cause of the hysteria. The discourse is concurrently ironized to implicitly attack the inaction and reluctance of policy makers and politicians to avert the changing climate despite numerous and recurring warnings issued by the scientific community on the risks of the rising temperatures ("even if you've heard it all before"). Furthermore, irony is intentionally employed to construct the blame discourse and negatively frame fossil fuel-oriented political elite for not making any tangible progress in the fight against climate change.

Ahead of the 2023 UN Climate Change Conference (COP28) in Dubai, United Arab Emirates, an article titled "**Meet the Oil Man in Charge of Leading the World Away From Oil**" was featured in the September *New York Times* shedding the light on the decision that Sultan al-Jaber presides over the upcoming summit (Bearak, 2023). The article states that, in the wake of the controversial decision, a group of 133 U.S. Senators and European Union lawmakers submitted a letter requesting his replacement. U.S. and EU lawmakers were against the appointment of Sultan al-Jaber as President of the COP28, considering that aside from being founder of the renewable energy company, Al-Jaber is also fossil fuel magnate directing Adnoc, national oil company. The entire narrative surrounding the COP28 is thus purposefully shaped ironically to reveal the opaque paradox and implicitly suggest the "unfavorable" situation the world leaders and policy makers are facing in the climate negotiations. Accordingly, irony is utilized as a discursive strategy to illuminate the "case of hypocrisy" and consequently expose the conflict of interest in the context of the COP28 president-designate. Sultan Al-Jaber is framed intentionally as the "Oil Man" manipulating the public perception on his financial priorities despite the investments in the renewable energy resources as wind and solar. By employing irony, the discourse on COP28 is hence portrayed as catch 22, with negotiations being torn between the interests of the fossil fuel industry on one hand and scientific community on the other. Moreover, the irony further contributes to the reinforcement of the frame of doubt on the positive outcome of the climate talks highlighting the collision between the profit and climate action. The use of irony implicitly emphasizes that once again climate talks are likely to be overshadowed by the conflict of fossil fuel industry lobby and policy makers. Simultaneously, by highlighting the discourse of doubt, irony is purposefully exploited to shape the controversial narrative surrounding the COP28 and consequently expose the underlying political motives in the upcoming climate talks. Climate conference is hence framed as a global economic challenge rather than environmental concern shifting away focus from ecological to financial aspect of the problem. Ironization of the discourse thus reveals the partisan and ideological conflict in the climate negotiations and consequently influences public perception of the UN climate talks.

In the aftermath of the deadly floods in Libya with the devastating consequences, the Opinion section of *the New York Times* featured an essay titled "**Is the Disaster in Libya Coming Soon to an Aging Dam Near You**"? (Klemm and Winkler, 2023). Firstly, the concept of Libya climate disaster is ironically and metaphorically framed aiming to provoke a wide-reaching debate on the vulnerability and resilience to climate change world is currently facing on one hand and the political inaction on the other. The scaremongering framing of destructive flooding is primarily utilized as a cautionary tale for the remainder of the world highlighting the aspect of "unpreparedness" and "vulnerability" to magnitude of cascading risks posed by the changing climate. In other words, public is alarmed by deploying catastrophic rhetoric shaped by the fear appeal in order to emphasize the urgency and severity of the problem. The ironical tone of the catchphrase borrowed from movie industry "coming soon ….near you" exposes the

ideological stance of the authors toward the current climate policy. Therefore, irony is used to discursively shape the attack discourse by critically addressing the political establishment and the "vulnerability" of the infrastructural system. Moreover, blame frame reveals that blame is attributed to authorities and policy-makers for not doing enough to prevent potential disasters caused by climate-related events creating a pressure to take action. Blame frame concurrently exposes a widespread problem of political accountability in the climate context. By implying that disaster may strike any place, any time in the foreseen future, authors align with the mainstream climate science indicating that the extreme weather events are interlinked with the changing climate. They simultaneously emphasize the "aging dam" as a metaphor for an outdated set of measures necessary to deal with the changing conditions due to the accelerated warning. The "aging dam" concurrently highlights the economic frame of the extreme weather events raising the question of investments and costs of the new infrastructure in the light of the current disaster, hence providing justification and legitimization for the new costly incentives. Moreover, irony contributes to the reinforcement of the alarmist discourse created by the rhetoric of fear and panic manipulating the public perception of the current climate affairs and climate policy. Suggesting that similar disasters may occur any place with the similar outcome, irony is exploited to raise the concern and accelerate the global response on the mitigation of extreme weather events.

Another example of how irony discourse can be used to communicate the desired message and thus shape the public opinion on the climate-related matter is encapsulated in the headline "**Rishi Sunak *too busy* to attend Cop27 climate talks**" (Vaughan, 20232). The article appeared in the *TIME* magazine ahead of the highly anticipated 2022 UN Climate Change Conference in Sharm El-Sheikh, Egypt. The news on the absence of the UK Prime Minister Sunak from the COP27 came as a bombshell considering the political and economic significance of the climate talks for the future of the UK environment as well as the future of the planet in terms of GHG emission limits and new technologies in the combat against climate change. Firstly, the implicature "too busy to attend the COP27" suggests that Prime Minister is unable to participate in the upcoming conference and that other interests are taking precedence over addressing climate change. Therefore, his "skiving" from the conference is framed in the highly negative context. By specifying that he is "too busy to attend", that is, preoccupied with other arrangements and plans, the discourse is intentionally shaped ironically to depict the absurdity of the situation in which Prime Minister under-prioritized such high-impact event such as COP27. Simultaneously, the juxtaposition between COP27 and his other commissions ironizes the narrative by implying that "trivia" prevailed in this particular context. By emphasizing that he is too busy with other tasks, the irony is concurrently utilized to negatively frame his decision on non-attendance implicitly criticizing his lack of political will and commitment to engage on such critical issues such as climate change. Specifically, irony reflects the criticism of the UK government's commitment to addressing climate change and suggests that economic concerns are presumably prioritized. By doing so, irony is used to frame the government's actions as inadequate and hence influence how the public views the government's actions and decisions. This way irony is used to discursively construct the discourse of blame directly attributed to and related to the politicians and government on the avoidance of the responsibility in the fight against climate change. Irony is thus purposefully used to cast doubt on the authority and legitimacy of ruling political party manipulating public attitude on their trust in the context of climate change.

On February 17, 2023, *Fox News* featured an article "**Going black, not green: Curbing US oil, gas production would hurt the environment, report finds**" (Kliegman, 2023). The

news article provides insightful analysis of the report released by the Institute for Energy Research (IER) highlighting the drawbacks of potential cut in the U.S. petroleum and natural gas production. The aspect of climate change related to decarbonization and net-zero emissions is thus framed in economic terms. The economic frame is chosen intentionally to shape the understanding of the public on the fuel plan issue and thus influence their perception of the energy transition by emphasizing potential costs and economic loss. Irony as a discursive strategy is employed by news media to distort the facts on the devastating effects of the fossil fuel industry by negatively framing the energy transition which implies radical cut in oil, gas and coal production. Therefore, the headline "going black (instead) of going green" is crafted to showcase the negative effects of decarbonization efforts and renewable energy production making it appear as a controversy created by climate scientists and researchers. As one of the most distinct media outlets promoting climate denialism, *Fox news* structured the article to demonize Biden's administration plan to eliminate fossil fuel as a dominant form of energy generation stating: „President Biden infamously promised to end and get rid of fossil fuels while campaigning for president. Since entering the White House, he said his goal is to create a carbon pollution-free power sector by 2035 and net-zero emissions economy by no later than 2050". Moreover, green transitioning is negatively framed highlighting potential losses to U.S. economy emphasizing that "nearly every facet of modern developed economies requires petroleum products and natural gas to function and provide the comfortable lifestyles that citizens of developed countries have come to expect. They're ingrained in almost everything". Ironizing discourse exposed the underlying criticism and contempt of the Biden's climate politics aiming to delegitimize and discredit his authority and credibility and consequently influence how public perceives his climate agenda. Negative framing of his climate targets is intentionally ironized to communicate his climate plans as a laughing stock with detrimental effects on the US economy. Therefore, irony is used to create a discourse attacking Biden and the Democrats criticizing their ideological goals. Irony discourse is therefore primarily exploited to reframe the green energy transition in a negative context and persuade the public on economic infeasibility of the Democrats climate plan. By emphasizing "economic shortcomings and wrongdoings" of the Democrats' climate plan, *Fox news* provides legitimization for the "survival" of the fossil fuel industry and the arguments of their proponents as the only suitable path for the US economy.

Using ironic framing in the climate change debate, specifically irony as a discursive tool to shape attack discourse and thus criticize and mock political and ideological opponents is a linguistic device that both climate alarmists and climate sceptics have penchant for.

One of the most blatant examples of the usage of irony in the climate change discourse of skepticism is ascribed to Donald Trump, former president of the United States. Pursuing the ideology and politics of climate denialism, he very often makes political speeches and media interviews in which he ironically and sarcastically addresses the issue, minimizing its relevance and mocking the opponents. He purposefully employs irony as a rhetorical device to communicate its standpoint, mark its side in the climate change debate and discredit science-backed claims of his political opponents and climate science in general. One such example is recorded during his mandate in the White House when in the wake of the record-breaking cold spell across the eastern half of the U.S. he tweeted:

> "In the East, it could be the COLDEST New Year's Eve on record. Perhaps we could use a little bit of that good old Global Warming that our Country, but not other countries, was going to pay TRILLIONS OF DOLLARS to protect against. Bundle up!" (29 December 2017, *Twitter*, @realDonaldTrump).

> “It’s record cold all over the country and world - where the hell is global warming, we need some fast” (8 January 2015, *Twitter*, @realDonaldTrump)
>
> “Record low temperatures and massive amounts of snow. Where the hell is GLOBAL WARMING?” (15 February 2015, *Twitter*, @realDonaldTrump)
>
> “Ice storm rolls from Texas to Tennessee - I'm in Los Angeles and it's freezing. Global warming is a total, and very expensive, hoax!” (6 December 2013, *Twitter*, @realDonaldTrump).

In a series of tweets, Trump makes an ironical mention of global warming as the much-needed panacea for the forecasted snowstorms, record amounts of snowfall as well as blizzards across the country. By sarcastically referencing “good old global warming” and asking where it is during cold spells, Trump's tweets demonstrate a misunderstanding of the difference between weather and climate, and they downplay the serious consequences of global warming. He is thus ridiculing the concept of global warming by pointing to exceptionally cold conditions as evidence against it. He utilizes the episode of severe weather event to counter argue the climate science and mock climate alarmists, by oversimplifying and reconceptualizing the mainstream climate facts. By doing so, Trump exploits irony as a political weapon to downplay influence of his political and ideological opponents in the debate and persuade the public on the authority of his own claims, that is, denial of man-made climate change. Correspondingly, Trump’s political rhetoric is thus purposefully shaped by ironic framing of the global warming aiming to build the “hoax discourse” and persuade the public that climate change is nothing else than the hoax, that is, manufactured scientific controversy. By doing so, he seeks to reinforce the discourse of denialism, legitimize his own standpoint and influence how people perceive the climate change-related news. Specifically, he resorts to ironization to create an attack discourse and although jokingly, attack his opponents for the pervasive campaign on anthropogenic climate change, i.e. global warming. Furthermore, he utilizes irony as a discursive strategy for othering, by opposing “they” and “us” in the climate change debate with the purpose to deemphasize scientific arguments, belittle climate research, discredit scientific authority and thus shake public trust in the climate science.

8.4. Hyperbole

8.4.1. Defining hyperbole

Hyperbole is regarded “the second most common trope after metaphor” according to the study conducted by Kreuz et al. (1996: 91) in which they focused on the eight primary forms of non-literal language within the corpus containing literary works. Considering hyperbole’s ubiquity and pervasiveness supported by their empirical evidence, authors note that “in terms of sheer occurrence, hyperbole seems to deserve more notice than it has received to date” (Kreuz et al., 1996: 91). Furthermore, its entrenchment in the discourse is underpinned by the fact that it is the figure which co-occurs most with other non-literal forms.

The word hyperbole is derived from a Greek word *hyperbole* meaning “exaggeration, extravagance” (Etymonline, 2024). However, the literal meaning is somewhat different as it combines the word that means “over” and another that means “cast” or “throw” resulting in “a throwing beyond” (Etymonline, 2024).

The term goes back to Aristotle and "features throughout the historiography of rhetoric" (McCarthy and Carter, 2004: 151). Various definitions of this rhetorical tool draw mostly upon two basic features of hyperbole, overstatement and "overdo" effect. Namely, Preminger defines hyperbole as "a figure of speech of bold exaggeration" (1974: 359), while Barnwell emphasizes that "hyperbole is a deliberate exaggeration, used for emphasis and dramatic effect" (1977: 49). In a similar vein, Murfin and Ray note that "hyperbole is a figure of speech that uses deliberate exaggeration to achieve an effect, whether serious, comic, or ironic" (2003: 205). Consequently, hyperbole has a capacity to "overplay" and "overemphasize" an issue, make something appear more dramatic and sensational than it is, and thus contribute to misrepresentation and miscommunication of certain aspects of news.

Correspondingly, hyperbolization is often linked to sensationalization and spectacularization through emotional appeal (Musolff, 2021) which is often misused as an ideological strategy for public manipulation (Abbas, 2019). Therefore, media coverage of news with emphasis on deliberate shock or overhyped information can be exploited as a discursive strategy to spark confusion or controversy as in the case of climate change (Nabi, Gustafson, and Jensen, 2018).

8.4.2. Hyperbolization of the climate change discourse

Hyperbolization of the climate change narrative has become a commonplace within the public discourse to such degree that it is no longer seen as an anomalous storytelling trend. Namely, both media and politicians deliberately resort to the use of hyperboles as a *hook* to capture public attention due to their capacity to sensationalize and (melo)dramatize news stories. This, in turn, leads to emotionalization of the climate-related reports which is used as a manipulation strategy to influence public perception, opinion and attitude. Namely, the discourse of fear or scaremongering which is reinforced through hyperbolization is intentionally exploited to communicate the urgency of the climate crisis triggering negative emotions such as fear, panic and anxiety and consequently persuade the wider audience on the importance and necessity of prompt climate action. Hyperbolization as a discursive strategy is thus often found embedded into the discourse and rhetoric of climate change alarmists aiming to hasten the climate policy favoring green transition based on net-zero emissions and renewable energy sources and thus legitimize policies aligning with those measures. Hyperbolic framing is thus deeply embodied into political discourse of climate change as it is apt for the technique of othering, *US* against *THEM*, that is, positive self-representation and negative other-representation. Consequently, hyperboles are mostly used for their persuasive potential as they are well-suited to either criticize or condemn someone's actions on one hand or emphasize or praise someone on the other hand and thus influence how the wider audience perceives particular policies, measures or actions. Moreover, hyperboles may serve as devices to strengthen ideological discourse and thus promote certain values, ideas or beliefs as the only legitimate and valid in the climate change debate. Moreover, in scientific, media and political discourse of climate change, hyperbolic framing may manifest in terms of expressions including number games, time frames, exceptional amount, adverbs of degree or size in order to elucidate, illuminate or underline particular aspect or piece of information and thus use it for ideological manipulation of the wider audience.

"**These scenes are as frightening as a science fiction movie. But they are even more terrifying, because they are real,**" exclaimed the United Nations Secretary-General Ban Ki-moon in his 2002 address to the Intergovernmental Panel on Climate Change (United Nations,

Secretary General address, 2007). He noted that the comparison with the doomsday movies was inevitable since the 2007 IPCC report envisaged worst case scenario for the planet and the people. In this particular case, the climate change discourse is constructed by deployment of hyperbole both to catastrophize and emotionalize report and scientific findings. The adjectives of intensity and degree ("frightening and more terrifying") are used intentionally to frame the report findings as alarming and consequently communicate climate change as an urgent crisis. This in turn reinforces the discourse of alarmism rooted in scaremongering tactics and fear-inducing rhetoric. Therefore, hyperbolization of the research results is mostly exploited to persuade the public about the indisputable authority and credibility of the climate researchers in order to legitimize their "prophecies", that is, forecasts turning into reality. The gravity of the situation is amplified by alarmist rhetoric evoking strong emotional response from the audience. Emotionalizing through hyperbole is used purposefully to influence public perception of the climate change consequences as more emotionally tangible and thus accelerate climate action. Framing the effects of climate change as an immediate threat and by magnifying its destruction potential ("as in science fiction movie"), hyperbole is utilized to communicate the dangers of the climate change primarily through emotive discourse and hence reinforce the ideological and political stance behind the climate alarmism promoting renewable energy transition and fossil fuel phase-out.

Following the release of the 2023 WMO data on the hottest Northern Hemisphere summer on record, the Secretary-General António Guterres remarked: "**The dog days of summer are not just barking, they are biting. Our planet has just endured a season of simmering — the hottest summer on record. Climate breakdown has begun…We can still avoid the worst of climate chaos — and we don't have a moment to lose**" (United Nations, press release, 2023). In this particular case, climate change discourse is constructed by hyperbolization ("climate breakdown, chaos") as well as metaphorization and personification ("dog days of summer are not just barking, they are biting") to communicate how dangerous climate change is to the wellbeing of people and health of the planet. Overall, all these discursive strategies expose political and ideological goals behind the key agenda promoted and embedded in the comments of the Secretary General. The persuasive effect of hyperbole ("breakdown, chaos") and in particular, hyperbolic time expression ("no time to lose") are exploited to evoke pronounced emotional reaction of fear and panic and hence convey the sense of urgency due to the rapidly escalating hazards resulting from the rising emissions. Scaremongering is thus purposefully utilized to elevate the warning to the highest level and further strength the discourse of climate crisis. Metaphorical hyperbole ("dog days of summer …barking/biting") is concurrently exploited to promote the concept of anthropogenic climate change as the dominant paradigm, that is, mainstream climate science, according to which, dire consequences of the climate change are a result of increased burning of the fossil fuel and consequently discredit the climate denialism defying the correlation between the rising temperatures and human-induced emissions. Simultaneously, hyperbole reveals that responsibility for the climate breakdown is assigned to policy makers as they are viewed as the key players in the battle against the rising emissions. The manipulative power of overdramatized narrative and hysterical rhetoric is thus utilized to communicate the green energy transition (fossil fuel phase-out) as the only "way out of climate chaos" and thus inflict certain ideological and political believes as the only legitimate to combat worst effects of the changing climate.

Few months earlier, speaking at the UN Headquarters, the Secretary-General António Guterres underscored that "**the era of global warming has ended**" and "**the era of global boiling has arrived**" emphasizing the need for urgent global action on emissions (United Nation, Guterres, 2023). Similarly, metaphorical hyperbole "global boiling" is used as a discursive tool to shape the crisis discourse and thus mobilize climate finance for adaptation and mitigation measures aligning with the political agenda which promotes anthropogenic climate change and green energy transition. Moreover, hyperbolic expressions that emphasize time frame ("era") are used purposefully to ideologically frame the discourse of climate crisis indicating that humanity faces a gloomy future characterized by a long-running, time-consuming and exhaustive battle against the increasingly pronounced climate change effects unless policy-makers and politicians don't put a stop to carbon-based economy through regulation and policies.

That hyperbolization is a recurring discursive strategy in the narrative of US Secretary-General Antonio Guterres proves an excerpt from his latest address to the 78th United Nations General Assembly at UN headquarters in New York City in which he issued a stark warning on the climate crisis by noting: "**Humanity has opened the gates to hell. Horrendous heat is having horrendous effects. Distraught farmers watching crops carried away by floods. Sweltering temperatures spawning disease**." (United Nations, press release, 2023). As previously shown, this is not the first time that Secretary-General resorts to the alarmist rhetoric in order to capture the attention of the world leaders, business leaders, activists and celebrities, private as well as public sector representatives in a bid to influence their decisions to accelerate route to decarbonization. Accordingly, climate change risks are communicated through emotionalization of message with fear-inducing language strategies. Discourse of fear is constructed through deployment of metaphoric hyperboles "opened gates to hell" and adverbs of degree "horrendous" thereby evoking emotions of fright, worry, distress and angst. Hyperbole is employed intentionally to draw attention to the *catastrophe* framing of the current emission trajectory and the increasing temperatures exposing the political stance of the Secretary-General who supports the climate goals toward net-zero world.

At the Petersburg Climate Dialogue, U.N. chief also employed alarmist rhetoric shaped by hyperbole, articulating the catastrophic scenario with the warning that "**humanity faces collective suicide over climate crisis**" (Jimenez, 2022; *The New York Times*). Persuasive power of hyperbole is hence used to influence the wider audience and policy-makers on the detrimental effects of the changing climate and consequently call for "collective" action as the responsibility and blame is attributed to everyone reluctant to acknowledge that changes are human-induced and that they require immediate action. Overall, apocalyptic discourse shaped by hyperbolized narrative, panic appeal and doom and gloom rhetoric serves as a wake-up call and call for action to curb the emissions and shift from fossil fuels to renewables.

In a similar vein, number of headlines with hyperbolized framing of climate change risks and impacts featured the world most renowned news media:

"**Stephen Hawking: Earth will become unbearably boiling hot thanks to climate change**" (*Express*, 2018); "**Like a Terror Movie: How Climate Change Will Cause More Simultaneous Disasters"** (*NYtimes*, 2018); "**Climate change could spell the end of the human race "as we know it**", says JP Morgan in apocalyptic note to clients (*The Daily mail*, 2020); "**Islands fear *end of history* due to climate changes**" (*Reuters*, 2010); "**Heat apocalypse' warning in western France as thousands flee wildfire**" (*The Guardian*, 2022); "**Climate**

change deadlier than cancer in parts of the world, UN warns" (*Independent*, 2022); "**Only 11 Years Left to Prevent Irreversible Damage from Climate Change, Speakers Warn during General Assembly High-Level Meeting**" (*UN*, 2019); "**Climate change: 12 years to save the planet? Make that 18 months"** (*BBC*, 2019); "**Too late now to save Arctic summer ice, climate scientists find**" (*Guardian*, 2023); "**Boris Johnson warns it's *one minute to midnight* to prevent climate catastrophe**" (*CNBC*, 2021).

Accordingly, these overdramatized and panic-inducing headlines shaped primarily through emotive discourse by evoking fear and anxiety serve to catch the public attention, emphasize the gravity and magnitude of the climate change issue and thus persuade policy makers and public to accelerate global action in order to avert the worst climate changes. The exaggeration frame and fear discourse are discursive strategies most commonly linked with climate alarmism, that is, climate alarmists who resort to extreme language not only to provoke public frenzy but also to put an issue on a global agenda and thus ignite a public debate, which may consequently contribute to problem resolving.

Various aspects, stories and frames of the climate change may be hyperbolized in order to appease specific group interests. In most cases, hyperbole is used to maximize the perils of the "business as usual scenario" and hence implicitly criticize the current political inertia and lack of global response to combat climate change. In this particular case, hyperbole is used as a discursive strategy for the purpose of othering, aggravating polarization, that is, polarized discourse between the alarmists and sceptics in the climate change debate. On one hand, by exaggerating the potential effects of the rising emissions due to fossil fuel combustion, hyperbole as a discursive tool serves to delegitimize the narrative of climate denialists/sceptics/contrarians, that is, profit-driven proponents of the fossil fuel industry by negatively framing oil and gas production. In a light of this, hyperbole is deliberately employed to draw attention to the hazards of burning of fossil fuel as the dominant cause of the changing climate and warming of the planet and consequently persuade the wider audience on the harmful effects of the fossil fuel industry and the necessity of its phasing out. By demonizing fossil fueled economy and its proponents, deployment of hyperbole exposes ideological stance of the media outlets and thus strengthens the narrative of mainstream climate science and discourse of anthropogenic climate change. This way hyperbole legitimizes standpoint of climate scientists and researchers on the man-made climate change and positively frames green transition, decarbonization and net-zero emissions.

In order to draw attention of the wider audience, countless articles and headlines emphasize the *countdown* discourse, that is, framing of climate change as a "time bomb" through deployment of various time expression such as "only 11 Years Left, 12 years to save the planet, one minute to midnight". In recent years, the portray of climate change as "the ticking time bomb" has become rather pervasive in public discourse and is widely embraced by various actors in the climate debate, such as world leaders, politicians, celebrities, climate activists. Such hyperbolic framing shapes the countdown discourse by suggesting that "the world has limited time" or that "time is running out" to avert the climate catastrophe and avoid the worst-case scenario based on the scientific predictions. By overemphasizing time deficiency, hyperbole is intentionally exploited to stress the fact that climate change is an immediate and urgent threat to the whole humankind and thus persuade policy-makers on the necessity of acting immediately to abate the current changes. Doom and gloom discourse is shaped by magnifying the risk and potential implications of the rising emissions leading to the "day of reckoning" ("end of history, end of human race"). Hyperbolization of the apocalyptic framing (with the emphasis on "the time left") is also intentionally used for the political and ideological purpose primarily to dismantle the

denial campaign and delegitimize arguments of climate skeptics claiming that the climate change is a “hoax” and that changes are mostly due to natural variability.

Beside the time expressions embodied into countdown discourse, hyperbolic framing of the climate change is also reinforced by the use of adverbs and adjectives of degree and intensity such as “unbearably boiling hot” as well as complex modifications “terror movie” thereby triggering frenzy around the doomsday forecasts. Scaremongering as the dominant rhetorical strategy of media and politicians thus serves as the main manipulation tool to persuade the public on the truthfulness of the scientific warnings as well as to justify the proposed policy frameworks and regulations. Through emotional appeal, by evoking fear, panic and dread, discourse of alarmism is further strengthened aiming to influence perception of public and decision-makers in order to align with their political goals promoting renewables, net-zero emissions and green industry and thus gain acceptance for the proposed low-carbon economy and green transition.

However, these overblown claims of climate scientists, politicians and news media are found to contribute to increasing environmental and climate nihilism and defeatism and in most cases are used by climate denialists as counterargument to climate science (Mann, 2021).

8.5. Concluding remarks

By critically analyzing the rhetorical dimension of the climate change narrative, tropes as metaphor, irony and hyperbole are found to be important constitutive elements in the representation of the climate change in the mediated, political and scientific discourse. Accordingly, climate change communication in the public discourse relies greatly upon the power of the rhetorical devices to convey the desired message to the wider audience and thus influence their attitude, belief or behavior. Nevertheless, their function extends beyond the mere communication, which is, informing or facilitating understanding of the complexities and challenges of the global phenomena. It also involves persuading the public on the legitimacy, credibility and authority of the claims, arguments and standpoints of specific interest groups in the climate change debate.

Regardless of the manner they are used in the narrative, isolated or jointly, they illustrate the vast spectrum of rhetorical - discursive practices, that is, the ways in which rhetorical features may interact and intersect to articulate a certain discourse, frame or a perspective. Recognizing their capacity for linguistic maneuvering, tropes are widely embraced by climate believers and non-believers as ideological tools to influence the power shift in the divisive climate change debate on the contested topics. Depending on the goal and motives of the key climate actors, rhetorical resources have proved to be powerful strategic weapon that may discursively shape or reshape the dominant paradigm and thus influence the public perception.

As they have proved to be efficient carriers of ideology in the climate change discourse, rhetorical devices are employed to transmit either discernible or opaque ideological patterns. Consequently, this impacts whether manipulation will be explicit or implicit. In most cases, public is manipulated and persuaded to believe in “the reality” manufactured by the dominant groups through emotionalization of the narrative which is achieved through rhetorical strategies of metaphorization, ironization and hyperbolization.

Metaphors of war, sports and gambling are used excessively in the media, political and scientific discourse conceptualizing climate change as either a battle, sports game or a gambling issue. Beyond their stylistic effect as embellishment of the narrative itself, these metaphors serve as powerful ideological tools which communicate urgency, competition, and uncertainty surrounding climate action. They expose underlying political conflicts and ideological clashes,

revealing the roots of polarization and politicization of the debate as well as the divergent viewpoints and stakes at play. Nearly all climate actors, decision and policy-makers as well as politicians and governments are represented through the frame of winners and losers (similarly to contestants in war, sports game or gambling) thus manipulating the public perception on the binary structure of the climate crisis. This in turn may distort public understanding and impede urgent action. Moreover, these metaphors frame the discourse in ways that triggers emotional reaction (compassion or contempt) and thus influence public attitudes and opinions.

Ironical framing is primarily utilized to construct the discourse of criticism and thus implicitly and sarcastically ascribe responsibility and blame for the climate inaction to certain actors in the climate change debate persuading the public regarding the roles of villains and heroes in the fight against climate change. As it is well-suited for the technique of othering, irony is a rhetorical tool that is mostly exploited by politicians seeking to deemphasize the credibility of their opponents and emphasize their own "good deeds" in the climate change debate. It is used by both climate alarmists and deniers as a communication strategy to "politely mock or discredit" opponents' ideological aspirations.

Hyperbolic framing is found to be most widely embedded into media coverage of the climate change, serving as a "hook" to capture public attention and galvanize action for the green transition. As it typically serves to dramatize and catastrophize the risks and impacts of the rising temperatures, it is widely regarded as the dominant communication strategy of climate alarmists advocating for the urgent net-zero policies to combat climate change. Various adverbs (of degree, time, intensity) are exploited to deliberately magnify the urgency, severity, and immediacy of the climate crisis justifying proposed adaptation and mitigation measures.

9. THE PRAGMATIC DIMENSION

9.1. Theoretical background

Language of the climate change discourse can be analyzed using various linguistic approaches and perspectives and one of them is pragmatics. The essence of pragmatics is best encapsulated by Emeritus Professor of linguistics, Charles W. Kreidler:

> "The chief focus of pragmatics is a person's ability to derive meaning as communicated from specific kinds of speech situation, to recognize what the speaker is referring to, to relate new information to what has gone before, to interpret what is said from the background knowledge about the speaker and the topic of discourse, and to infer or fill in information that the speaker takes for granted and doesn't bother to say" (1998: 18).

9.2. Notion of pragmatics

The notion of pragmatics can be traced back to philosophical thinking of the early 19th century and its origins are most often associated with the American philosopher Charles W. Morris who was the first to use the term in a systematic technical way (Félix-Brasdefer, 2024). According to Morris, pragmatics is defined as "the study of the relation of signs to interpreters" (1938: 6). Pragmatics initially emerged as a response to the structuralist linguistics framework established by Ferdinand de Saussure (Moeschler, 2006). Specifically, it was introduced as one of the three components of semiotics, the science of signs. Morris distinguishes three fields of study: (1) syntax, "the study of the formal relations of signs to one another", (2) semantics, the study of "the relations of signs to the objects to which the signs are applicable", and (3) pragmatics, the study of "the relation of signs to interpreters" (1938: 6). Even though Morris's endeavors to integrate all sciences of signs failed, his study paved the way for pragmatic research.

Foundation for the development of pragmatics as the branch of linguistics was laid at the intersection of two philosophical schools, American pragmatism and logical empiricism (Ferrari, 2019). In that context, Morris pointed out that pragmatism and logical empiricism "are essentially complementary" so that "much is to be expected from a conscious cross-fertilization of the two tendencies" (Morris, 1937: 23). Consequently, the pragmatics emerged at the confluence of these notions.

In a light of this, pragmatics can be interpreted from two standpoints, the Cognitive-Philosophical perspective (or Anglo-American pragmatics) and the Sociocultural-Interactional perspective (or European-Continental pragmatics) (Huang, 2017). The first is considered as the "component perspective" that investigates the "systematic study of meaning by virtue of, or dependent on, the use of language" (Huang, 2017: 341). It chiefly covers topics such as implicature, presupposition, speech acts, deixis, and reference. The latter is also known as "empirical pragmatics" and interfaces sociolinguistics, psycholinguistics and discourse analysis.

9.3. Origin of the term

From the etymological point of view, the term is derived from the Greek *pragmatikos* denoting "fit for action" which has roots in the words *pragma* and *passo* meaning "action" and "to practice, to achieve", respectively.

Owing to the complexity of the field of pragmatics, there is a wide range of formulations covering various aspects and perspectives most often referring to speech act or a linguistic act, regardless of whether reference is directly linked with the theory of speech acts or not. Therefore, pragmatics may be defined in multitudinous ways.

In the broadest sense, pragmatics is described as the study of meaning in context (Taguchi and Kádár, 2024). More specifically, it focuses on the study of meaning as communicated by a speaker (writer) and interpreted by a recipient (listener/reader). Consequently, it is more concerned with the analysis of the content, i.e. message speaker intends to convey by their utterances than what these utterances literally express with those words or phrases. Therefore, pragmatics is most broadly described as the study of meaning either implied or presupposed in what is directly and explicitly communicated and said (Taguchi and Kádár, 2024).

In his book *Pragmatics*, Levinsons' attempt to specify scope of pragmatics spans on nearly 35 pages pointing out that "the most promising are the definitions that equate pragmatics with *meaning minus semantics*, or with a theory of language understanding that takes context into account, in order to complement the contribution that semantics makes to meaning" (1983: 32). According to Levinson, pragmatics represents an inferential process:

> "We can compute out of sequences of utterances, taken together with background assumptions about language usage, highly detailed inferences about the nature of the assumptions participants are making, and the purposes for which utterances are being used. In order to participate in ordinary language usage, one must be able to make such calculations, both in production and interpretation. This ability is independent of idiosyncratic beliefs, feelings and usages (although it may refer to regular and relatively abstract principles). Pragmatics can be taken to be the description of this ability, as it operates both for particular languages and languages in general." (1983: 53).

He further adds that pragmatics is the study of "those relations between language and context that are grammaticalized or encoded in the structure language" (1983: 9). According to Stalnaker (1972), the scope of pragmatics is characterized as "the study of deixis (at least in part), implicature, presupposition, speech acts, and aspects of discourse structure" or put differently, "the study of linguistic acts and the contexts in which they are performed" (1972: 383). Another relevant formulation is the one proposed by Yule (1996) who views pragmatics as the study of meaning. According to him:

> "Pragmatics is concerned with four areas, i.e. dimensions of meaning: 1) the study of speaker meaning, 2) the study of contextual meaning, 3) the study of how more is communicated than is said, 4) the study of the expression of relative distance" (1996: 3).

Huang (2017), following Levinson (1983, 2000) proposes the following formulation: "Pragmatics is the systematic study of meaning by virtue of, or dependent on, the use of language. The central topics of inquiry of pragmatics include implicature, presupposition, speech acts, and deixis." (2017: 2). Building upon the aforementioned, pragmatic approach to analyzing language constitutes a vital aspect of the climate change discourse research particularly due to its focus on what is unsaid as the concealed and invisible meaning are most often utilized as discursive strategies with manipulative purpose to maintain power relations or transmit certain ideologies in both media and political discourse in the context of the rising global temperatures.

In spite of their previous reputation of being "unruly and suspiciously non-logical" (Horn, 1996: 299), over the past few decades presupposition and implicature have risen up the ladder in

the field of semantics and pragmatics. “They are now among the most trusted and widely explored sources of insight into how language and context interact, the role of social cognition in shaping linguistic behavior, and the nature of linguistic meaning itself” (Potts, 2015: 169).

9.4. Pragmatics and CDA – the discourse of deception

In the context of ever-shifting paradigm of climate change within the media and political discourse, linking pragmatics with critical discourse analysis seems inevitable due to various reasons. Considering the heterogeneity of the discourse-centered approach and the interdisciplinary nature of the research area, investigating their interrelationship is essential for facilitating the deconstruction of media framings, political speeches and scientific publications in terms of their ideological stance often hidden in the discourse.

Referring to the presuppositions and implicatures, Fairclough (1989) asserts that pragmatic devices are often seen as powerful sources of manipulation. Taking into account that the content or message they are intending to convey, is not directly communicated but either presupposed or implied, but most importantly deliberately left unsaid, they have both the capacity and capability to “store” extensive ideological corpus in their sentences i.e. utterances. Consequently, assumptions that are implicitly triggered serve to assert or maintain certain power relations fundamental for the execution of power. Similarly, the presupposed or implied information may also be utilized to transmit certain ideological beliefs, ideas or values otherwise overlooked or neglected.

Given their manipulative and persuasive potential, pragmatic devices may be utilized as discursive strategies with a broad-spectrum of ideological purposes, positive self-presentation, negative other-presentation, legitimization of own credibility/delegitimization of opponents’ goals/credibility, emphasizing own claims/de-emphasizing other claims (Van Dijk, 2016; Sorlin, 2017, Moldovan, 2023). The ideological effect is seldom explicitly exposed but rather concealed in the assumption or an implicature and can be uncovered.

On one hand, Critical Discourse Analysis treats language as a social practice (Fairclough, and Wodak, 1997), and views the context of language use as crucial (Weiss and Wodak, 2003). On the other hand, pragmatics is defined as the science of language in use. While pragmatics is mostly concerned how utterances are understood within the scope of the pragmatic theories, within the scope of CDA is concern how discourses succeed to maintain and propagate ideologies (De Saussure, 2005).

Employing pragmatic features of the language in the political and media representation of climate change has become an increasingly evident and a widespread notion primarily due to their properties to convey an opaque meaning i.e. a messages that otherwise haven’t been explicitly or directly stated (Grundmann, 2015; University of Kansas, 2019; Frontiers, 2023).

9.5. Decoding deception discourse

The manipulative power of presuppositions lies consequently in the fact that assumptions forced by a speaker are seldom challenged but unequivocally accepted by a recipient allowing them to persuade the audience in the integrity and credibility of the speaker’s claims (Maziad, 2019). In that regard, Bekalu states that presupposition is a frequently referred linguistic/pragmatic property of language use which might be systematically employed to serve “ideological and/or political purposes in news discourse” (Bekalu, 2006: 151, 169). On

the basis of which, Fairclough (1992) adds that presuppositions can be used as a tool for examining the power relations and hegemony.

Assessing the risk of manipulation that presuppositions may potentially force in their utterances was first carried out by Gottlob Frege in his text "Über Sinn und Bedeutung" (Sense and Reference). In his 1892 study, he paid special attention to the danger potentially arising from the sentences including false presuppositions that have not been previously accepted by recipients (Frege, 1918). Specifically, he investigated the manipulative effect of the phrase "Der Wille des Volkes' (the will of the people). In a light of this, he concluded that the expression presupposes the existence of a unique will of people whereas its *Bedeutung* (reference) does not actually exist in reality (Sanders, 2021). This creates a fertile ground for demagogical abuse in particular in political context (Sanders, 2021). Political actors hide the agenda they promote behind the ideologies presented in the presuppositions and many times the ideologies are not in the interest of the common people. The manipulation of ideologies can be exposed through the analysis of the presuppositions and the assumptions hidden behind them.

9.6. Presuppositions

According to Stalnaker, "to presuppose a proposition in the pragmatic sense is to take its truth for granted, and to presume that others involved in the context do the same." (1972: 387–8). According to Yule, presuppositions are "something the speaker assumes to be the case prior to making an utterance" (1996: 25) or put differently "an assumption by a speaker or writer about what is true or already known by the listener or reader" (2014: 117). Correspondingly, speaker has presuppositions, not the sentence itself. Creating a message by a speaker or a writer is based on the assumption that the recipient already possesses a certain degree of knowledge of what is being communicated and thus accepts it as a truth. The presupposed knowledge is hence taken for granted in the process of communication. In a similar vein, Potts proposes a definition that "presuppositions of an utterance are the pieces of information that the speaker assumes (or acts as if she assumes) in order for her utterance to be meaningful in the current context" (2015: 3). Furthermore, Levinson extends the definition by stating that "the term presupposition refers to those assumptions which appear to be built into the linguistic structure of texts and which relate linguistic structure to extra-linguistic context in terms of the inferences which are expected to be made about the context (1983: 68).

Etymologically, the term presupposition originates from the word *suppose* which comes from the Latin term for "put under", combining *sub* ("under") and *phonere* ("to put"). According to Merriam-Webster Dictionary (2024), *to presuppose* means to "suppose beforehand or to require as an antecedent in logic or act."

Despite a number of common features all presuppositions share, there are certain distinguishing criteria on the basis of which it is possible to differentiate between pragmatic and semantic presuppositions. The former analyzes presupposition from the standpoint of pragmatics whilst the latter analyzes presupposition from the perspective of logic and semantics. The theory of pragmatic (speaker, conversational) presupposition is developed by Stalnaker (Stalnaker, 1970). He asserts the following:

> "A proposition B is a pragmatic presupposition of a speaker in a given context just in case the speaker assumes or believes that B, assumes or believes that his audience assumes or believes that B, and assumes or believes that his audience recognizes that he is making these assumptions or has these beliefs." (Stalnaker, 1974: 200).

According to Stalnaker (1974), pragmatic presupposition is what speakers assumes to be the common ground of the participants in a conversation. On the other hand, the notion of semantic (conventional, lexical) presuppositions is often associated with Frege (1892) and Strawson (1950). Based on their theory, semantic presuppositions are embedded into encoded meanings of specific phrases and constructions, called presupposition triggers.

9.7. Implicature

The term *implicature* was coined by Herbert Paul Grice, British philosopher of the language who introduced the notion of implicature in his 1975 paper "Logic and Conversation" in *the Syntax and Semantics series* (Cole and Morgan, 1975; Grice, 1975). Specifically, he combined "the verb *implicate* and the noun *implicatum* referring to what is implied, i.e. the action of implying" (Grice, 1989: 24). "Implicature denotes either (a) the act of meaning or implying one thing by saying something else, or (b) the object of that act" (Stanford Encyclopedia of Philosophy, 2005). The overarching goal of Grice's study was to formulate a theory that would identify the cause of mistakenly used utterances. Specifically, he wanted to propose a theory drawing upon the distinction between "the case in which an utterance is not appropriate because it is not true taking into consideration the state of affairs in the world, and the case where there is a different reason for its inappropriateness" (Grice, 1989: 4). In a relatively short period, Grice's paper and theory gained prominence as one the classic pillars of the pragmatics.

The concept of implicature he presented in his William James lectures at the Harvard University was based primarily on the empirical data, noting that there is a difference between what speaker means and what the sentence expressed by the speaker means (Lüthi, 2006). Specifically, he noticed that speakers often mean *more* than what they say, that is, more than what they express in their utterances. That *more* refers to what an utterance may implicate, an implicature, a message/information that speaker wants to communicate implicitly without explicitly saying it. This way implicature refers to something that speaker implies or suggests with an utterance without being literally expressed. Consequently, implicatures can facilitate communication even though varying degree of content intended to be conveyed may be left out of the utterance. Grice introduced the technical terms *implicate* and *implicature* in cases where there is a discrepancy between what the speaker explicitly said and what the speaker thereby meant or implied (Lüthi, 2006).

In his paper "Logic and Conversation", Grice identified two kind of implicatures, "conversational and conventional" (1989: 25–26). Conversational implicatures are regarded the centerpiece of Gricean pragmatics and its subsequent developments (Grice, 1989). Instead of applying conventional approach to the notion of conversational implicature, Grice provided a pragmatics framework to represent them:

> "I am now in a position to characterize the notion of conversational implicature. A man who, by (in, when) saying (or making as if to say) that p has implicated that q, may be said to have conversationally implicated that q, provided that 1) he is to be presumed to be observing the conversational maxims, or at least the cooperative principle; 2) the supposition that he is aware that, or thinks that, q is required in order to make his saying or making as if to say p (or doing so in those terms) consistent with this presumption; and 3) the speaker thinks (and would expect the hearer to think that the speaker thinks) that it is within the competence of the hearer to work out, or grasp intuitively, that the supposition mentioned in (2) is required." (Grice 1975: 49–50).

In a light of his theory on conversational implicatures, Grice (1975) introduced two related concepts of *the cooperative principle* and a *set of conversational maxims*, which constitute a cornerstone of his implicature study. According to Grice, conversations are "cooperative efforts" in which two or more people are engaged in a mutual activity (1989: 26). Consequently, he uses the term *cooperative principle* to denote guiding principles in the communication that influence the language use. These nine components are organized into four categories dubbed as the maxims of conversation: the maxim of quality (truthfulness), the maxim of quantity (informativeness), the maxim of relation (relevance), and the maxim of manner (perspicuity) (Koutoupis-Kitis, 1982). Accordingly, conversational implicatures are context-dependent and arise from violations or flouting of conversational maxims. Grice puts it in a form of a maxim: "Make your conversational contribution such as is required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engaged." (Grice, 1989: 2). However, he adds that "it is just a well-recognized empirical fact that people do behave in these ways" (Grice, 1989: 29).

Levinson explains the conversation implicature in a similar fashion stating that is one of the key concepts in the field of pragmatics as it discloses the gap between what is meant and what is actually said (Levinson, 1983). Conversely, conventional implicatures are encoded in the language itself and are linked with particular linguistic forms. They contribute an additional meaning to an utterance.

9.8. Pragmatization of the climate change discourse

The examples provided demonstrate how employment of presuppositions and implicatures may serve as a discursive strategy in shaping different narratives, frames and discourses pertinent to climate change across science, media and politics.

> "**Countries' climate promises STILL not enough to avoid catastrophic global warming: UN Report**" (*UN news*, 26 October 2022).

The main goal of the article is to inform the general public about the release of the latest UN report on climate change as well as to provide insight into disparity between the present greenhouse gas emissions and the levels specified by the scientific community. Moreover, it provides a sneak peek into progress report of worldwide government efforts to curb emissions according to the Paris agreement and reveals some major inconsistencies in countries pledges to achieve these goals. The headline unambiguously and explicitly exposes the UN's ideological stance toward global community in the fight against climate change through both pragmatic devices. The presupposition "climate promises" which broadly refers to climate pledges indicates that countries' governments have recognized climate change as an imminent threat and therefore committed to constrain their emissions by signing the Paris treaty. Nevertheless, the lexical choice of the term "promises" instead of "pledges" suggests a less binding commitment to carbon emissions cut. Emphasizing that those pledges are insufficient, the implicature "still not enough to avoid catastrophic global warming" implies that there is a wide discrepancy between the climate promises (pledges) and the climate policies. Accordingly, the capitalized adverb of time "STILL" in the article headline suggests that the commitment level is pretty much unchanged - promises that were made in the past and the newly made promises are *still* mostly "empty". Politicians and world leaders are thus negatively framed in the context of quilt(y) discourse thereby implicitly criticizing their political ideology and lack of concrete action. The authority of

the mainstream climate science is reinforced by claiming that global warming is bound to be "catastrophic" thereby legitimizing scientific findings and projections on the future climate change impacts. Pragmatic devices are intentionally employed to juxtapose discourse of criticism, directed at policy- and decision-makers, purposefully magnifying their faults and poor climate decisions on one hand with the alarmist discourse underscoring need for urgent action (*catastrophic global warming*) on the other. Pragmatic devices are thus utilized as manipulative tools to change the global political agenda, increase the pressure on politicians to make more assertive actions and persuade the public to support these measures.

> "**The Climate Book: Welcome to Greta Thunberg's zero-bulls*** revolution**" (Cockburn, 2022; *Independent*)

In this article, *Independent's* journalist reviews environment-centered book published by young Swedish climate activist Greta Thunberg as yet another wake-up call for the planet. The book revolves around the vexing-subject of climate change as a recurring topic in her written and oral narratives, or more specifically, it represents a criticism manifesto of global climate inaction. Primarily, the title of the review unambiguously communicates her perspective on the global climate change politics as well as which side she holds in the climate change debate. As she strongly supports the carbon-neutral, that is, net-zero economy, the title conceals the implicature suggesting that Grete and climate activists, in general, will exercise "zero" tolerance for countries' governments and their fossil-fuel dependent economies. This further emphasizes the urgency of phasing out of fossil fuels and transition to green energy. Foul language is utilized intentionally to capture general public's attention towards the climate change issue while simultaneously communicating the alarming nature of this global challenge. At the same time, profanity exposes her stance towards global politics emphasizing her increasing mistrust in "true intentions" of policy-makers and politicians. Accordingly, implicature is deliberately employed to shape the discourse of condemnation for the politicians' poor ambitions, commitments and efforts, pointing fingers at them as the "main suspects" of the bad climate deeds. In other words, pragmatic device that author employs suggests that Grete will not buy *mumbo-jumbo bulls**** in terms of "climate ignorance, inaction or inertia" in the fight against climate change. Concurrently, the implicature that is embedded in the title labels her climate activism as "revolution" implying that the time is ripe for her "climate crusade" against the fossil-fuel dependent economies as it involves game-changing climate solutions toward decarbonized future.

> "**Climategate: No whitewash, but CRU scientists are far from squeaky clean**" (Pearce, 2010; *The Guardian).*

As previously mentioned, *Climategate* refers to the scandal that took place in November 2009 when mail correspondence between climate scientists at University of East Anglia was hacked and published online revealing that scientists manipulated data to exaggerate evidence for climate change. According to Campbell (2013), *Climategate* is coined by adding suffix *–gate* to the word *climate* drawing an analogy to *Watergate*, *Camillgate* (a scandal over the Prince of Wales' relationship with Camilla Parker Bowles) as well as *Monicagate* (a scandal referring to the alleged behavior of Bill Clinton). Ever since 1972 and the *Watergate*, the suffix *–gate* has been used with an increasing frequency to describe all sorts of scandals, particularly political (Campbell, 2013). In this particular case, *Climategate* as a metonymy is utilized as a linguistic device specifically within the political discourse. *The Guardian's* article presents the Russel review by providing numerous details of an extensive report on the involvement of scientists in

the climate affair. The presupposition “no whitewash” suggests that the prior negative framing of “scientific misconduct” regarding the case of East Anglia correspondence was prevalent in both media coverage and public discourse. The purpose of the title is therefore twofold. While the presupposition “no whitewash” suggests that scientists are “exempt from all previous accusations” seeking to reshape the public understanding of the matter, the subsequent assertion, “but CRU scientists are far from squeaky clean,” introduces a counter-narrative. Namely, it conceals an implicature subtly triggering doubts about scientists’ integrity. This implicature is used strategically to manipulate public opinion and reinforce the discourse of skepticism towards scientific findings and research promoting a critical approach to scientific-based climate narrative.

> “**Climategate, the sequel: How we are STILL being tricked with flawed data on global warming**” (Booker, 2015; *The Telegraph*).

As the title of the article suggests, British daily newspaper *Telegraph* can arguably be pigeonholed with some other media outlets for its biased coverage of climate change as it often resorts to various discursive strategies to mask its ideological aspirations. Employment of pragmatic devices in this particular case is therefore seen as one of discursive strategies primarily applied for manipulative purposes. Namely, to effectively draw attention of the public the story is purposefully framed as the “sequel to Climategate” emphasizing relatedness with the notorious climate affair. As “Climategate” refers to an infamous scientific scandal at the University of East Anglia, implicature “sequel” is intentionally utilized as a persuasive tool to imply a continuation or possibly follow-up of the previous event. Accordingly, such opening line suggests that the news story is equally sensational, significant and possibly controversial as the *Climategate*, at least. By echoing *Climategate* it concurrently implies ideological stance in the climate debate, deliberately rearising question of scientific whitewashing in the previous scandal. Manipulative power of presupposition is utilized in the second part of the article’s title. By placing emphasize on the time adverbial “still”, *Telegraph* intentionally misleads public into believing that the scientific evidence presented by relevant researchers has always been and has never ceased to contain flawed data on global warming alluding to the fraud. *Telegraph* employs presupposition in a manipulative and persuasive way aiming to cast doubt and possibly undermine the mainstream climate science. Specifically, scientific narrative is intentionally framed as a *hoax* by repeatedly pinpointing shortcomings and wrongdoings of climate researchers and scientists. Moreover, media outlets employ pragmatic devices to scandalize the scientific research and belittle scientific findings in order to weaken public trust in climate science and thus pave the way for climate skepticism and strengthen its position in the climate change debate.

> “**PM makes screeching ‘U-turn‘ on attending COP27 - and all his campaign pledges are under review**” (Brown, 2022; *Sky news*).

In a countdown to COP27 in Egypt, media headlines have been largely dominated by a full disclosure of a guest list spotlighting the most prominent movers and shakers expected to take part in the climate talks. In a light of this, a headline “PM makes *screeching U-turn* on attending COP27 - and all his campaign pledges are under review*”* appeared in the *Sky news* (Brown, 2022). The expression *U-turn* commonly refers to the 180-degree turn made by a vehicle in a road. Paired with adverbial of manner, *screeching,* it further denotes a sudden and complete reversal of direction. Thus, it forces a first presupposition that the UK Prime Minister Rishi Sunak abruptly reversed his decision on attending the COP27 as it was previously announced that

he would have to skip the conference due to "other pressing domestic commitments." However, the expression "screeching U-turn" further implies that PM didn't reevaluate his decision voluntarily bur rather reluctantly given the rising pressure and harsh criticism he was exposed to by politicians and climate campaigners. In other words, it indicates that PM was forced to reverse his decision on the COP27 attendance. In that regard, he tweeted on social media: "There is no long-term prosperity without action on climate change. There is no energy security without investing in renewables" (X platform, 2. 11. 2022). Aiming to reassure public on his climate decisiveness, he triggered several presuppositions stressing the importance of addressing the climate issue as a prerequisite to *long-term prosperity* implying that it will be given highest priority. Manipulative presuppositions are used to persuade the public on his ambitious climate plans and thus strengthen its political goals. Overall, pragmatic devices are employed to highlight politicians' role in the climate change talks and shape the discourse of responsibility emphasizing the impact of their decisions for the future of the planet.

"**Rishi Sunak has 'seen sense' on COP27 but 'must do more than just turn up**" (Smith, 2022; *Independent*).

In a similar vein, *Independent* has slammed PM for his initial decision to skip the climate conference by stressing he has "seen sense". Presupposition hidden in the expression "seen sense" unambiguously indicates that the PM's previous decision on absence from COP27 was framed in a negative light and perceived as an irrational and irresponsible move given that his flip-flopping on attendance could have jeopardized Britain's climate leadership position on the world stage and send the wrong signal to the global community. However, second part of the headline "must do more than just turn up" conceals an implicature suggesting that passive participation or just "showing up" is not a desirable option and will not in any way contribute to strengthen Britain's climate reputation. Another assumption which is made here implies chronically passive role of politicians and decision-makers in the past climate talks and lack of political will to make tangible results in climate change policies. In this particular case, medias' employment of presupposition and implicature is seen as a discursive strategy to build the critical frame around the UK's politicians engagement in climate talks and persuade the public that politicians are among the main offenders for the procrastination of the climate change solution.

"**Rishi Sunak accepted cash from fossil fuel investors in campaign to become PM**" (Siddle, 2022; *Mirror*)

In a string of headlines surrounding the issue of COP27 attendance, UK daily paper *Mirror* stepped up with some serious revelations (allegations) at the account of PM Rishi Sunak, releasing an article entitled "Rishi Sunak accepted cash from fossil fuel investors in campaign to become PM". Namely, UK tabloid newspaper unveiled that the PM's political campaign in a race to Downing St. No 10 was financed by donors linked to fossil fuel industry, i.e. gas, oil and aviation. Implicature contained in a *Mirror* headline communicates clearly the principal reason for PM's decision to skip the meeting and avoid making any climate commitments. The fact that PM underprioritized COP27 was interpreted in a highly negative light of this fossil fuel narrative suggesting that his lack of climate ambitions stems from the fact that he stands close to the industries responsible for most GHG emissions causing rising air temperatures. Implicature is employed to reveal the ideological goals behind the political inaction on the climate change issue and thus persuade the public on politicians' double agenda. Moreover, it exposes the extent to which the climate change narrative is politicized and entangled with power and ideology.

Simultaneously, the strategic use of pragmatic devices serves to shape the ideological discourse opposing Sunak, challenging not only his integrity and political party but also their agenda on the environmental issues.

> "**Scientists challenge *alarm bells* in IPCC climate change report: "Not the end of the world**" (Musto, 2021; *Fox News channel***).**

The release of the latest IPCC three-part report on climate change drew attention of the public and scientists primarily because of numerous dire warnings on the adverse impacts of the rapidly warming world. Moreover, "the code-red for humanity" was declared. With regard to that, *Fox News* published an article challenging the mainstream climate science and diverting attention to other ideological and political viewpoint. In the media ecosystem, *Fox News* network is known as one the most prominent media exponents of the climate denialism and skepticism by disseminating fake news and misinformation aiming to manipulate public perception of the subject matter. The IPCC report containing scientific findings and evidence supported by research data and observations is negatively framed as alarmist rhetoric by referring to "alarm bells" sounded in the report. With implicature embedded in the headline ("alarm bells"), IPCC scientists are framed as prophets of scaremongering equalizing scientific warnings with doomsday predictions suggesting their research is exaggerated, overblown and excessively panic-inducing. Implicature "alarm bells" is thus utilized to convince the wider public that climate science is overstated and inflated questioning its validity and integrity. Moreover, *Fox News* intentionally employs implicature as a persuasive tool to undermine public confidence in IPCC reports. By lexical choice "*scientists* challenge" presupposition clearly emphasizes and indicates that the IPCC science is not questioned by a lay public or non-scientific community but scientists with the same level of credibility, expertise and qualifications as those who have collaborated in the production of IPCC report implying its high-level quality peer review process. Presupposition communicates counter-expertization, that is, experts as trustworthy and credible and thus presents them to the public as equally reliable source of information as IPCC scientists. Presupposition is used with a manipulative purpose to mask an ideology of climate contrarians/sceptics attempting to persuade the public that IPCC reports are a hyperbolized version of science. As a sequel to that assumption is a line: "not the end of the world". It implies that even though climate change exists and inevitably causes long-term changes to the planet it doesn't necessarily equals with the apocalyptic forecasts of IPCC. This way *Fox news* shapes its ideological discourse in a climate change debate attempting to delegitimize climate science and discredit IPCC scientists, influencing public opinion and engagement on the issue.

> "**Democrats blaming climate change for Hurricane Ian at odds with science, experts say**" (Catenacci, 2022; *Fox News*).

On September 28, 2022, Hurricane Ian, one of the most powerful storms (Category 4 storm) ever to hit US mainland, made a landfall on the west coast of Florida sweeping away homes and communities. In that regard, Democrats were the first to point out the inseparable linkage between manmade climate change and extreme weather events. In this context, they referred to attribution studies in which increasing frequency and intensity of weather disasters, among other hurricanes, is determined to be fueled primarily by the changing climate. *Fox News* however decided to spin the news and reframe the story in another context applying pragmatic devices as the main discursive strategy. *Fox News* employed pragmatic devices to construct the counter-discourse to mainstream climate science and thus emphasize the ideological clash

between Democrats and Republicans on the issue of climate change. Namely, with the first presupposition "Democrats blaming climate change for Hurricane Ian" *Fox News* suggests that Democrats identified climate change as the main cause of flooding and devastation. Therefore, in a second part of the headline, *Fox News* employs implicature "at odds with the science" suggesting that Democrats' assumptions are "not valid" thereby dismissing their claim on the interrelatedness of climate change and extreme weather events. Concurrently, implicature is used to delegitimize Democrats' view on the lacking adaptive measures and in general inadequate climate change policy in terms of climate change risk perception. With this implicature, *Fox News* not only attempts to discredit Democrats' perspective on the climate change issue but their entire political ideology. With employment of pragmatic devices *Fox News* constructed an ideological discourse marked by polarizing views of the political opponents in the USA political discourse, Democrats and Republicans. It intentionally deemphasizes claims of Democrats in order to shake the public view on their political decisions and actions. Therefore, pragmatic devices are employed to persuade the public that Democrats' alarmist rhetoric is purely ideological crafted for the manipulative purpose to promote green agenda and collect votes.

> "**UN chief warns against *sleepwalking* to climate catastrophe**" (UN news, 21 March 2022).

"On March 21, 2022, Secretary-General António Guterres delivered the keynote speech to The Economist's Sustainability Summit focusing on *Keeping 1.5℃ Alive – Delivering on the Fate of our Planet"*. On that occasion, the top UN official presented a cautionary tale on the possible environmental havoc highlighting numerous "blind spots" of the global community to tackle the critical threshold of 1.5℃. Among the highlights of his speech are the following remarks: "We are sleepwalking to climate catastrophe….In our globally connected world, no country and no corporation can insulate itself from these levels of chaos. If we do not want to *kiss 1.5 goodbye*…we need to go to the source – the G20 (group of leading industrialized nations. We can't point fingers while the planet burns, our planet can't afford a climate blame game." Firstly and most obviously, the lexical features of his narrative clearly reflect his penchant for alarmist rhetoric as a discursive strategy for the persuasion of the public and decision-makers. By repeatedly referring to the increasing warming as "climate catastrophe", "chaos" and "burning of the planet", he resorts to discursive strategy of hyperbolization and overlexicalization concurrently using emotional appeal to magnify the risk and urgency of the problem. Simultaneously these lexical choices conceal implicatures suggesting that there is a growing risk of gloomy scientific forecasts turning into reality with a myriad of hazards pending to hit the planet. Moreover, his statement "sleepwalking into climate catastrophe" is deliberately crafted to draw attention of the recklessness of policy-makers towards the approaching danger. His lexical choice "sleepwalking" is made purposefully concealing a presupposition used to frame the climate response of the global community in a critical manner and thus shake politicians to take steps that are more concrete. The warning against "sleepwalking" is concurrently used to construct the discourse of blame directed at G20 criticizing their inaction, idleness as well as neglect of the climate change problem with the emission trends continuing and extreme weather events sweeping around the globe. By doing so, he directly assigns blame to a group of leading industrialized nations and their leaders and politicians for an effortless approach toward climate agenda. He implies that global warming is already present ("planet burns") and that no one can escape from it. However, as he presupposes who are the main villains in the climate narrative, he shifts attention to the solution discourse dismissing the "blame game" as a waste of time and

urging collective action to address the pressing challenges posed by climate change. Pragmatic devices are thus used to reinforce the discourse of fear and accordingly influence the governments' to mobilize finances and action for the climate change adaptation and mitigation measures.

> "**There's a 50:50 chance the planet will pass the 1.5℃ warming threshold in the next 5 years**" (Ryan, 2022; *CNN*)**.**

Scientific reports released by World Meteorological Organization normally contain substantial body of evidence supporting scientific claims, which are further reinforced by a great deal of data in terms of precise calculations. These data typically represent a long-term climate trends and predictions in a broadest possible sense and any reading of the data in isolation or out of context would automatically increase the risk of misinterpretation. Firstly, *CNN* headline triggers a presupposition that a threshold of 1.5℃ set in a Paris Climate Agreement is regarded as a critical milestone. As of February 2023, Paris climate accord has been ratified by 194 countries and EU all committing to reduce emissions and adapt to altered climate conditions. Therefore, reaching or exceeding the 1.5℃ warming threshold is framed as a "red flag" for the global community due to the magnitude and rate of the possible environmental implications. Accordingly, presupposition is employed to amplify the importance of the possible "tipping point" reinforcing the scientific warnings and alerting the public and policy-makers on the pending danger unless dramatic emission cuts are made. As a sequel to this, it is further implied that any surpassing of the tipping point would be considered humanity's defeat in a fight against climate change. In that regard, *CNN* highlights the odds for this to happen (50:50 chance). The "50:50 chance" implicature suggests that world is at the crossroads in terms of the course it will continue, "business as usual scenario" or "net-zero emission pathway" entirely depending on the political will and financial resources. Pragmatic devices are thus utilized to construct the discourse of responsibility aimed at galvanizing global efforts to address the pressing issue. In this particular case, the ideological discourse is constructed by employing the number game to manipulate and persuade the wider audience and decision-makers on the urgency and gravity of resolving the issue. However, the report itself reveals that it is only a temporary and low target limit.

> "**COP28: Fossil Fuels Make Climate Deal Draft Text for First Time. The beginning of the end**" (Shankleman, 2023, *Bloomberg*).

The article is featured in the *Bloomberg green*, special edition of the Bloomberg devoted to the coverage of the climate-related news during COP28 in Abu Dhabi. The article summarizes the key take-aways from the conference questioning whether the main achievements lived up to the media hype. The title "the beginning of the end" implies the "emergence of a new era" and frames the outcome of the conference in a positive light. Accordingly, the implicature "beginning" suggests that significant transformative changes are underway, in both political, social and economic terms implying that policy-makers and governments have come to senses in terms of adopting and implementing measures to accelerate the green transition. The other implicature "the end" implies that the current emission trend, that is, "business as usual scenario" will slowly but steadily be abandoned implying that the end of the fossil fuel era is in sight. Simultaneously it highlights the significance and implications of COP28 decisions, as it is the first COP where the word fossil fuel is incorporated in the draft decision. Correspondingly, pragmatic devices are intentionally used to frame the climate change talks at COP28 as

productive, constructive and efficient, shaping the optimistic discourse on the warming planet. As a contrast to doom and gloom rhetoric and recurrently fiasco-portrayed COPs, implicatures are employed to communicate the ideological shift in attitude and mindset of the ruling establishment and thus motivate the wider audience to engage on the issue of climate change.

> "**Arnold Schwarzenegger Wants To Terminate Climate Change**" (*Huffington post web page, n.d.*)

In a video *Huffington post* released in mid-October, Arnold Schwarzenegger criticizes Donald Trump over his climate change policy. In this headline, *Huffington post* utilizes celebratization as a discursive strategy to shape the narrative of climate change in the media discourse, capture the public attention and increase salience of the issue. Bearing in mind that Arnold Schwarzenegger is not only a Hollywood icon but also a former governor of California and prominent environmental activist, *Huffington post* leverages his celebrity status to push climate change further on the global policy agenda. In other words, climate change is intentionally framed as the primary environmental concern of a celebrity in order to increase prioritization of the issue among decision and policy-makers. By emphasizing the fact that Arnold "wants to terminate climate change", *Huffington post* triggers a presupposition that climate change is an ongoing process and that it should come to an end. Moreover, presupposition reflects his ideological standpoint reinforcing the scientific rhetoric and discourse on the urgent need to avert the changes in terms of meeting net-zero emissions targets. Furthermore, the use of the verb "terminate" suggests it is a deliberate lexical choice derived and related to his arguable most famous movie, *Terminator* thus attracting a cascade of public attention. Emphasizing actor's involvement and engagement on the issue, media outlet contributes to further sensationalisation and politicization of the climate change, extending the reach of the message to the broad audiences. Simultaneously, pragmatic devices are used as manipulative tools to persuade policy-makers and public to engage on the issue and support adaptation and mitigation implementation.

> "**Statement by President Trump on the Paris Climate Accord**" (The White House archive, 1 June 2017).

Former USA president Donald Trump's decision to withdraw from the landmark Paris agreement came like a bombshell at both national and international level leaving the government and countries that ratified the accord puzzled and paralyzed with no clear trajectory to follow. It marked a colossal downturn in the history of global climate talks and negotiations with political, geopolitical, economic and social echoes penetrating through every aspect of the global policy-making. The principal arguments for pulling USA out of the Paris climate deal were outlined in a speech Trump delivered at White House Rose Garden on June 1, 2017. On that occasion he noted: "Therefore, in order to fulfill my solemn duty to protect America and its citizens, the United States will withdraw from the Paris Climate Accord — (applause) — thank you, thank you — but begin negotiations to reenter either the Paris Accord or a really entirely new transaction on terms that are fair to the United States, its businesses, its workers, its people, its taxpayers. So we're getting out……..As President, I can put no other consideration before the wellbeing of American citizens. The Paris Climate Accord is simply the latest example of Washington entering into an agreement that disadvantages the United States to the exclusive benefit of other countries, leaving American workers — who I love — and taxpayers to absorb the cost in terms of lost jobs, lower wages, shuttered factories, and vastly diminished economic

production". In order to legitimize and justify his decision on quitting the climate deal and strengthen public trust in authority and credibility of the Republican Party agenda, he negatively frames the Paris climate agreement and the surrounding climate talks. In order to do so, he strategically employs pragmatic devices as manipulative tools to reinforce the discourse of skepticism, intentionally casting doubt on the "fairness" and effectiveness of the Paris agreement. Specifically, Trump uses implicatures to portray Paris climate deal as potential financial burden to the American people and the economy influencing public to continue supporting his decision to quit the deal. Implicatures are embedded into the entire narrative discursively constructing Paris agreement as the enemy of the USA, concurrently triggering the emotions of compassion and understanding with the American people ("American workers, who I love"). Pragmatic devices are thus exploited for the manipulative purpose of emotionalization of the narrative and reinforcement of his ideological standpoint emphasizing climate skepticism as the rational and justified pathway for the global policy agenda. Overall, he seeks to rally support for his decision persuading the public to view withdrawal as patriotic act or as a symbol of independence on global stage.

9.9. Concluding remarks

As elucidated in this chapter, the pragmatic dimension proves to be highly relevant for the analysis of this thesis owing to the fact that pragmatic devices were found to be ubiquitous in the communication of climate change-related topics in the media, politics and science. Specifically, the research has indicated that deployment of presuppositions and implicatures is neither entirely value-free nor motif-free but rather contributes to oscillations in the power hierarchies, challenging the established scientific paradigms by reshaping the discourse perception.

Accordingly, given their capacity to introduce new information subtly by assuming rather than explicitly stating or referring to it, which in turn is taken for granted by the receiver, presuppositions have been acknowledged as powerful persuasive tools for manipulating public perception on a vast number of climate change issues, spanning from its anthropogenic origin to its future impacts. Due to their capacity to camouflage potentially contentious or debate-provoking information, presuppositions have been extensively exploited to transfer biases or values of the dominant groups, thereby either reinforcing or challenging the existing power structure. They were found deeply embedded in the media and political discourse, particularly due to this invisibility, which makes it easier to convey certain ideological messages without them being challenged. In a light of this, presuppositions were found to permeate both climate alarmist and sceptic discourses, used with a clear strategic purpose to advance their own arguments and thus influence public opinion in favor of their viewpoints, for instance regarding green transition and phasing out of fossil fuels. More importantly, due to their ability to present information as an established axiom, research has shown that presupposition are widely embraced by the scientific community in order to "normalize" certain perspectives in the climate change debate, as for instance the anthropogenic origin of the climate change and climate consensus. This in turn may backfire by reinforcing certain ideologies or hegemonies.

Similarly, implicatures have also been identified as carriers of underlying beliefs about the climate crisis, its causes and effects, deliberately promoting specific ideologies and are therefore strategically utilized to discursively shape the narratives aligning with certain interests or agendas. This way, various climate policies, pledges, ambitions or measures, like net-zero emissions may be either supported or obstructed depending on the goals of the elite groups. As implied meanings extend beyond literal expressions, implicatures have significant potential for

concealing of value laden narratives or objectives enabling strategic persuasion and manipulation as its covert nature makes it difficult to discover.

Consequently, both presuppositions and implicatures demonstrate how pragmatic structure of the climate change discourse is exploited to communicate the desired message indirectly and implicitly, thereby perpetuating certain frames or agendas and influencing policy making as well as public mostly unaware of the concealed meanings and messages which is why they can hardly resist or suppress them.

10. VISUAL DISCOURSE – DO YOU GET THE PICTURE?

10.1. Make it simple and stupid

Over the course of the years, substantial amount of diverse scientific evidence in support of the anthropogenic climate science has piled up leaving little room for doubt or denialism. Yet again, despite the abundance of affirmative research and studies, the concept of climate change is met by public ambivalence resulting mostly with inaction and lack of concern. A 2021 survey conducted by Pew Research Center found that as much as 27% of the respondents in the first world countries were "not too or not at all concerned" about the threatening impact of climate change (Pew Research Center, 2021). Similarly, in 2019 only 31% of Americans were genuinely "alarmed" about the climate change impacts even though they acknowledged the severe risk of the warming world, but most people simply didn't know how they could translate that into action or address the problem (Leiserowitz et al., 2019). Generally, lack of concern is normally interpreted in the light of lack of understanding. Not surprisingly, as public is overwhelmed by the complexity and diversity of the models, methods and data used to obtain results and future projections on the climate change impacts.

An effective international response that could accelerate global policy-making, however, is premised on the effective climate change communication to diverse audience including both public and policy-makers. Therefore, considering that "environmental issues such as climate change are long-term, complex and large-scale processes that are not directly observable, images are exceptionally powerful in *visualizing the unimaginable*" (Schneider and Nocke, 2014: 2). Specifically, through visualization, complex scientific findings, results and evidence obtained from the climate model data simulations can be communicated in a "straightforward, informative and aesthetically pleasing and comprehensible manner – condensing knowledge into a form that is easy to digest" (Schneider, 2012: 2; Bertin, 2011; Tufte, 1997, 1990). Correspondingly, O'Neill and Smith assert that both "a considerably quantity and diversity of climate change imagery" (O'Neill and Smith, 2014: 76) exist in the scientific, media and political discourse.

Visualizations contribute to the authority of scientific concepts, ideas and knowledge claims and can therefore become influential in environmental policy-making (Morseletto, 2017). According to Dawson, "visual objects represent the most transferable information objects within the discourse of climate change" (2021: 9). Moreover, they represent "a form of immutable mobile" that can easily transit related discourses and carry a message from the scientific to media discourse with minimum loss of understanding designed either to capture the attention or persuade the public (Dawson, 2021). However, visual imagery may "leave the door open to deception, illusion and seduction, and they have hitherto been an object of great distrust" (Latour, 2002 as cited in Schneider, 2012: 3).

10.2. Visual discourse of climate change

The power of images in visual communication is already well-documented for the concepts of ozone depletion, drought, endangered species and deforestation (Litfin, 1994; Ungar, 2000). Nevertheless, Ungar notes "there are apparently no ready-made metaphors in the popular culture that mesh with and provide a simple schematic for understanding the science of climate change" (2000: 305). According to him, *the greenhouse effect* metaphor has proven "too benign to resonate in the public mind" suggesting that visuals have an important role to play in public perception of the climate change (2000: 35). According to Beck:

> "Ecological images and symbols are by no means scientifically confirmed as intrinsically certain knowledge. They are culturally perceived, constructed and mediatized; they are part of the social knowledge 'fabric,' with all its contradictions and conflicts. The catastrophic consequences of climate change must, as we have seen, be made visible, that is they must be effectively staged in order to generate pressure for action." (Beck, 2009: 86).

However, as number of actors is engaged in visual communication of climate change− scientists, artists, journalists as well as politicians− visual representation of climate change is diverse with particular aspects dominating at the expense of the other (O'Neill and Smith, 2013). Considering that some observers have labeled climate change as an "elitist" issue due to its high profile on the global scene, political debate as well as powerful interests which are at play (Levy and Egan, 2003; DiFrancesco and Young, 2010), it is increasingly important, albeit challenging, to "bring climate change to the masses" as the public support is essential for the climate policy (Antilla, 2010).

In the context of visual communication of climate change, specific visual frames and images depicting thinned polar bears, melting glaciers, grey smokestacks, or the hockey-stick graph have become iconic symbols of the problem (Rebich-Hespanha and Rice, 2016) and "are widely recognized and remembered to be representations of historically significant events, activate strong emotional identification or response, and are reproduced across a range of media, genres, or topics" (Hariman and Lucaites, 2007: 27). This visual communication strategy is often considered a double-edged sword: on one hand, it may facilitate understanding, but frequent repetition may also lead to visuals being taken for granted (Schneider, 2011).

10.2.1. Pros

Broadly speaking, visual discourse of climate change may comprise of static and dynamic images, pictures, maps, charts, infographics, photos, video clips, tables, i.e. all the semiotic resources that may contribute to creation of visual representation and meaning-making of the phenomenon (O'Neill and Smith, 2014; Hansen and Machin, 2013). There are several reasons why they are widely embedded in the public discourse of climate change as well as media coverage.

Firstly, visuals possess vividness, vibrant colors, and provoke emotions (Joffe, 2008). As such, they are more attention-grabbing in relation to the pure text containing only words and numbers which makes them suitable to enhance visual salience of a certain story facet (Joffe, 2008). "Ideally, and perhaps rather idealistically, the pictures are an invitation to pay attention" (Sontag, 2003: 104). Besides, by igniting more emotionally laden experience than text, visuals make a connection with a recipient which makes them more persuasive particularly bearing in mind that individuals' opinions are more influenced by emotions than scientific results and data (Mckie and Galloway, 2007).

Secondly, while words and numbers rely on the *rational* processing system, which is analytical, logical, and deliberative, images facilitate information processing through the *experiential* processing system, characterized by its holistic, intuitive, and affective nature (Epstein, 1994) which enables more rapid risk perception (Leiserowitz, 2006).

Thirdly, visual representation may draw audience's attention to certain climate-related topics, in particular those which are less debated or contested. Concurrently, the desired information may be more easily memorized by visualizing the key points (Graber, 1990).

Lastly, visuals are seen as the key determinants for increased public engagement on climate related issues, varying from waste management to reducing carbon footprint (Domke et al., 2002).

10.2.2. Cons

Nevertheless, the omnipresence of visual imagery in the climate change discourse manifests a dual nature; it has the power to elucidate the wicked climate-related topics but also to distort the understanding of the issue.

Namely, "climate visuals are never displayed in a vacuum, they are always displayed by particular groups in service of particular political goals - whether those goals are as focused as securing reputation and funding a climate research center or as broad as rallying transnational opposition to the Kyoto and Lima accords" (Walsh, 2015: 364). In accordance with Walsh's claim that climate visuals serve specific agendas, O'Neill asserts that visuals may promote ideological views through implicit meaning scrutinizing that "visuals lack an explicit propositional syntax (causality is implied rather than stated, and causality relies on the reader making sense of implicit meanings) (O'Neill, 2020). Visuals can hence be employed as powerful manipulative tools to transmit certain ideological beliefs and thus help to maintain power relations or provide support to dominant groups.

Therefore, visual representations of climate change-related issues are highly unlikely neutral. The ideological referential may be embedded in subtle and opaque or more visible and salient semiotic modes of images, colours and sounds. Accordingly, images are strategically created to communicate the message by manipulating and persuading the public perception, by inculcating ideological values or imposed ways of thinking.

Besides, decoding of ideologically charged visual discourse on climate change also involves deconstructing the myth of the images being reflection of reality. One of the most crucial elements in visual representation "is the interplay between what we see and how it relates to us" (Fuery and Fuery, 2003: 11). Namely, in the context of climate change, most people, scientists and lay public alike, tend to perceive and interpret the climate change visuals as the "transparent window onto reality" (Walsh, 2015: 365).

Namely, a unique aspect of visuals is their capacity for indexicality, meaning they can directly point to or represent elements of reality. In that regard, Messaris and Abraham (2001) draw attention to the potential perception "distortion" arguing that people often take the uncritical stance toward visuals, as they are believed to directly represent reality and not just a certain representation of reality (Messaris and Abraham, 2001). Similarly, O'Neill and Smith argue that visual images on climate change are normally seen as "speaking the truth" despite the fact that images are intentionally designed and stylized to make certain aspects of reality more salient. In a similar vein, Fuery and Fuery note: "the power of a visual representation lies in its ability to seduce the viewer by telling the viewer what to see and how to see it".... being told what is meaningful is easier than assessing it critically for oneself" (Fuery and Fuery, 2003: 3). Accordingly, audience may be oblivious of visuals' persuasive or manipulative effect due to their capacity to mimic reality thereby influencing viewer's perception of reality by disguising or modifying the truth of reality.

Consequently, visual representations have the ability to blur the line between *real* and *unreal* (Fuery and Fuery, 2003) unlike text where the structure clearly indicates actions, subjects, and reasons (Entman, 1993). "The interpretation of a visual representation, the creating of the meaning is therefore always dependent on the viewer" (Fuery and Fuery, 2003).

10.3. Visual framing

As previously indicated, framing in the climate change discourse may involve linguistic and/or visual communication, that is, interaction of textual and visual discourses. Accordingly, the text and visuals "frame one another in a mutual fashion with text highlighting certain elements of the imagery, and imagery drawing attention to particular aspects of the text" (Messaris and Abraham, 2001: 217).

While linguistic strategy relies upon message framing, visual communication is typically based on infographics (Starke et al., 2023). Infographics provide graphical representation of information or data and have proven particularly effective in communication surrounding environmental matters and sustainability (Lazard and Atkinson, 2015). The capacity of visualizations to summarize complex data, however, simultaneously implies selection and aggregation (Wardekker et al., 2008). Consequently, either deliberately or not, visualizations emphasize particular aspects while neglecting others and can become influential "framing devices" that shape the understanding and influence perception of climate change-related issues and policies (Van Beek et al., 2020).

According to Colleman, "visual framing characterizes the selection and visual accentuation of certain aspects of the perceived reality in a communicative context through the specific structuring and interpretation patterns and/or advice on appropriate action for a given situation" (2010: 244). Similarly, Brantner describes it as: "A process or a strategy of visual communication which allows for an emphasis of certain interpretation patterns or frames, making them salient, and which promotes certain attributions, evaluations, or decisions for the issue or item described" (2013: 111).

Therefore, deployment of visuals can carry a certain risk as visual meaning-making is not always straightforward and linear. It may easily be counterproductive as visuals may miscommunicate, misinterpret or misrepresent the climate change-related information depending on the creator as well as the recipient of the multimodal content.

Bearing in mind that climate change is a multifaceted issue, various facets may receive varying degree of visual attention primarily determined by the content creators. Depending on the set of objectives, political, economic or ideological, certain aspects and topics within the climate change visual discourse can be more or less pronounced. Schwalbe (2006) holds the view that visual framing is a process of continuous sorting as it implies a vast array of processes and decisions ranging from choosing a topic, to which photos should be taken and prevalent in the coverage to overall presentation.

One notable aspect of visual framing is its tendency to be "less obtrusive than using words" and as such it imposes less cognitive strain (Starke, 2023; Castiglia, 2022). Therefore, it may prove more effective than linguistic framing in specific contexts. Specifically, visual cues have significant potential for generating visual framing effects. Moreover, Entman (1991) singles out sizing as the "essence" of visual framing. In that regard, Wanta (1988) argues that articles featuring larger photographs convey a heightened sense of importance to readers compared to those with smaller images. Therefore, enlarging the size of an image can effectively enhance the perceived significance of a story, albeit temporarily.

In a light of this, the process of visual framing is often labeled as deeply ideological (Hall, 1973), suggesting that images do not simply reflect an objective reality as argued by Urry (1992). The repetition and normalization of certain images or types of images, as well as the absence of others carry political significance (O'Neill and Smith, 2014). This phenomenon highlights certain

voices and promotes particular conceptualizations of climate change while marginalizing others, as asserted by O'Neill and Smith (2014).

10.4. Multimodal analysis of climate change discourse

10.4.1. Scientific frame

The conjunction of climate change as a *wicked problem* and substantial amount of heterogeneous information, in addition to mishmash of methods and data makes communication of scientific findings to non-expert audience an arduous task. Failing to overcome this challenge makes domino effect inevitable: lack of understanding normally leads to lack of concern eventually resulting with climate inertia along with public and political disengagement. In such instances, breaking the vicious cycle of ignorance and mistrust in climate science implies an increased use of visual formats. However, not just any visuals can take the place of textual formats in the context of climate change. Specifically, visualization of climate change data takes a dominant role following the importance of public understanding of scientific results and findings. Maps, graphs and charts make therefore an integral part of any visual representation of climate science. However, not all textual information gets visualized nor every piece of data gets equal amount of visual attention, meaning that choices which are made often have political dimensions considering that authors meticulously make decisions on what is "policy relevant" and what issues will be represented through visual imagery (Schneider and Nocke, 2014; Schneider, 2016). Therefore, investigating which aspects and perspectives are spotlighted and why requires multimodal approach.

Scientific frame which may refer to "climate science, research, and scientists" (Rebich-Hespanha and Rice, 2016: 4837), emphasizes the position of climate science and scientists as crucial agents in defining the climate change issue (Carvalho, 2007).

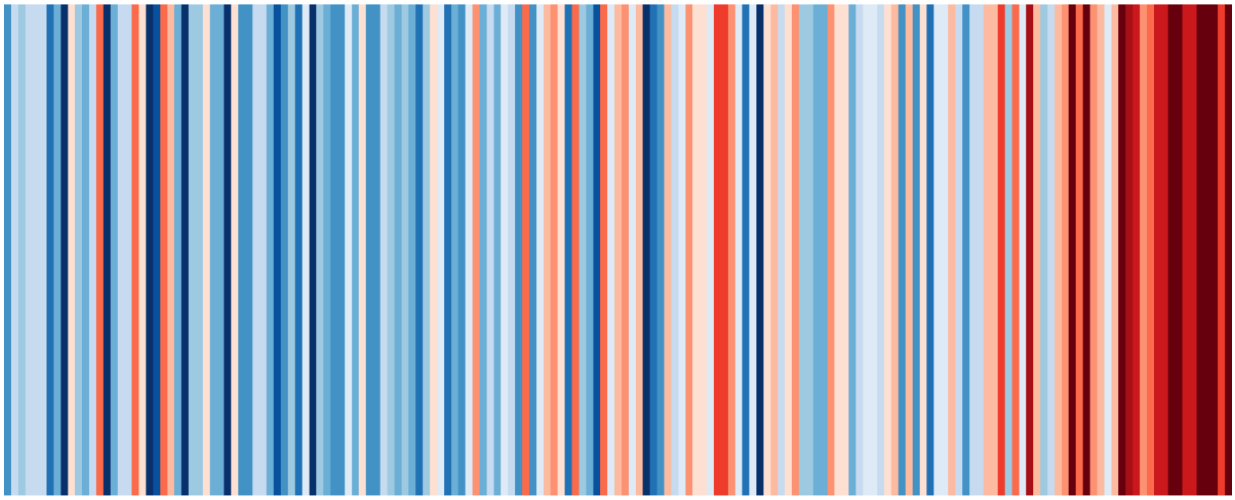

Figure 1. Climate stripes. Europe, Republic of Serbia – Belgrade (1850 – 2022). Source: University of Reading (Ed Hawkins)

Warming stripes, broadly known as "climate stripes", but also referred to as "climate timelines" or "stripe graphics" (Climate Change Tracker, 2024) are proclaimed by the Washington post as "the most compelling global warming visualization ever made" (Samenow, 2016). They were designed in 2018 by British climatologist Ed Hawkins, a climate scientist at the

University of Reading, United Kingdom, who co-authored the two Assessment Reports of Intergovernmental Panel on Climate Change (University of Reading, n.d.). Climate stripes represent a data visualization graphic that utilizes a band of colours to depict long-term temperature trends or as Hawkins put it: "just a series of vertical colored bars, showing the progressive heating of our planet in a single, striking image" (Samenow, 2016). In the graphic, words and numbers are purposefully left out and the similarity to barcode is striking. According to Hawkins, "this visualization removes all the distractions of standard graphs and allows the viewer to just see the long-term trends and variations in temperature without needing to interpret anything else" (Samenow, 2016). Following the established convention, shades of blue indicate colder years while the red color is used to depict warmer years aiming to illustrate how global mean temperature has risen since 1850 throughout 21st century (University of Reading, n.d). Just a week within its launch, climate stripes were downloaded more than million times becoming a global hallmark of global warming (Rosch, 2023).

In this particular case, the process of meaning-making in visual discourse of climate change is accomplished through the utilization of colors as a semiotic mode. Specifically, only shades of blue and red are employed to denote the dramatic changes in the global average temperature and global anomalies making it understandable to both expert and non-expert public. Namely, the graphic is designed to communicate the worrisome global warming trend with tranquil blue stripes turning dangerously fast into vibrant shades of red.

Accordingly, aside from the written text and images, colours can effectively assist in meaning-making in multimodal texts (Kress and Van Leeuwen, 2002). According to Kress and Van Leeuwen, (2002), colours are seldom employed merely for aesthetic purpose, that is, empty decoration, but rather as semiotic modes to communicate the desired message. Recognizing persuasive potential of the colours, media take advantage of them to enhance understanding, make an emphasis, but more frequently to influence the public (Franz and Ridout, 2009).

In this context, the colour red plays an important role. From the historic perspective, the color red has always had an exceptional place in a color palette. It is among the oldest colors used in human history owing to the fact it was applied even in prehistoric art (Pastoureau 2017: 12). However, its symbolic meaning shifted over the course of history. Despite some common psychological associations, symbolism of the red color has proved to be non-universal across various geographic locations. Until the nineteenth century, red color was viewed as a status symbol of the nobility as its production was rather costly (Dawson, 2021). Nonetheless, its status radically shifted with the emergence of synthetic dyes (Dawson, 2021). Prestige status was replaced with the reputation of revolution, "being the color of blood, red became the color of sacrifice and courage in the face of danger" (Pastoureau, 2017: 163). In a contemporary culture, "the colour red can be linked with the notions of *danger*, *anger*, and *heat* in a negative context; but also, more positive notions such as *love*, *passion*, and *wealth"* (Heller 2009: 54). In most cases it is dependent on the context of the use. However, despite the variability of symbolic and cultural meanings among the strongest psychological associations are *danger*, *heat*, and *conflict* (Heller, 2009: 54). Within the visual discourse of climate change, its interpretation and perception is unambiguous. The excessive use of the red colour conveys the sense of urgency and gravity of the problem, aligning with the warnings of the mainstream climate science (Dawson, 2021). Red color is utilized to indicate the ongoing crisis and the approaching danger at an alarming pace. Accordingly, visual rhetoric of the red colour reflects the scaremongering technique by triggering panic, fear and shock and implicitly corresponds with the movement of climate alarmists. The graphic is utilized as an ideological tool to legitimize the IPCC results and findings and thus support the climate consensus on the anthropogenic origin of climate change.

Accordingly, the graphic is strategically utilized to visually communicate climate change impacts as an environmental catastrophe and thus construct the visual discourse of *climate crisis*. Consequently, climate stripes represent a visual "bombshell" intentionally created to amplify the gloomy scientific forecasts on the increasing warming of the planet and thus influence policy makers and governments to take immediate measures to curb the emissions and avert the climate breakdown. Due to its minimalistic nature and simplicity, climate stripes are among the most widely used climate visualizations to communicate "warning" on the impacts of the accelerated warming symbolized by the metaphorical "raising the red flag" (Dawson, 2021: 41) as a telltale sign of the ongoing burning of the planet. In a light of the fact that 2023 was a record-breaking year with scorching temperatures, Ed Hawkins pointed out the need to update the graphics with the darker shade of red, specifically "burgundy" to better illustrate the extent of the warming conditions (Symons, 2024).

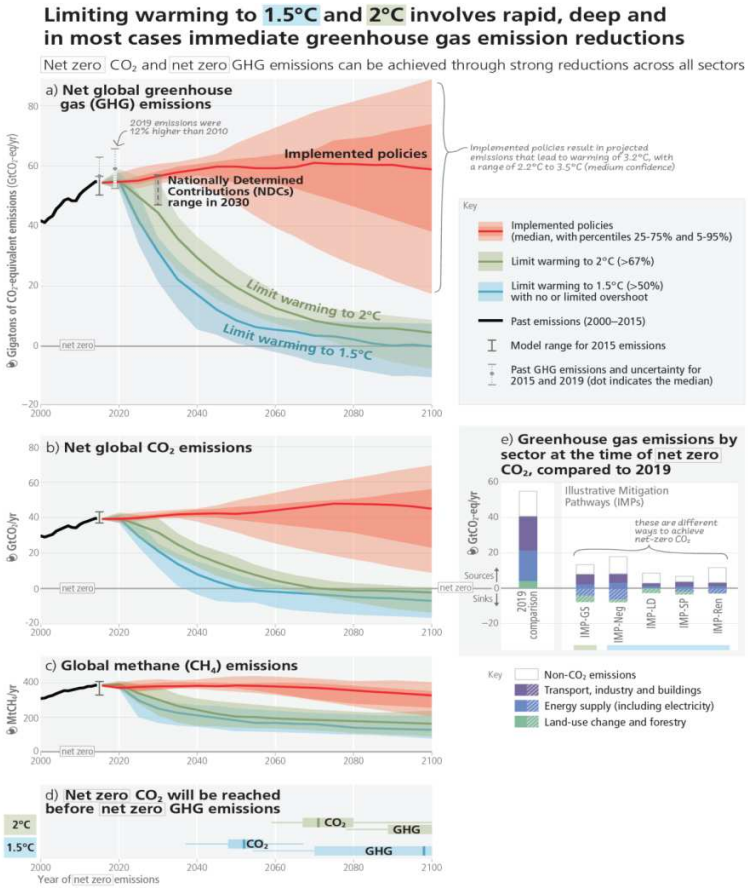

Figure 2. Global emissions pathways consistent with implemented policies and mitigation strategies. IPCC 6th assessment report. Source: IPCC

Unlike the Hawkin's minimalistic style of climate change communication devoid of words, graphs and numbers, visual representation of the climate change risks and impacts may also take another form. In that regard, quantifying and monitoring frame may often appear in the context of scientific frame "reinforcing the perspective that society's understanding of problems associated with climate change and of the feasibility and benefits of possible solutions is grounded in empirical evidence" (Rebich-Hespanha and Rice, 2016: 4839). Such visual imagery

often includes “charts, graphs, and maps with a thematic focus on emission levels, energy generation and fuel use, and carbon markets and trading schemes” (Rebich-Hespanha and Rice, 2016: 4839). In that regard, IPCC visual images are among the most prevalent means of depicting climate change across various sectors worldwide (Wardekker and Lorenz, 2019).

As a key source on climate data, IPCC has a leading role in constructing scientific discourse and meaning-making on climate change (Hulme and Mahony, 2010). Accordingly, its findings and research represent a cornerstone for decision-makers and policy makers as their perception is hugely influenced and determined by the IPCC presentation and visual framing of the climate information (Korcheva, 2023). How IPCC portrays various aspects of climate change has a direct impact on the climate policies, pledges and measures taken to combat climate change (Hulme and Mahony, 2010).

The figure obtained from the IPCC 6th Assessment report titled “Limiting warming to 1.5℃ and 2℃ involves rapid, deep and in most cases immediate greenhouse gas emission reductions”, with the subtitle “Net zero Co2 and net zero GHG emissions can be achieved through strong reductions across all sectors” is accompanied by visual imagery to illustrate the assertion derived from the title.

The figure shows different pathways of global emissions aligned with implemented policies and mitigation strategies. Panels (a), (b), and (c) display trends in global greenhouse gas (GHG), carbon dioxide (CO2), and methane emissions in modeled pathways, while panel (d) illustrates when GHG and CO2 emissions reach net zero. Shortly, IPCC indicates how implemented policies result in projected emissions that lead to warming of 3.2℃. All in all, image is designed to showcase the full range of the potential emission pathways comparing different temperature targets set in the Paris climate agreement. As the Paris climate accord aims to hold temperature increase to well-below 2 degrees above pre-industrial levels, and specifically limit it to 1.5 degrees, these temperature targets are central to the goals outlined in the accord.

By quantifying projected climate change impacts, the IPPC provides scientific evidence to reinforce the objectivity of its warnings that climate change poses a “serious threat”. Coupling of textual information with visual data thus serves to reinforce the IPCC credibility thereby influencing the decision-making process in order to mitigate greenhouse gas emissions and adapt to the impacts of climate change.

By employing such imagery, IPCC seeks to solidify its status and enhance its influence as the foremost source of scientific information, thereby undermining the position of “pseudo-science” and “anti-science” climate movements that seek to deny the human-made origins of climate change and impede efforts towards a sustainable transition.

In this case, the purpose of climate change visualization is to legitimize IPCC research and findings and by demonstrating the potential consequences of various levels of emissions, it strives to justify proposed measures and actions for green transition. By visualizing the “scientific evidence”, image is used as a visual semiotic mode to persuade the audience on truthfulness of the climate science presented by the IPCC as well as their dominant role in the climate change debate. Moreover, it is used as a discursive strategy to amplify their written warnings, reinforce the narrative on the anthropogenic climate change and thus influence public engagement on this matter. Furthermore, it strives to facilitate understanding of significance of adhering to temperature targets outlined in the Paris Agreement. Furthermore, the visual rhetoric of the red colour is used to convey the sense of alarm unless the world abandons the “business as usual” emission scenario and transitions to the green energy production. Emotional appeal is also present as the emotion of fear is intentionally triggered to mobilize action and implementation of the urgent measures in order to avert the worst possible scenarios.

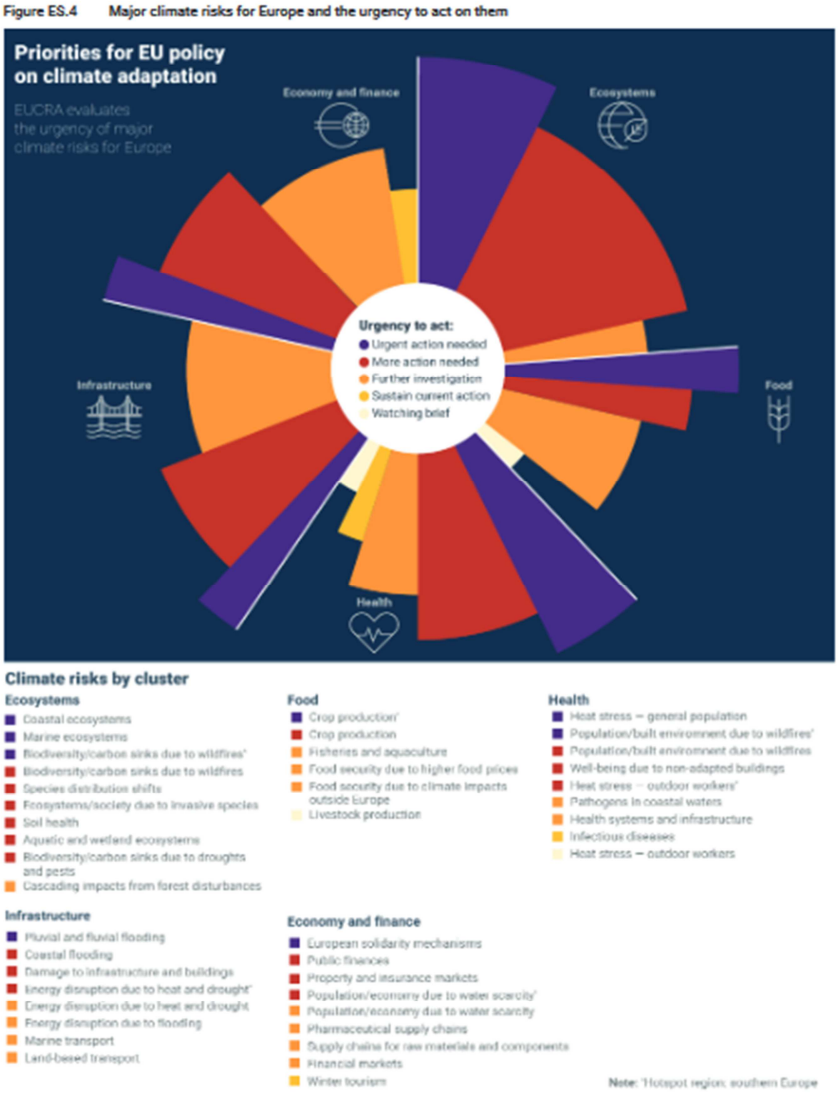

Figure 3. Major climate risks for Europe and the urgency to act on them. Source: EEA

Figure 3 is extracted from the report titled *European climate risk assessment* published by the European Environment Agency in March 2024. The first-ever assessment of this kind draws attention to the cascading risk threatening Europe as the fastest-warming continent (EEA, 2024). Correspondingly, it juxtapostiones the magnitude of the potential consequences in terms of economic loss and casualties on one hand and underpreparedness of the continent on the other. Specifically, EEA identified 36 risks posing most serious threat to Europe, out of which 21 require immediate action while 8 are labeled as *especially urgent*.

This particular graph provides an overview of the key risks as well as the need for urgent response across the most affected sectors in Europe. Accordingly, both textual and visual elements are jointly used to construct the discourse of risk posed by the climate change to

Europe. Moreover, image is used strategically to reframe the narrative of climate change as a distant threat affecting some distant places in the future and thus persuade the wider audience that its consequences represent an imminent danger. Furthermore, visual image serves to maximize the effects of the textual message on the alarming lack of preparedness of the European continent for the upcoming climate calamities. In that regard, risk evaluation presented in the graph is utilized as an empirical evidence to reinforce the climate science thereby legitimizing the scientific discourse on the climate change as the sole authority. Moreover, the visual rhetoric of fear is accomplished through the deliberate deployment of the colours yellow, various shades of orange, red as well as violet in order to amplify the need for urgent action and thus mobilize suport for their propposed measures and policies. The entire visual discourse communicates the sense of alarm and the urgency of phasing out of fossil fuels in order to limit the global warming to 1.5 degrees set in the Paris climate accord and thus serves to justify the net-zero climate policies and accordingly rally public support for their implementation.

10.4.2. Polar bear frame

"Not so long ago polar bears were a symbol of cold, but these days they are a symbol of warmth…the newly helpless emblem of climate change" (Garfield, 2007: 32).

Figure 4. A polar bear was found wandering in the Russian village of Tilichiki on April 16, 700km from his home. Alina Ukolova (Mezzofiore, 2019; *CNN*)

Figure 5. Computer predictions of a dramatic decline of sea ice in regions of the Arctic are confirmed by actual observations — and could have profound effects on marine mammals such as polar bears. Here, a polar bear walks in the Arctic National Wildlife Refuge. Subhankar Banerjee / AP file (*NBC news*, 2007).

Figure 6. Hungry guy: A polar bear (Ursus maritimus) is looking for food at the edge of the pack ice north of Svalbard, Norway, in 2015.Wolfgang Kaehler/LightRocket via (Skipworth, 2023, *Forbes*).

Nowadays, public discourse on climate change is unmistakably hallmarked by images featuring polar bears (O'Neill, 2020, 2022). Correspondingly, visual connection between the polar bears visuals and the warming planet is unequivocal and reflects the inextricable entanglement of anthropogenic climate change and endangered polar species (Born, 2019; Manzo, 2010). Over the years, however, visual rhetoric of polar bear imagery was far from univocal (O'Neill, 2022). Cognitive and affective diversity in the polar bear iconography was more than evidently displayed in public discourse as polar bears were attached various emotions, meanings and contexts (O'Neill, 2022; Manzo, 2010).

Exploring the evolution of different aspects of polar bears visual imagery throughout history, O'Neill (2022) revealed that these visuals have undergone several conceptualization phases and have been attributed various meanings in various social, political and environmental contexts. Focusing on the investigation of its development path as a visual metonym, he was particularly interested in unfolding the nexus with climate change. From the 1990s into the mid-2000s, polar bear images, slowly but steadily, were just starting to explicitly reflect the connection with climate change (O'Neill, 2022). The anthropomorphisation of polar bears was first noticed in the 1993 in connection with the Coca Cola international advertising campaign. In a subsequent period, the interrelationship between polar bears and the climate change became more evident as the media increasingly brought the issue to the public fore. Specifically, images featuring polar bears appeared on the 2000 TIME cover in an article on Arctic Meltdown: *This polar bear is in danger, and so are you* (TIME, 2000). This trend was soon embraced by Environmental NGO's, Greenpeace England and Canada with numerous campaigns featuring polar bears as a means to attract media attention. From the mid-2000s, however, the dominant paradigm of polar bears was about to shift. The image of polar bears was rebranded in line with the prevailing policy. The onset of the politicization process of polar bears is primarily associated to the petition resulting with the 2018 listing of polar bears as "threatened" under the ESA. Polar bears were defined as the "most political of animals" (Owen and Swalsgood, 2008).

According to Born (2019), polar bears act like visual "ambassadors of the endangered ecosystem" (2019: 656), however, prior to that role, they were ambassador of numerous climate-related campaigns spanning from *Greenpeace* and *Coca Cola* to *World Wide Fund* (O'Neill, 2022). Accordingly, polar bears were widely embraced as a visual communication artefacts to provoke a full specter of emotional reactions and potentially ignite engagement and action (O'Neill, 2020, 2022). Considering their increasing role in visual meaning-making, polar bear images are increasingly embedded as visual metaphors, metonymy and synecdoche within the public discourse on climate change (O'Neill, 2020, 2022). Visual synecdoche serve as a form of visual shorthand within specific cultural contexts, instantly conveying a set of ideas about climate change that extend beyond the literal content being depicted (O'Neill, 2013).

> "Polar bear imagery as visual synecdoche encapsulates the impacts of climate change on polar bears, as an illustration of the much wider impacts of climate change. Or, polar bears as visual synecdoche implies that one polar bear image visually represents the impact of climate change on the whole species" (O'Neill, 2022: 1106).

Nonetheless, in certain contexts, visual synecdoche may become associated with parody, clichéd or stereotypical depiction (Linder, 2006; O'Neill, 2020). Nowadays, in media and politics, they are repeatedly used and ubiquitously linked with the climate change and as such, they are unavoidable and irreplaceable. Yet, those are not just any, randomly chosen images of cartoonlike chubby, clumsy bears joyfully playing on the ice sheets depicting alluring and exotic

wilderness of Arctic. On the contrary, those visuals are strategically selected by media outlets and politicians signaling the public that polar bears are a telltale sign that something is wrong with the planet.

Accordingly, it can be said that polar bears appearing in the movies, commercials, news media and public discourse in general, have become emblematic for climate change as the most widespread visual representations of the global warming (Bebber, 2011) or as Born put it "polar bears have become icons of climate change" (2019: 649).

Polar bears are "highly specialized surface-based predators on sea ice dependent phocid seals, primarily ringed seals (Phoca hispida) and bearded seals (Erignathus barbatus)" (Durner et al., 2009: 26). Their existence is critically dependent on the extent of the Arctic sea ice. It is essential for their survival as "sea ice allows polar bears to exploit the productive marine environment by providing a platform from which they can hunt seals" (Durner et al., 2009: 26).

In 2015, for the first time, polar bears were included in the Red list of the International Union for the Conservation of Nature (IUCN) as the species endangered by the climate change (IUCN, 2015). As a clear indicator of their global extinction risk status, listing is viewed as a culmination of scientific acknowledgment of human-induced warming as the single most adverse risk to survival of species (O'Neill, 2020). According to the U.S. Endangered Species Act (ESA), polar bears are registered as threatened (Federal Register, 2013). This is primarily due to the fact that Arctic has warmed nearly four times faster than the rest of the world as a result of the changing climate (Rantanen et al., 2022). Namely, a 2016 review elaborates on this correlation implying that "loss of Arctic sea ice owing to climate change is the primary threat to polar bears throughout their range" (Laidre et al., 2016). As an endangered species, following the gradual loss of its habitat, polar bears have become iconic of the Arctic ice melting caused by man-made climate change (Dunaway, 2009) and therefore dubbed as the "the poster child for species threatened by climate change" (Kuhn, 2010: 127). In other words, they are proclaimed as global icons of this global phenomenon. In this context, O'Neill makes a clear distinction between the interpretations of polar bears as symbols on one hand, and icons on the other. According to him, meaning that is ascribed to symbol is normally culturally learnt as there is no direct linkage between the sign and the signified meaning (as in the case of polar bear winking which alludes to climate change skepticism). (O'Neill, 2020; Nerlich, 2019). On the other hand, icon implies that there is a noticeable resemblance between the form and what it represents (polar bear floating on ice in a vast ocean depicts the risk of thawing ice).

Moreover, climate icons are described as "symbolic representation for more than what is immediately apparent," meaning that what "constitutes the icon is not the immediate content of the image but how it is perceived and conceptualized in a specific context" (O'Neill and Hulme, 2009: 403). With regard to this, Huggan offers a twofold interpretation of the icon of the polar bear: on one hand as a "physical and visual embodiment of the Arctic" and, on the other, "as a symbol of the planet's and humanity's vulnerability" (2016: 14). In this context, "iconization" refers to the process employed as a visual communication strategy "to create a personal concern and public awareness for climate change as well as to foster an individualized, emotionalized, and localized account of climate change but does not make its wider causes visible" (Born, 2017: 653). Iconization is achieved through the process of anthropomorfisation and emotionalization of the visual content surrounding the polar bear imagery (Born, 2017).

According to Born, images of anthropomorphized bears serve as "subjects of identification" (2017: 655). Displaying the extent to which their natural habitat is in jeopardy correlates polar bears with the Arctic ecosystem. Finally, the focus is shifted to bears increasingly exposed to the dangers of climate change impacts. Consequently, the link is evidently

established: climate change poses a severe risk to polar bears due to the changing weather patterns and ocean circulation causing the decline in Arctic sea ice levels (Born, 2017).

Accordingly, climate change is visually represented in a way that emotionally-loaded anthropomorphized images of polar bears resonate with public and allow them to identify with and emotionally relate to them (Van Leeuven, 2000).

In media discourse, polar bears are visually framed as the key visible victims of climate change. According to Slocum, "the polar bears are charismatic victims" (2014: 428). Such visual framing of animal victimization is purposefully employed to shape the persuasive message, which appeals first and foremost to emotions. According to Hulme, the "power of the polar bear icon to represent climate change in the minds of the public rests on its emotional appeal" (2009: 242). Emotionalizing of the message is accomplished by displaying immense suffering of the thinning bears struggling to survive in the thawing permafrost of the rapidly transforming Artic thereby shaping the discourse of empathy. As the primary goal of vast majority of media is to grab and hold the attention of the widest possible audience for the longest possible time, the principal discursive strategy for visual representation of climate change entails "to hook people on fear". Imagery of stranded polar bears represents a "constitutive element" of the fear-inducing narrative prevailing in the climate change communication (O'Neill and Nicholson-Cole, 2009). Such images reinforce the discourse of climate crisis by emphasizing the visual rhetoric of alarmism and fatalism. Specifically because, polar bears on a verge of hunger communicate a disturbing message universal for everyone, everywhere. The emotional connection is built through the property of anthropomorphism (Born, 2019). Anthropomorphism is defined as "the tendency to imbue the real or imagined behavior of nonhuman agents with humanlike characteristics" (Epley, Waytz and Cacioppo, 2007: 871). In a similar vein, scientist Patricia Romero Lankao acknowledges the correlation between the bears and humans at the launch of the IPCC's Fifth Assessment Report Working Group II, stating that: "the polar bear is us" (Borenstein, 2014, n.d.). These images allow the audience to correlate the ice melting with the endangerment of polar bears and thus bear witness to the changes occurring faster than scientist originally thought and expected. This way public becomes emotionally attached (O'Neill, 2022).

Communicating climate change risks and impacts using visual images of polar bears is embraced and deeply embedded into media and political discourse for several reasons. O'Neill (2020) makes a list of the most relevant ones. Firstly, to illustrate the extent of planet destruction caused by human activities like burning of fossil fuels and deforestation causing rising emissions. By showing highly visible and worrisome effects of invisible greenhouse gas emissions, visibility perspective is demonstrated. Furthermore, several other aspects relating to the climate change were made more salient and comprehensible to the wider public. Specifically, a miscommunication regarding temporal and geographical aspect of the climate change is illuminated. By displaying starving bears, here and now, portray of climate change as a distant threat in remote areas affecting future inhabitants of the Earth and compromising future generations is discredited. Overall, this has contributed to replacement of previously dominant "distancing frame" in which climate change impacts were chiefly represented as a distant threat affecting people in distant places or distant future (O'Neill, 2020).

Recognizing their visual potential, polar bear imagery is strategically employed by media as a "living proof" to persuade the public on the "truthfulness" of the IPPC warnings and forecasts on the magnitude and urgency of the changing climate. Simultaneously, images are utilized as "scary" evidence to pinpoint anthropogenic cause of climate change, demonstrating how human activities like fossil fuel combustion, deforestation and industrial processes contribute to releasing of large amounts of GHG emissions and thus alter the Arctic ecosystem.

Visual rhetoric of the images is distinctively apocalyptic as it illustrates and communicates the extent of the catastrophic consequences and emphasizes the doom and gloom narrative.

News articles with the accompanying photos featuring *Forbes*, *NBC news* as well as *CNN* all depict how altered climate conditions impact the polar bears habitat. Specifically, polar bears are visually framed in the context of victims given the increased temperatures emphasizing the nexus between the human-induced climate change and the accelerating warming of the planet. All three articles are multimodal by nature with disturbing photos intentionally used to communicate the danger of the climate change impacts on one hand and vulnerability of the planet on the other. Images of thinned and starving polar bears are purposefully utilized as a persuasive tool to hyperbolize the perils of the rising emissions and in general, projected climate change impacts in terms of retreat of glaciers, melting of ice sheets or decreasing snow cover. In a light of this, these photos serve primarily to hook audience on "fear" and ignite emotional reaction to the ecological meltdown. Emotionalization is hence achieved through the use of visual metonymy in which polar bears signify ecological degradation and climate emergency triggering emotions of dread, shock and anxiety aligning with the ideology of the climate alarmism. This is why polar bears are most often associated with the scaremongering and fearmongering communicating the feeling of urgency thereby reinforcing the discourse of climate crisis. All multimodal texts thus serve to persuade the wider audience on the existing climate crisis driven by human activities by burning of fossil fuels and thus accelerate the transition to renewables and green economy. Moreover, polar bears are purposefully exploited to ignite the discourse of empathy on one hand as well as narrative of anger toward the current political inertia thereby criticizing the insufficient policy measures to mitigate the climate change impacts.

10.4.3. False alarm frame

Figure 7. Ortez/Al Gore. Source:Quora

As previously indicated, on a global scale, the nomenclature of climate change is characterized by coexistence of two politically and ideologically distinctive movements, i.e.

doctrine with a clashing views on a number of issues spanning from existence and origin of this phenomenon to possible technical and technological solutions to the warming of the planet. Despite the disproportionate authority between the representatives of the movement (99% scientific consensus) and countermovement (less than 1%), the public debate bears a mark of highly pronounced polarization primarily stemming from the biased media coverage of the climate change issue. Although negligible, the counter movement receives much media attention further deepening the existing polarizing views and strengthening otherwise nearly invisible voice in the climate change debate. As an antipode to alarmist and apocalyptic discourse of climate change, media created a denial discourse. Accordingly, this imagery is utilized as a mockery of the alarmistic countdown discourse characterized by exaggerated predictions and warnings. In a light of this, the alarmist prophecy of the approaching climate change cataclysm is visually framed in the context of *false alarm* thereby ridiculing the climate *doomism*.

The meme features two images showing two prominent US politicians, Alexandria Ocasio-Cortez and Al Gore both passionate climate advocates, each underscoring the urgency of saving the planet due to limited time. Portray of climate change is created by the use of multimodal elements, including images and text, first of all, revealing the politicization of the scientific issue.

As previously mentioned, the issue of climate change first emerged within the scientific community largely drawing interest of researchers and scientists engaged with a wide range of environmental subjects within the much broader field of meteorology. Nonetheless, portrayal of climate change as the burning scientific issue was not a pivotal factor that brought this phenomenon into the global spotlight. Namely, it first caught the worldwide attention once it was framed as an issue of political relevance. Recognizing its newsworthiness, news media decided to increase media salience of the climate change introducing a paradigm and frame-shift.

Due to the persistent political turmoil emanating from disagreement around the policies and measures related to climate change as well as adaptation and mitigation issues, climate change is often represented in terms of political deadlock.

In this context, climate change is visually framed as the decade-long “end of the world - hoax” perpetuated by the IPCC and pro-environmental movement including prominent politicians and activists. This visual representation, in form of a meme, serves primarily as a “mockery” of scientific community, that is, their doomsday prophecy rooted in numerous climate projections and findings. Namely, the climate change scenario on the ticking time to avert the most adverse consequences is framed as the *false alarm* purposefully challenging the entire mainstream climate science. In a light of this, the number game is deliberately used to debunk the “climate change consensus” transforming it into a myth supported primarily by climate alarmists. The hyperbolized countdown discourse, typically associated with the alarmism, is intentionally ironized and employed to ridicule and delegitimize the mainstream climate science and thus diminish the importance of their research results and dire warnings on the warming of the planet. Moreover, the ironization exposes the attack discourse towards Al Gore politics and serves as a strategic tool to discredit his entire perspective and political ideology.

Based on the multimodal analysis, it is therefore possible to deconstruct the ideological discourse of climate denialism that is concealed behind the semiotic modes of image and text. It is purposefully constructed to amplify the scientific uncertainty surrounding the climate change impacts, reassuring the public on the harmful effects of the surge in greenhouse gases. The analysis concurrently exposes the hidden agenda of the denialists and contrarians striving to delay transition to green energy and phase out of fossil fuels. Therefore, meme is used as a discursive tool to manipulate the public, perpetuate skepticism and criticism of Alexandria Ocasio-Cortez by

attacking and undermining credibility of her ideas and proposed policies such as Green New Deal. By highlighting flaws and weakness in their arguments, denialists seek to discredit both politicians and their policy proposals influencing public support. Therefore, these semiotic resources are used to construct a narrative that downplays the urgency of climate action thereby obstructing efforts to reduce greenhouse gas emissions.

10.4.4. Fossil fuel combustion frame

Figure 8 . An Exxon Mobil plant in Baytown, Texas, in January. Jason Fochtman/Houston Chronicle/Associated Press (Matthews, Eaton, 2023; *The Wall Street Journal*)

Figure 9. An Exxon Mobil Corp. refinery in Rotterdam. (Crowley, 2023; *Bloomberg*)

According to Rebich-Hespanha and Rice (2016), industry frame demonstrates the industry impact on the environment and identifies fossil fuel industry as the principal factor harming the climate system. In that regard, the primary cause of the changing climate may be visually

communicated through a diversity of images. Depending on the purpose and the prevailing motives (political, ideological or financial) some facets can be deliberately more exposed or intentionally concealed from the public. Resting upon that, particularly ubiquitous is the visual frame surrounding the key cause of climate change, i.e. burning of fossil fuels (oil, gas and coal). As they release massive amounts of carbon dioxide and nitrous oxide in the atmosphere, the main problem of climate change is represented in terms of rising greenhouse gas emissions stemming from the fossil fuel industry. Accordingly, this visual framing makes an emphasis on the connection between fossil fuel combustion and greenhouse gas emissions. In that regard, visual rhetoric suggests that climate change is driven primarily by people and their activities (industry, transportation, agriculture) due to burning of fossil fuels. Correspondingly, this frame supports and reproduces view of the mainstream climate science rooted in a scientific consensus on human-induced climate change. Therefore, this frame is widely exploited by news media and politicians to shape the public opinion on the main drivers of climate change aiming to convince the public that human activities are responsible for the changing climate.

By showing images featuring content related to electric power, *Bloomberg* and *The Wall Street Journal* aim to raise public awareness of the industrial sector as the generator of the GHG emissions and thus correlate the rising emissions with the accelerating warming of the planet. "Billowing smokestacks are particularly salient visual elements and are often appropriated as icons of industry-driven environmental destruction" (Rebich-Hespanha and Rice, 2016: 4846).

In this context, visual imagery of power plant smokestacks (dense and black smoke and steam billowing from the coal-fired power plant) is strategically employed to communicate an unambiguous message that humans are the primary cause of climate change, shaping the discourse of responsibility. Power plants utilizing coal, oil, and natural gas are the primary contributors to carbon pollution and thus the leading catalysts of climate change (Steen, n.d.). The energy issue (fossil fuels versus renewable energy sources) is regarded as a highly divisive topic in the climate change debate causing polarization between the various stakeholders due to economic concerns, policy and regulations as well as environmental impacts (Funk and Rainie, 2015).

Accordingly, this frame suggests "that technology is both cause of and solution to the climate change problem" (Rebich-Hespanha and Rice, 2016: 4846). In this particular case, discourse of blame is constructed and blame is ascribed to Exxon mobile, a multinational oil and gas corporation, which is a major player in the fossil fuel industry (Supran and Oreskes, 2021). Therefore, media deployment of this visual frame is twofold. It serves as a counter-argument intended to delegitimize the rhetoric of climate sceptics defying the man-made causes of global warming and concurrently legitimizes the climate consensus rooted in mainstream climate science. Accordingly, this visual framing is utilized as a strategic tool to expose the political and ideological agenda of the Exxon mobile and thus demonize its countless attempts to delay climate action and transition to renewable energy production. However, this visual discourse simultaneously shapes an attack narrative of the fossil fuel advocates, reassuring the public that carbon-intensive industry may no longer be the dominant source of the energy in the future. Imagery amplifies the written message for the immediate need for shift in energy paradigm. This narrative thus serves to frame the fossil fuel industry in the negative context and further vilify the carbon-dependent economy driven by the profit. Additionally, this visual representation emphasizes the urgency of moving away from carbon-intensive economy to achieving net-zero emissions.

10.4.5. Extreme weather events frame

Climate change effects can manifest as either slow-onset events such as ocean acidification, sea level rise, desertification or as rapid-onset events such as extreme weather events (Matias, 2017), meaning they can be either promptly observable and damaging to most people regardless of time and place or gradually imperceptible happening in the distant future. However, not all of these consequences get the equal amount of media attention or most importantly, not all of these impacts are equally engaging for the public (Perga et al., 2023). According to Lochner, Stechemesser and Wenz (2023), high-impact events, that is, events with detrimental environmental impact that are happening here and now increase climate change coverage and attract more media attention compared to scientific projections of long-term impacts. Carvalho and Burgess (2005) also note that media coverage of climate change mostly includes reporting of dramatic climate-related issues and events. These news stories or scientific publications of near-term hazards of high-impact events are normally accompanied by a number of images (Nerlich and Jaspal, 2014). Not surprisingly, such severe weather events such as short-term episodes of drought, floods, heat waves and forest fires are chiefly communicated through the discourse of *fear* (O'Neill, and Nicholson-Cole, 2009). According to Weingart, Engels, and Pansegray (2000), life-threatening events normally increase newsworthiness of the story therefore sense of alarm is typically magnified (Joffe, 1999).

Visual frame of extreme weather events is ubiquitous in media coverage as it is well-suited to attract attention due to its characteristics of exaggeration, personal relevance, sensationalism and shock (Emsley, 2001; Trumbo and Shanahan, 2000).

According to the IPCC, the extreme weather events refer to "temperature extremes, heavy precipitation and pluvial floods, river floods, droughts, storms (including tropical cyclones), as well as compound events (multivariate and concurrent extremes)" (Seneviratne, 2021: 1517).

All three news articles featuring the *Royal Meteorological Society*, *Independent* and *Sky news* seek to capture attention on the interrelationship between climate change and the extreme weather events. Specifically, both visual and verbal discourses in the articles are used strategically to communicate the message that severe climate events are a consequence of unabated climate change. Photos depicting forest fire, heat waves/drought and flooding are employed to spotlight the devastating consequences of the climate change fueled primarily by the increased warming and surge in emissions due to human activities. The anthropogenic origin of the climate change is thus particularly emphasized conveying the message of „controllable and manageable climate change", that is, warming which is within the control of humans if the right and timely decisions are made (SEG, 2007). In this context, imagery is deliberately used to depict and criticize poorly or ill-managed climate issues shaping the discourse of blame which is implicitly assigned to policy and decision-makers.

In this particular case, visual discourse also relies on the emotional appeal intentionally evoking emotions of fear, dread and panic thereby shaping the narrative of climate crisis and communicating urgent need for combating climate change by cutting emissions. Accordingly, alarmist discourse of climate change is reinforced through the visual rhetoric of catastrophe accompanied by apocalyptic narrative of impending doom and gloom. This visual frame often promotes *doomism* and contributes greatly to sensationalization of climate change narrative. Scaremongering and fearmongering are thus utilized as a persuasive tools to manipulate the public and spread frenzy. Emotionalization of the climate change is also achieved through *pathos* by shaping emotive discourse and provoking feelings of empathy, concern and urgency towards the most vulnerable and climate-sensitive regions and sectors.

Furthermore, mainstream climate science is reinforced as the photos provide “proof” for the scientific warnings, projections, and predictions. This in turn serves to legitimize the proposed climate policies in terms of transition to carbon-free economy and renewable energy sources.

Figure 10. Heat waves, Temperatre records. Source: *Royal Meteorological Society* (2019).

Figure 11. Flooding drives millions to move as climate driven migration patterns emerge. (Phillis and Fassett, 2023; *Independent).*

Figure 12. Canadian Forces used a helicopter to survey the area near Mistissini, Quebec, in June (Seabrooke, 2023; *Sky News*)

10.4.6. Human health frame

As previously shown, disturbing images of climate change impacts have long invaded all media channels. Panic-inducing visual images of devastated areas following floods and hurricanes, wildfires sweeping through forests, collapsing glaciers have been widely deployed as visual baits in order to raise the awareness and concern about the climate change effects among politicians, decision-makers as well as public. Nonetheless, visual representation of climate change solely as the Earth system problem doesn't seem to resonate with the wider audience as "personal" information on a more relatable scale is needed to effectively communicate the scope of this global phenomenon (Limaye, 2021). Conceptualizing climate change through the "distancing frame" in which the warming of the planet is portrayed as psychologically and geographically remote phenomenon is seen as a "barrier to climate action" (Van Lange and Huckelba, 2021; Keller et al., 2022). Accordingly, as public perceive climate change impacts as abstract, remote and impersonal (Leiserowitz, 2006) messages may be less effective compared to the frame in which people are threated and harmed here and now (Van der Linden, Maibach, and Leiserowitz, 2015). In that regard, it has been proved that media reporting of impacts of climate change on human health can enhance public engagement (Maibach et al., 2010).

In a 2009, Lancet Commission on Climate Change declared that "climate change is the biggest global health threat of the 21st century" (Costello et al., 2009). According to the WMO report, the 2023 State of Climate Services, climate change undermines health and heightens pressures on health systems, especially in the most vulnerable communities (WMO, 2023).

In a light of this, news media often frame climate change in terms of human health implications (Maibach et al., 2010). Specifically, climate change is portrayed as a threat to human health (Rossa-Roccor, Giang and Kershaw, 2021) both physical and mental (Manning and Clayton, 2018). Significant physical health effects include heat-related illnesses due to increasing temperatures, higher rates of injuries from extreme weather events, changes in air quality,

diseases transmitted by vectors and through water, and health issues like undernutrition, malnutrition, and obesity (Crimmins et al., 2016).

In climate change coverage, this frame is deployed to emphasize the explicit and underlying risks climate change poses to people either directly through exposure to severe weather events or indirectly through changes in the air and water quality (Depoux, Hémono, Puig-Malet et al., 2017). Such news stories which are "relatable with concrete personal experiences" (Van der Linden, et al., 2015: 759) may hence reduce psychological distance and enhance engagement on the issue (Gustafson et al., 2020) Namely, such "personalized" representations or framing news media have greatly embraced in its coverage of climate-related news (Höijer, 2010).

In a broad sense, human health frame plays a substantial role in terms of bridging the gap between the climate science and climate policy as many health researchers and practitioners attribute this frame the potential to induce transformative policy change, having in mind that politicians are generally concerned and care about their health and well-being of their loved ones (Rossa-Roccor et al, 2021). However, considering that health is not ideology-free or value-free, it allows media to establish a biased narrative by creating a message that suits particular interests and thus influence the public opinion on that matter (Rossa-Roccor et al, 2021).

The visual discourse of climate change health impacts may be constructed by combining several semiotic resources to create a desired meaning. Visual representation of climate change-driven health problems stemming from air pollution, hurricanes, extreme heat or wildfires may hence include images, infographics or maps, charts and graphs.

10.4.6.1 Physical health frame

Figure 13. Tracy Wallace puts ice cold cloths on her forehead and chest to stay cool at the Sunrise Center cooling center in Portland, Ore., during a record-breaking heat wave on June 27, 2021. (Jucevic, 2022; *The Washington Post).*

On a denotative level, the image featuring news article in the *Washington post* shows a middle-aged woman seated in a wheel chair with a piece of clothes covering her forehead and chest trying to cool off amid the intense heat-wave affecting Portland. The photo is taken in a cooling shelter where the heat relief is provided to the most vulnerable population in terms of air-

conditioning and tanks of cold water. During the episodes of excessive heat, cooling centers are set up to deal with health effects of such extreme weather conditions.

On a connotative level, deconstructing this visualization reveals several significant points. Firstly, this visual image reinforces the scientific perspective on interlinkage between the climate change and the extreme weather events such as in case of heat wave. The image suggests that heat waves are fueled by the climate change and rhetoric of the visual image is unambiguous: people are in jeopardy due to the scorching temperatures and prolonged period of extremely warm conditions. Secondly, it implies that frame of record-breaking temperatures and extreme heat (heat waves) are associated with a number of heat-related illnesses fueled by a changing climate. Based on the multimodal analysis, discursive practice of combining semiotic modes of language and image is employed in this news article for the ideological purpose of providing legitimization to the mainstream climate science. Analysis of the visual imagery thus implies that scientific findings are not a mere prophecy as indicated in the climate sceptics' rhetoric but a harsh reality affecting people across the world and the woman sitting in the wheelchair is visually framed as the "proof" being a "victim of the extreme weather events due to unabated climate change".

According to the 2018 study, severe, extreme, and exceptional heat waves, such as those affecting the Balkans (2007), France (2003), or Russia (2010), are associated with increased mortality, human discomfort and reduced labour productivity. Based on the results of a very high-resolution global model, even at 1.5 °C warming, a considerable rise in heat wave magnitude is expected over Africa, South America, and Southeast Asia. Compared to a 1.5 °C world, under 2 °C warming the frequency of extreme heat waves would double over most of the globe (Dosio et al., 2018).

Considering the surge in extreme weather events increasingly boosted by climate change, visual image is utilized to raise concern of the growing number of health-related illnesses. Climate change is framed as taking toll on human health not just in terms of economic loss and damage. Specifically, media has taken advantage of the health aspect to raise the alarm as these issues are underprioritized in climate policies (Limaye, 2021). In a light of this, these images are primarily employed to frame climate change as a global health crisis and thus serve as a "wake up call" for politicians and decision-makers.

10.4.6.2 Mental health frame

Figure 14. Therapists specializing in eco-anxiety say the field is finally adapting to meet a growing need. Illustration: Benjamin Currie/Earther (Whitcmb, 2012; *The Guardian).*

On a denotative level, there are several aspects to consider. In a most narrow sense, it shows a therapy session between a therapist (possibly a psychologist or a psychiatrist) and his male patient sitting across each other in an office-like space. The therapist, holding notes, is leaned in a wide brown armchair whilst his patient is sitting upright in the couch anxiously resting his head in the hands. The distance between them is unusually large as they are sitting on the opposite sides of the whitish iceberg cut in half surrounded by lots of fractured pieces. The disintegration is further aggravated by an image of dried cracking soil beneath them.

In terms of multimodal analysis, the visual image is strategically employed to exhibit the negative impact of climate change on human health, in particular the mental health as it depicts the therapist office. The climate change effects go beyond the physical health. Mental health frame is increasingly utilized by news media in relation to climate change coverage (Maran and Begotti, 2021). It links mental-health related illnesses and diseases with the devastating effects of the changing climate. Correspondingly, extreme weather events may be linked to Post-Traumatic Stress Disorder, anxiety and depression, or increase risk of suicide and worsen the well-being of patients with the underlying mental health issues (Clayton, 2020; White et al., 2023). With regard to that, climate anxiety, eco-anxiety as well as solastalgia all refer to psychological distress due to awareness or personal experience of environmental disaster (Pikhala, 2020).

Specifically, visual rhetoric of the image suggests that detached iceberg and the drought-stricken soil represent just one of many adverse consequences of climate change affecting planet and thus implicitly identifies them as one of the root causes of the mental health issues, such as anxiety or depression people are currently facing.

The visual discourse of sadness and helplessness is created by the purposeful use of semiotic mode of color, particularly dark and muted primarily aiming to provoke emotion of empathy with the public. Moreover, it reinforces the alarmist rhetoric of the doom and gloom in a light of the climate-health nexus.

Showing a male patient who sought professional help from a therapist as he was unable to cope with the accumulated climate stress or climate anxiety he is suffering from, media visually frames climate change as a global health crisis. It sends a message that climate change is real, so as the climate anxiety. It aims to draw attention to the gravity of the problem as psychological traumas resulting from any form of climate-related disaster can be 40 times higher than those of physical injury (Lawrance et al., 2021). Accordingly, visuals are deployed to increase the urgency of finding adequate mitigation measures to tackle climate change as a health crisis.

10.5. Concluding remarks

The multimodal analysis conducted in this chapter has shown that visual communication of scientific topics to the wider audience, such as climate change-related issues, is increasingly rife with the vast array of semiotic modes contributing to various meaning-making thanks to endless amount of their combination.

Bearing in mind the unobtrusiveness and complexity of the climate change as a scientific issue, visualization of the risks, impacts and hazards associated with the increased warming and rising emissions has proven fundamental for facilitating understanding and rallying climate action as visuals catch the attention more readily, rapidly raise awareness of the specific facets of the issue, and offer simplified interpretation of the otherwise incomprehensible aspects. Moreover, they have the capacity to “personalize” the message so it resonates more effectively with the wider audience and thus catalyze interest, concern and action.

The amalgamation of the linguistic and visual resources has thus proved to be the most prevalent and preferred mode of representation and coverage of climate change in the public discourse due to their compound framing effect well-apt for influencing the public opinion. Accordingly, visual framing has proved to be the key discursive strategy as it enables deliberate highlighting or minimizing certain aspects, perspectives or notions while purposefully omitting or exaggerating specific facets with the strategic purpose of influencing the public attitude in favour of certain agendas.

Due to their capacity to simulate reality which the wide audience is mostly unaware of, visuals are most often exploited to manipulate the public opinion by distorting reality through emotionalization and sensationalization. In that regard, visual rhetoric of fear has proven to be the most prevalent communication mode both in scientific and media discourse. This is accomplished by deploying disturbing images and photos as well as vibrant reddish or exceptionally dark colours depicting perils of the warming world. This approach communicates an alarming message to policymakers and the public, urging immediate action on climate change.

Moreover, the analysis has exposed the dual concealment of multimodal manipulation embedded in both language and visuals as these semiotic resources have been identified as efficient carriers of underlying ideologies capable of either reproducing current power relations or challenging them. Depending on the content creator and the intended purpose, the selection of various semiotic modes has been utilized to enhance the textual message, thereby conveying either affirmative or negative message aligned with specific elite groups.

In the scientific discourse, visualization of the climate change effects in terms of maps, graphs and tables prevails as the dominant visual narrative to support the mainstream climate science, scientific consensus and thus justify the issued warnings on the climate catastrophe aiming to convince the public on the credibility and integrity of scientific realm and their decisions.

In contrast to scientific discourse, where visual manipulation is more subtle, news media resort to more aggressive discursive strategies, often employing hyperbolized images, sensational headlines, and emotionally charged language. This approach primarily aims to evoke strong emotional reactions thereby manipulating public opinion, attitude and behavior to either support or reject specific ideological or political positions.

11. CONCLUDING REMARKS

As previously indicated, research has underpinned characterization of climate change as a *super wicked* phenomenon. Climate change has taken the world by storm, both literally and figuratively penetrating through all pores of society in full vigor with climate pendulum swinging between science and science fiction. It has reshaped the dominant paradigm on the perception of science as the only natural habitat of this global phenomenon and cast the light beyond the science into the dystopian cli-fi future marked by antagonistic power blocks in a political race over dominance. As shown, climate change compromises the present and the future of the planet, it puts on test human mitigation and adaptation capabilities and if left unabated it leaves no other options than shifting to survival mode. Continuation of the *business as usual* scenario across the globe is highly unlikely to provide the quick fix for this diagnosis. Climate change communication thus became a blind spot in a debate on adaption and mitigation options, energy transition, decarbonization and emission reduction in relation to achieving climate targets set in binding climate treaties and agreements.

Within the theoretical framework of critical and multimodal discourse analysis, I have conducted a critical discourse analysis using sociolinguistic and multimodal methods aiming to scrutinize divergent discursive strategies deployed in constructing climate change discourse within scientific, media, and political discourse. Deconstruction and decoding of scientific, media and political discourse was carried out to unravel the manipulative use of linguistic and visual modes as means of multimodal communication while concurrently uncovering the opaque power relations and dominant ideology embedded within the climate change discourse. In that regard, I specifically focused on examining the lexical, rhetorical, and pragmatic features of language and how they intersect and complement with visual semiotic modes in their role as vessels of both explicit and implicit meanings and ideologies and in turn how they manipulate public perception by reproducing or maintaining power relations and dynamics. Additionally, the theoretical framework utilized in this analysis was supplemented by the inclusion of ecolinguistics. As an interdisciplinary field of study concerned with interaction between the environment and language, ecolinguistics was an essential research tool for investigating how linguistic and visual modes contribute to construction of climate change discourse. Only through the compound effect of complementary fields such as ecolinguistics and multimodal discourse analysis, was it possible to conduct a research on the interplay between language, power and ideology.

The research has established that climate change discourse is scientifically considered a non-controversial issue, with a nearly unanimous consensus on its anthropogenic cause. However, technically, it has proved to be highly contentious following the absence of political and social consensus. Even though climate change debate seems to have reached the absolute pinnacle long time ago, the hype around it shows no sign of abating. In environmental terms, planet and profit are on a collision course and humanity seems to be stuck in a dead-end street. As the world is heading toward ecological, financial and social putrefaction of the climate change issue, there are plenty of telltale signs of science being increasingly hijacked by politics and politics being driven by ideology and fueled by financial interests deepening the existing clash within the climate change debate. The research has therefore shown that the climate change debate is marked by overwhelming scientific consensus on one hand and mounting pseudoscientific denial on the other. Moreover, analysis has indicated that the heavily politicized debate, characterized by deep polarization, aggravates ideological incongruence and public dissatisfaction with the widening gap between the scientific call for action and political inaction. The analysis has further revealed the entanglement of news media in the climate change

discourse, exacerbating the communication gap between the scientific community and policy-makers regarding the anthropogenic origin of climate change. It comes clearly in the research that, instead of bridging this gap, media coverage contributes to further ideological polarization by adhering to the journalistic norm of "false balance", that is, bothsiderism, by portraying both sides of the issue equally despite scientific consensus. Hence, the research has demonstrated that the portray of climate change in the news is often depicted through the dichotomy between "doomism" which magnifies the worst case scenario in terms of adverse consequences and calls for urgent action and the "delayism" stemming from climate denialism advocating for the delay of fossil fuel consumption and green transition.

The research findings suggest that the complexity, remoteness and unobtrusiveness in addition to nearly invisible cause (greenhouse gas emissions), make abstract scientific projections of the climate change impacts for the distant future and distant places difficult to communicate to the wider audience through verbal resources alone. Therefore, visualization has proved to bridge this gap effectively by facilitating understanding and making various aspects of climate change impacts more personal and relatable. In a light of this, as the Earth's air temperature, greenhouse gas emissions and climate debate are approaching a tipping point, verbal and visual resources have been identified as the pivotal instrument of persuasive and manipulative power utilized in scientific community, media and politics to shape public perception and ultimately drive action.

Analyzing climate change discourse within the triangular relationship was carried out primarily as the interplay and interaction between science, media and politics has proved to be crucial in terms of influencing and shaping climate policies as well as public perception and attitudes on this matter. As shown in the thesis, these three pillars of science, media and politics were found to be interdependent, interrelated and intertwined in numerous ways. Yet, each of these discourses is rooted in different mechanisms and concepts which in turn greatly influence the selection of discursive strategies for the construction of the discourse. Given the underlying political, ideological and financial motives, these discursive strategies were sometimes found to be overlapping in all three domains, or diverging, or on the other hand either triggering conflict or complementing narratives. Therefore, tracing entanglement between scientific community, news media and politicians has proved to be relevant for this research as the construction of the climate change discourse has proved to take place in specific order.

Firstly, scientists are considered to have the fundamental role, as they are the ones who produce research findings; news media, on the other hand are responsible for communicating research results to the wider audience on the basis of which policy-makers and politicians are supposed to make decisions and implement policies. Accordingly, scientific community is the most authoritative discourse as it produces knowledge in terms of research papers and findings demonstrating research results and evidence supported by vast amount of climate data obtained from various climate models. As previously mentioned, climate change first emerged within the scientific community. It was recognized as a serious environmental challenge posing risk to the people and the planet. However, it didn't gain momentum until it was heavily politicized. Once it was politicized, the climate change debate soon became polarized as well. Almost unanimous scientific consensus was reached emphasizing the man-made warming that pushed the climate into uncharted territory leading to irreversible changes to the climate system. Even though the scientific message was clear, unambiguous and straightforward, it remained trapped behind the obscure scientific claims and publications.

To combat climate change, it is an imperative to comprehend it, and to comprehend it, it is necessary to communicate it effectively. In this climate change marathon, the baton was therefore further passed from the scientists to the media. As previously mentioned, media are

identified as the main source of information on the environmental issues, including climate change, based on the assumption that wider public is not especially keen on reading scientific papers on latest research findings. This leading role in informing the public media have greatly taken advantage of. As indicated previously in the research, media doesn't necessarily represent the reality, it creates its own reality. Committing to the principle of "balanced reporting" and resting upon the "unbiased" communication paradigm, has given media fertile ground to resort to manipulation and persuasion tactics in creating their "own version of reality" in the coverage of the climate change. By doing so, news media have exacerbated polarization between ideologically and politically opposed actors and perpetuated inequalities and power dynamics inherent in the climate change debate.

The research has indicated that, since climate change discourse is continually produced and reproduced within the triad of science, media and politics, the climate change debate is highly contested and polyphonic, i.e. hallmarked by a plethora of actors in perpetual power competition. Accordingly, due to its polyphonic nature characterized by a multitude of actors, the climate change debate often serves as a battleground in which different voices seek to advance their agendas. In this cacophony, scientists, governments, corporations, activists and media outlets are in a constant struggle to gain influence, dominance and secure power, which is why they often resort to various manipulation strategies. Manipulative discourse is constructed through the meticulous choice of linguistic devices as well as the selection of persuasive visuals. Correspondingly, while the multimodal communication of climate change is the widespread mode of representation of this global phenomenon in science, media and politics, the research has concurrently shown that it frequently masks the presence of multimodal manipulation as well. Specifically, study has demonstrated that multimodal communication in the climate change discourse is anything but straightforward, transparent or homogenous, but instead, repository for concealed agendas, ideologies and biases, which is why critical and multimodal discourse analysis have proved to be essential tools for the research.

Despite the presence of a large number of actors, the research has indicated that the two most prominent voices, i.e. movements within the climate change debate that strongly influence the public perception and thus engagement on the subject are the ones who embrace the mainstream climate science and those who discard it. In the coordinate plane of the climate change, the discourse of alarmists and discourse of deniers may be depicted as the vertical and horizontal axis, respectively heading toward different directions with different trajectories. Based on these findings, research has demonstrated that the concept of climate change is typically portrayed in media, politics as well as science through the binary frames of climate alarmism and climate skepticism/denialism/contrarianism.

Correspondingly, the research findings indicate that the debate on the climate change causes, effects and risks is often represented as the contest between the antagonistic views of the alarmists and sceptics competing to influence public opinion and policy decisions. Hence, this dichotomy is typically framed in the media as the battle between the proponents of the climate change science who are sounding the alarm about the urgency of addressing the issue and phasing-out of fossil fuels and the opponents of the scientific consensus who are sceptic about the extent of the human influence and therefore seek to delay the green transition. Whether these movements were framed as heroes or villains depended on the factors such as media sources, news outlets, political and ideological orientations, as well as pseudo-scientific or scientific attitudes. Accordingly, both movements have proved to be portrayed positively or negatively depending on the perspective of the message creator.

Whether it's the publication of new climate-related book, the release of scientific climate reports, findings or data, the launch of climate-oriented political campaigns, or media coverage of climate protests or climate conferences, analysis suggests that the sense of alarm is consistently present. The discourse of alarmism is often associated with the mainstream climate science and is consequently grounded on the broad scientific agreement, i.e. consensus on the man-made climate change. Moreover, its foundation is laid on the growing body of scientific evidence, facts and data, underpinning the fact that alteration in the climate system stems primarily from human activities like burning of the fossil fuels and deforestation. In a light of this, the discourse of alarmism is established. Its main purpose is to communicate the dire scientific warnings of the adverse impacts of possibly irreversible climate shift. Accordingly, the primary function of climate alarmism is to draw attention to the alarmingly fast-occurring climate changes and thus signal the urgency and gravity of the situation with the ultimate goal of triggering immediate climate action and "green" transition in terms of implementing climate policies, legally-binding legislation and financing for the carbon-free future. In order to convince the wider audience, decision-makers, policy-makers, shareholder, stakeholders and individuals of the significance of the problem and the cost of inaction, a persuasive multimodal discourse of climate change is established embodying a vast number of linguistic devices and visual modes to transmit political, social and ideological values and beliefs of climate alarmists.

Based on the research findings, framing climate change as the climate crisis or climate emergency is established as a prevailing norm in science, media and political communication of climate change, thereby underpinning the discourse of climate alarmism. The discourse of crisis is deliberately articulated to have a dual strategic purpose: to persuade the public on the detrimental status of the planet given the changing climate and to mobilize support for political action to avert these changes. Moreover, its underlying objective is to pinpoint the vacuum between the scientific consensus and political ignorance thereby reinforcing the crisis narrative. Accordingly, to convince the public and policy-makers on the existence, seriousness and urgency to combat climate change, risk of the projected impacts is framed as an imminent threat.

As previously mentioned, in contrast to the alarmist discourse is the discourse of climate skepticism that emerged as a countermovement from a marginal group of scientists opposing the scientific consensus on the man-made climate change. Due to media attention, it gained disproportionate prominence and salience intentionally miscommunicating that there is a scientific dispute on the matter, making climate change a polarized controversial issue. Despite some distinct dissimilarities, climate sceptics are lumped together with climate deniers and climate contrarians. Hence, in a light of their agenda, the changing climate is typically framed in media as the manufactured scientific hoax deliberately aimed at reassuring the public that the scientific prophecies regarding the catastrophic climate scenarios are merely myths.

In a light of this, the research has demonstrated how scientists, media and politicians construct a manipulative discourse of climate change intentionally aligning it with either climate alarmism or climate skepticism by focusing on the analysis of discursive practices employed to create desired frames, narratives and stories that serve their agendas. Specifically, the analysis has uncovered how manipulation manifests through diverse discursive practices encompassing lexical, rhetorical and pragmatic structure.

On the lexical level, the climate change discourse prominently features the strategic use of nominalization, (over/re) lexicalization, technical jargon and neologisms. In their attempt to delay the transition to clean energy, opponents of the climate science (pseudo-scientists, specific media outlets like Fox News, Republican Party politicians) were frequently found to resort to the utilization of grammatical-lexical feature, nominalization, due to its capacity to manipulate public

perception and frame climate change as a naturally occurring phenomenon rather than driven by human activities. This manipulation strategy is typically employed to communicate a narrative of climate skepticism by reshaping the discourse on responsibility and blame thereby diverting attention away from the fossil fuels. The use of overlexicalization as a persuasive tool reflects political and ideological divide in the climate change debate and is thus strategically used to either assert authority or undermine opposing views. It has led to the proliferation of a vast number of labels for climate change, often used interchangeably to communicate either the ongoing climate crisis or to cast doubt on its existence and origin thereby intentionally confusing the public. Similarly, relexicalization is utilized as a manipulation device, serving to either reinforce the discourse of alarmism or skepticism. It mostly depends on whether the aim is to minimize or emphasize the urgency of the situation, which in turn triggers either fearmongering or calm-mongering as a discursive strategy. Likewise, a variety of portmanteau words is strategically embodied into the narrative to vividly illustrate most alarming aspects of the warming world and how they affect wellbeing of both people and the planet emphasizing magnitude and gravity of the present and anticipated changes. Additionally, deployment of technical terms serves multiple purposes. Firstly, it serves to strengthen the authority of the scientific community by expertization through scientific findings validation. Secondly, it serves to persuade public and policy-makers of the veracity of scientific warnings thereby supporting the mainstream climate science and their call for urgent implementation of net-zero strategy.

The discourse of climate change is further shaped by the use of rhetorical devices which have been found to be deeply embedded in the media, political and scientific communication of climate change. Specifically, the three most distinctive discursive strategies employed on the rhetorical level to articulate the manipulative discourse are metaphorization, hyperbolization and ironization. Framing climate change as climate urgency promoted by climate alarmists is achieved mostly through the strategic use of metaphorization and hyperbolization. The highest alert to take immediate action is communicated through deployment of war metaphors by framing climate change as an immediate threat which requires swift response whilst sports and gambling metaphors emphasize the competitiveness of the actors along with high stakes unless the crisis is resolved. Hence, by highlighting specific aspects, these two lexical devices were most frequently employed to shape the frame of climate change in terms of economic, environmental and social loss thus highlighting the impending crisis and need for immediate response. The narrative of climate crisis is further reinforced through the deliberate utilization of hyperboles aiming to amplify the perception of gravity and urgency of addressing the climate issue by discursively shaping the emotional discourse aimed at galvanizing the climate action. The manipulative tactic of utilizing emotionally charged language is particularly visible in the countdown discourse, specifically articulated to align with alarmist communication serving to emphasize the time-sensitive nature of the climate crisis and thus persuade the policy-makers to find immediate solutions. On the other hand, ironization was mostly utilized to reinforce the discourse of climate skepticism by deliberately mocking and belittling scientific forecasts on the adverse consequences of climate change. Its main purpose is to challenge the authority of climate science by portraying scientific results as flawed and unreliable and their warnings as overblown with the intention of weakening the public trust in science.

Based on the research, discourse of climate change in the science, media and politics is also shaped by strategic utilization of pragmatic devices. Presuppositions and implicatures are employed as discursive tools for the manipulative purpose, for instance either to vilify the political and ideological opponents in the climate change debate or mask the inconvenient truths not aligning with their agendas. Pragmatic devices were acknowledged by media and politicians

as well-apt for “normalizing” the anthropogenic origin of the climate change as well as decarbonization as the only viable path or imply the impending catastrophe unless these measures are taken. Manipulation through pragmatic devices is mostly executed through the technique of othering by purposefully framing certain actors in the climate change debate in the negative manner, by shifting blame or responsibility, scapegoating most vulnerable groups or countries; then by utilizing positive self-presentation and other presentation which is particularly evident in the political discourse of climate change by presenting political figures in either favourable or negative light. Moreover, manipulative strategies also involve emphasizing and deemphasizing specific climate change aspects by either deliberately prioritizing certain facets at the cost of others. Accordingly, positive impacts of the renewable energy sources are deemphasized and negative impacts emphasized whilst positive impacts of the fossil fuel industry are emphasized but negative impacts deemphasized. Similarly, economic constraints have overshadowed environmental risks, or the importance of scientific agreements or climate talks and conferences has been purposefully downplayed. Additionally, pragmatic devices have proven to significantly impact perception of the climate change-related issues due to its capacity to shape the framing in the desired direction, for instance representing climate change as a health crisis, economic risk or scientific myth. With regard to this, the research has further unveiled a dichotomy within the construction of discourse of climate change, marked by the contrasting narratives of fear and doubt.

Accordingly, the research results indicate that that the main constitutive element pervading alarmists discourse is fear rhetoric. Its main purpose is to serve as a catalyst for accelerating political action on climate change. Fear discourse is created through apocalyptic, cataclysmic and doomsday framing of future impacts of climate change representing the planet on the brink of the abyss. Fearmongering or scaremongering was found to be particularly present in the framing of climate change as a crisis. It is normally followed by rhetoric rife with hyperboles reinforcing the doomsday prophecy.

Unlike the discourse of climate alarmism that relies upon the interplay of rhetoric of warning and fear-inducing rhetoric, the discourse of deniers rests upon the rhetoric and narrative of doubt. While climate believers appeal to fear to scale up global response and resources to combat climate change, climate deniers do exactly the opposite. They sow a seed of doubt in public trust on integrity of climate science in order to delay the climate action and policies and hence hinder collective and efficient climate efforts. Due to this fact, the discourse of denial is often referred to as the discourse of delayism. Constructed as an antipode to discourse of alarmism, denial/delaysim discourse is shaped through the narrative of negation of the IPCC climate science and rejection of the anthropogenic climate change. The discourse of doubt is created to mislead the public by communicating the uncertainty in scientific findings and results and thus subvert the scientific community producing the most relevant reports, studies and research results on the topic of climate change. The discursive strategies ingrained in the denial discourse serve to weaken the position of the scientific realm, erode public trust and influence. With broadly utilized framing strategy of scientific uncertainty, climate deniers manipulate and confuse the public and thus contribute to further polarization of the climate change debate. Framing effects of doubt and uncertainty greatly influence the policy- and decision-making process aiming to hamper the renewable green energy transition and prolong the dependence on the fossil fuel industry. “Fossil-fuelled” ideology is broadly embodied into delayism discourse with both explicit and implicit manifestations. It is transmitted through a number of verbal and visual semiotic modes amplifying the politically motivated message that changes in the atmosphere do not herald the end of civilization correlated with the human-induced climate

change. Discursive strategies deployed to construct the denial discourse exhibit ideology-driven manipulation in multimodal communication of climate change with a purpose to influence the public perception of this global phenomenon and thus undermine the authority of climate scientists.

In a light of this, research has moreover revealed the crucial role of fear-inducing language in a multimodal manipulation thereby triggering discursive strategies of emotionalization, sensationalization and spectacularization, often achieved through coordinated use of language and visuals.

Hence, this study illustrates that manipulation in alarmist discourse is based on the combination of emotional appeal, overblown representation and dramatic elements to amplify the message and thus influence perception and reaction. Exploiting emotive discourse as discursive strategy involves evoking predominantly negative emotions such as fear, dread, anxiety, panic, shock, anger, and horror to intensify the warnings and mobilize action. Normally, emotive discourse is reinforced through the use of disturbing photos (climate-change related) in order to amplify the desired message. In conclusion, evoking pathos was found to be a common strategic tool in the climate change communication utilized to persuade and manipulate public opinion. On the other hand, sceptics and deniers were found to be more prone to evoke doubt, skepticism and distrust as well as conspiracies and unfounded findings distorting reality and influencing public attitude.

Owing to the fact that contemporary society is increasingly image-oriented, in the context of climate change, visual communication has also proved to play a major role in terms of facilitating understanding of an otherwise distant and unobtrusive issue. Due to their communicative power and potential for meaning-making, visuals are deeply embedded into climate change discourse. Their manipulation power is reflected through emotionalization, simplification, metaphorical representation as well as rhetorical techniques. Research has shown that emotionalization of the discourse involves utilization of semiotic modes of photos, images and colors triggering fear, panic, anger or sadness thereby manipulating public perception by amplifying the textual message through construction of emotive discourse. Visual metaphors are extensively used to communicate the abstract aspects of the climate change making them more relatable and memorable whilst visual rhetoric was mostly used as a persuasive tool to influence public perception and opinion. By doing so, visuals have proved to effectively reinforce the narratives, frames and discourses to align with specific groups' viewpoints.

Nevertheless, the research has shown that even though alarmism pervades various discourses, its manifestation differs, particularly in the verbal and visual discourse of climate change, ranging from subtle caution to sensationalistic exaggerations. In a scientific discourse, more specifically scientific reports, the fear discourse is exhibited in a slightly more subtle manner through the use of semiotic mode of red colour as is the case with the IPCC reports or climate stripes visualization. The emphasis is put on the evidence-based communication rather than panic-inducing language and visuals. Conversely, news media and politicians are more likely to employ fear-inducing language (emotionally loaded) to capture attention or push agenda and rally support for their interests. Consequently, in the discourses of media and politics, alarmism tends to be more overt and aggressive.

Conclusively, analysis has confirmed the hypothesized presence of manipulation and persuasion in the multimodal communication of the climate change in the scientific, media and political discourse. Manipulation is executed by strategic combination of linguistic and visual resources, that is, lexical, rhetorical and pragmatic devices and semiotic modes of photos, images and colours. Specifically, study exposed the role of linguistic and visual semiotic modes as

carriers of ideological values and beliefs, implicitly embedded into the narrative thereby manipulating public opinion on various aspects of the climate change issue and contributing to power inequalities in the climate change debate. Myriad of stories, narratives and framings embodied into climate change discourse thus served the purpose of favoring, criticizing or demonizing certain climate policies, perspectives and actors, thereby influencing understanding as well as engagement on this global issue. As the scientific warning on the accelerating warming is still pending, this global phenomenon has proved as a great communication challenge in a vicious cycle, rather than a triangle.

Bearing in mind the significance of bridging the communication gap in the public discourse for the policy-making and implementation of the adaptation and mitigation measures towards achieving net-zero emissions, the further analysis could delve into juxtaposition of the discourse of climate alarmism and climate skepticism in terms of examining similarities and dissimilarities of the climate change communication aiming to explore perception and reaction of the audience. In a light of this, further study could additionally focus on the nexus between different emotive discourses (anger, hope, fear) and their influence on the perception of climate change as an immediate risk.

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LIST OF FIGURES

БИОГРАФИЈА АУТОРКЕ

Јована Вурдеља је рођена 12. новембра 1981. године у Београду. У Београду је 1996. завршила основну школу као носилац Вукове дипломе, а 2000. године Земунску гимназију са одличним успехом. Дипломирала је 2005. године на Катедри за скандинавске језике и књижевности Филолошког факултета, Универзитета у Београду. Захваљујући постигнутом успеху током студија, стручно се усавршавала у Норвешкој, на Универзитетима у Бергену и Кристиансанду са фокусом на норвешки језик и културу. При Ректорату Универзитета у Београду, а у сарадњи са Универзитетом *La Sapienza* у Риму, године 2008. је уписала мултидисциплинарне мастер студије на енглеском језику *Управљање државом и хуманитарне активности* (State Management and Humanitarian Affairs*)* током којих студијски борави у Риму и учествује на више интернационалних радионица, семинара и конференција. Звање мастера европских политика и криза је стекла одбраном мастер рада на енглеском језику под називом „Climate Change as a Global Challenge with Implications for Sustainable Development: case study Norway and Serbia“ (Климатске промене као глобални изазов са импликацијама на одрживи развој: студија случаја Норвешка и Србија). Године 2012. је завршила студијски програм *Одрживо пословање и технологија* (Sustainable Business and Technology) на *Harvard Extension School*. Школске 2017/2018. године је уписала докторске академске студије на Филолошком факултету, Универзита у Београду, студијски смер језик и положила све испите предвиђене планом и програмом са оценом 10. Током студија је учествовала на домаћим и међународним научним скуповима и објављивала радове на норвешком и српском језику из области политике и климатских промена, норвешке и српске фразеологије, контактне лингвистике, односно савремене медијске културе. Примарну област њеног интересовања чини спектар тема од критичке социолингвистике и еколингвистике, односно истраживања еколошке комуникације и мултимодалних еконаратива у контексу климатских промена до савремених лингвистичких токова скандинавских (норвешког) језика. Од 2013. године је запослена у Републичком хидрометеоролошком заводу Србије.

Прилог 1.

Изјава о ауторству

Име и презиме аутора Јована Вурдеља

Број досијеа 2017/30029

Изјављујем

да је докторска дисертација под насловом:

Critical Analysis of Multimodal Discourse of Climate Change –
Критичка анализа мултимодалног дискурса климатских промена

- резултат сопственог истраживачког рада;
- да дисертација ни у целини ни у деловима није била предложена за стицање дипломе студијских програма других високошколских установа;
- да су резултати коректно наведени и
- да нисам кршио/ла ауторска права и користио/ла интелектуалну својину других лица.

Потпис аутора

_____

У Београду, _____

Прилог 2.

Изјава о истоветности штампане и електронске верзије докторског рада

Име и презиме аутора	Јована Вурдеља
Број досијеа	2017/30029
Студијски програм	Језик
Наслов рада	Critical Analysis of Multimodal Discourse of Climate Change - Критичка анализа мултимодалног дискурса климатских промена
Ментор	Проф. др Јелена Филиповић

Изјављујем да је штампана верзија мог докторског рада истоветна електронској верзији коју сам предала ради похрањивања у **Дигитални репозиторијум Универзитета у Београду.**

Дозвољавам да се објаве моји лични подаци за добијање академског назива доктора наука, као што су име и презиме, година и место рођења и датум одбране рада.

Ови лични подаци могу се објавити на мрежним страницама дигиталне библиотеке, у електронском каталогу и у публикацијама Универзитета у Београду.

Потпис аутора

_____

У Београду, _____

Прилог 3.

Изјава о коришћењу

Овлашћујем Универзитетску библиотеку „Светозар Марковић“ да у Дигитални репозиторијум Универзитета у Београду унесе моју докторску дисертацију под насловом:

Critical Analysis of Multimodal Discourse of Climate Change –
Критичка анализа мултимодалног дискурса климатских промена

која је моје ауторско дело.

Дисертацију са свим прилозима предао/ла сам у електронском формату погодном за трајно архивирање.

Моју докторску дисертацију похрањену у Дигиталном репозиторијуму Универзитета у Београду, и доступну у отвореном приступу, могу да користе сви који поштују одредбе садржане у одабраном типу лиценце Креативне заједнице (Creative Commons) за коју сам се одлучио/ла:

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(Молимо да заокружите само једну од шест понуђених лиценци.
Кратак опис лиценци је саставни део ове изјаве).

Потпис аутора

_____

У Београду**,** _____