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Minority positions on the climate change debate: skeptics' & contrarians' interpretative resources in the social contestation of climate change on comment sections from online newspapers

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MSc in Studies of Environment and Sustainability

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To my dear Filipa.

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Abstract

With an exclusive focus on minority positions on climate change (CC), this dissertation examines the social and political debate happening on comment sections of CC-related articles from the Portuguese online newspapers *Diário de Notícias* and *Observador*. Motivated by the recent electoral successes in the European continent of far-right or populist political parties whose policy is associated with minority positions on CC, this study draws from theoretical frameworks engaged with cultural constructions of society and nature, as well as processes of meaning-making in self-other relations. It (1) analyzes in the comments how majority positions on CC are opposed and minority ones advanced when meanings clash, and (2) establishes how CC advocates are perceived and undermined by skeptics & contrarians. This dissertation analyses in detail insightful skeptical & contrarian comments paying attention to both content and form, namely by looking at polemic/dichotomized views seeking to reinforce skeptical & contrarian narratives, as well as at non-dichotomized ones where further dialogue is not inhibited. The results show that presently in the CC debate occurring in the press minority positions are to be found much more in comments than in published pieces. They also show how strict denial of anthropogenic CC is a rare occurrence among the comments reviewed, but that skepticism & contrarianism can manifest themselves in a variety of ways, and can assume many forms, including contestation of climate scientists, environmentalists and decision-makers, individually or as a group, whose calls-to-action elicit reactions of distrust, opposition, or conspiratorial ideas, depending on people's worldviews. Contributing to the study of minority positions on CC, this dissertation provides further insight for science communication and policymaking into the role of people's shared interpretative resources in the imagination and response to CC.

Keywords: climate change, skepticism, contrarianism, communication, cultural theory, social representations

Resumo

Com um foco exclusivo nas posições minoritárias sobre alterações climáticas (AC), esta dissertação examina o debate social e político que ocorre nas secções de comentários de artigos relacionados com as AC dos jornais portugueses online Diário de Notícias e Observador. Motivada pelos recentes sucessos eleitorais no continente europeu de partidos políticos de extrema-direita e populistas cujas políticas estão associadas a posições minoritárias sobre AC, este estudo parte de quadros teóricos dedicados às construções culturais da sociedade e da natureza, bem como aos processos de criação de significado em relações self-other. A dissertação (1) analisa nos comentários como as posições maioritárias sobre AC são opostas e as minoritárias avançadas quando os significados colidem, e (2) estabelece como os que defendem as AC são interpretados e comprometidos por céticos e contrários. Esta dissertação analisa em detalhe comentários céticos e contrários, prestando atenção tanto ao conteúdo como à forma, examinando as visões polémicas/dicotomizadas que procuram reforçar narrativas céticas e contrárias, bem como as não-dicotomizadas em que o diálogo não é restringido. Os resultados mostram que atualmente no debate sobre AC que ocorre nos jornais as posições minoritárias podem ser encontradas muito mais nos comentários do que nos artigos publicados. Eles também revelam que a negação estrita das AC antropogénicas é uma ocorrência rara entre os comentários analisados, mas que o ceticismo e contrarianismo podem manifestar-se de várias formas, incluindo a contestação de cientistas climáticos, ambientalistas e decisores, individualmente ou como um grupo, cujos apelos à ação suscitam reações de desconfiança, oposição, ou ideias conspiratórias, dependendo da visão de mundo das pessoas. Contribuindo para o estudo das posições minoritárias sobre as AC, esta dissertação oferece uma maior compreensão para a comunicação científica e a elaboração de políticas sobre o papel dos recursos interpretativos partilhados das pessoas na imaginação e resposta às AC.

Palavra-chave: alterações climáticas, ceticismo, contrarianismo, comunicação, teoria cultural, representações sociais

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Introduction

Today, the scientific consensus (Powell, 2019; IPCC, 2021) on anthropogenic climate change (CC) is accepted by the majority of the public (UNDP, 2021). However, there are also *minority positions* regarding CC that openly contest climate science, and the very existence of CC, *as well as politicians, environmentalist and journalists reproducing the scientific consensus* (Almiron, Boykoff, Narberhaus & Heras, 2020). The literature calls these holders of minority positions skeptics, contrarians and deniers (Boykoff, 2016). In line with the literature, in this investigation, holders, or *specialists*, of minority positions on CC will be called *skeptics & contrarians*.

Exploring the influence of skeptics & contrarians in the climate change debate is no easy task, neither is establishing where their views come from and are circulated in the first place. It's also a challenge to assess just how much specialists on minority positions jeopardize the long called for social transformations to mitigate and adapt to CC. Yet, the existence of minority positions regarding CC shows that no idea, no matter how widely agreed upon, is immune to contestation, and the consensus itself is not a static object. For this reason, further study is needed to assess how skeptical & contrarian perspectives are communicated – the goal of the present work.

Political, cultural and social contexts can hinder the acceptance of the scientific consensus on CC (Boykoff, 2011; 2016; Almiron, Boykoff, Narberhaus & Heras, 2020). On the one hand, this illustrates the often times difficult process of transforming an abstract object (like climate change) into a common-sense reality (Jaspal, Nerlich & Koteyko, 2013) and communicating the risks of certain modes of conduct. On the other hand, it shows that recognizing climate-related risks and making a decision in how to respond is mediated by culture (Adger, Barnett, Brown, Marshall & O'Brien, 2013), i.e., a *worldview*, a *rationality of nature* or a “shared interpretative framework” with which groups make sense of nature and the world (Tansey & O'Riorda, 1999: 73), as was already observed in the 1970s by Mary Douglas (1970) with the Cultural Theory about environmental risks. This also means that CC is disputed at the level of ideas (or *meanings/representations*) built and strengthened through social interaction with another, effectively revealing alternative viewpoints with which one can critic what is so called

common ground, as shown by Serge Moscovici's (1972) Social Representations Theory. In short, just as important as climate change itself is the debate around it.

From this perspective, gaining a better understanding regarding minority positions on CC among the public requires delving into people's cultural worldviews and shared interpretative resources, as well as the meanings used to reinforce one's skeptical & contrarian perspectives, like Gillespie (2020) has explored with his conceptualization of *semantic/meaning barriers*, which examine the discursive formats of alternative viewpoints. This is of vital importance if scientists and decision-makers are to be able to produce more all-encompassing frameworks on CC, accounting for a greater variety of worldviews, reducing disbelief or, ultimately, inaction.

The study of people's values in the presence of majority positions (i.e., perspectives in line with the dominant view, or *hegemonic representation*) allows for a deeper understanding of the reasons why the science is sometimes rejected, or why people would want to reject the science in the first place (Hornsey & Fielding, 2020), and has permitted to describe some of the reasons why the failure of public response can't be entirely explained by notions of information deficits (Norgaard, 2011). The literature on CC skepticism & contrarianism exploring the different dynamics of climate change scientific, political and public conceptions often shows that it's not only about people's explicit convictions, but also about what their attitudes suggest on a more profound, implicit level (Jaspal, Nerlich & Koteyko, 2013; Jaspal, Nerlich & van Vuuren, 2016; Kurz, Augoustinos & Crabb, 2010).

Opposing the consensus on CC comes in various degrees. It can be a dichotomic opposition between believers and non-believers (as those expressed in *polemic representations*), or a semblance of orientation towards cooperation and dialogue (as expressed in *emancipated representations*). Both reveal that what is plainly manifested, like CC denial, is as important as that which is absent from discourse (Batel & Castro, 2009), like a person's cultural resources, or values. In that sense, looking at what holders of minority positions regarding CC say and write about is essentially the foremost way to access the argumentative space constructed and explored by these actors.

Accessing data for this might have been a challenge in the past. Today, people's perspectives, no matter how controversial, can easily be found on user-generated content, organized around the Internet, and specifically, a number of online social networks, user-dedicated message-boards and comment sections of online newspapers. These platforms introduced a potential of amplification and maximization of information-sharing, democratizing the individual as a transmitter of messages with a global reach. The idea that meaning-making happens in and through relations with a singular or collective other (Batel &

Castro, 2018) is also well-matched with the concept according to which horizontal digital communication networks allow for the construction of meaning through processes of communication (Castells, 2011). In the case of the CC debate, that includes the circulation of skeptical & contrarian views such as the belief that climate scientists are fraudulent, or that action is futile on the account of humans being incapable of influencing the natural and cyclical systems of planet Earth. This dissertation operates on the idea that the field of science communication can benefit from the systematic analysis of such user-generated content (Jaspal, Nerlich & Koteyko, 2013). Its study is essential if “we are to move away from optimistic speculation and build a fuller picture of the expression of reader opinion in the online environment” (Richardson & Stanyer, 2011: 984; Jaspal, Nerlich & Koteyko, 2013).

At the level of the European Union (EU), there is some evidence suggesting that the debate over the veracity of climate science or the reality of anthropogenic CC is an aspect more closely associated with socio-political interests of right-wing parties (Almiron, Boykoff, Narberhaus & Heras, 2020; Küppers, 2021). This is particularly clear when turning to its more radicalized, far-right, variants, where environmental issues are, at any rate, relegated to the background in favor of other values such as security or free-market fundamentalism (Marega et al., 2019; Almiron, Boykoff, Narberhaus & Heras, 2020; Küppers, 2021). Almiron, Boykoff, Narberhaus & Heras (2020) have recently explored the flow of CC contrarian counter-movement activities between the United States (US) and EU countries coming from think tank networks, and found that US generated counter-frames have spread across the public sphere by European organizations as well.

In Portugal specifically, quantitative research registers that despite there being lower levels of information on CC when compared to other European countries, the country exhibits a small degree of skepticism about the dominant scientific thinking, with the public agreeing that the severity of CC has not been exaggerated (Rocha, 2015). The recognition of climate change and the perception of the risks associated with the phenomenon may not, however, translate into pro-environmental behavior, with the citizens delegating that responsibility to the government, the EU, as well as local and regional authorities and environmental groups (Rocha, 2015). On top of that, the marginalization of CC skepticism & contrarianism doesn't necessarily mean this will wither away or that minority positions are incapable of influencing or convincing the public at large. The recent electoral success of populist and neo-liberal political parties in Europe, *Portugal included*, could very well signal a validation of alternative representations by the dismissal or devaluation of CC calls to action by its actors.

Even if CC denial, in its more rigid construction, may not be at the outset a widespread perspective in the Portuguese public's imagination and representational work, skeptical & contrarian views on CC are very diverse. This diversity sustains the importance to further explore just how a complex and politicized subject like climate change is contested and negotiated by specialists on minority ideas in reaction to the coverage of climate change-related news in the mainstream media. With this, it's possible to ascertain the different forms minority positions can assume, both dichotomous (i.e., views that don't concede anything to the other), and more concessional (i.e., views that concede something to the other) (Batel & Castro, 2018; Uzelgun, Mohammed, Lewiński & Castro, 2015).

For this, this investigation turns to the comment sections of two mainstream Portuguese online newspapers, with an exclusive focus on comments about CC-related articles from 2019 and 2020. This two-year period is particularly exceptional in the context of the climate debate. 2019 saw a series of international strikes organized or otherwise inspired by the movement School Strike for Climate, as well as the rise to world-fame of Swedish environmental activist Greta Thunberg, herself a polarizing figure in people's imagination. Conversely, 2020 stood out for its atypical character, with COVID-19's outbreak seemingly overshadowing the discussion around climate change or other environmental issues. Nevertheless, it marked an on-going period of intense debate and tensions in science-society relations, which validates its importance for the present study.

Objective

This dissertation seeks to contribute to the literature on climate change skepticism & contrarianism by drawing from the *combined approach* of Cultural Theory of Risk (Douglas, 1970; Douglas & Widalvsky, 1982; Dake, 1992), Social Representations Theory (Moscovici, 1972; 1988; 2008; Castro; 2002) and the concept of semantic barriers to dialogue (Gillespie, 2008; 2020). In doing so, it will attempt to shed light on the worldview and shared interpretative resources of CC skeptics & contrarians in Portugal and how their ideas are advanced through a conceptualization of a research model for analyzing people's minority positions on climate change in comment sections of mainstream Portuguese online newspapers. To do this, this investigation outlined a guiding objective:

- 1) Analyzing how majority positions on climate change are opposed and minority ones advanced when meanings/representations clash in comment sections of Portuguese

online newspapers, by seeking to see what rationalities and views of nature, types of social representations and meaning barriers are employed.

The dissertation is structured around four major sections. First, in the theoretical framework, drawing from a literature review focused on the contribution of some the most influential proposals for the examination of meaning-making and resistance to social change, namely Cultural Theory of Risk (Douglas, 1970; Douglas & Widalvsky, 1982; Dake, 1992) and Social Representations Theory (Moscovici, 1972; 1988; 2008; Castro; 2002), attention will be given to the conceptualization of a research model for analyzing people's minority positions on climate change in comment sections of mainstream Portuguese online newspapers. Then, the focus turns to the methodological and analytical decisions allowing for this investigation to meet its objective. The third section reports on the results of the analysis, highlighting prevailing barriers in discourse, dominant worldviews and representations of self and other with the aid of insightful extracts from the corpus of comments. Finally, the investigation concludes with a discussion of the results, reporting on its main findings as well as emphasizing limitations and paths for further study on climate change minority positions.

SECTION 1

Theoretical Framework

1.1. Cultural Theory of Risk: Accounting for viewpoints towards nature

In the context of the ideas regarding the environment, the Cultural Theory of Risk (CTR) provides a framework based on the proposition according to which societies interpret the workings of nature through an assortment of cultural filters (Castro, 2005), with different forms of social organization developing ways of viewing and managing risks differently (McNeeley & Lazrus, 2014; Rayner, 1992). At its core, this means that more important than the risks, like those associated with the impact humans exert upon natural systems, or the risks of not taking appropriate climate change (CC) adaptation and mitigation measures, what matters is how “people choose what to fear and how much to fear it” (Oltedal, Moen, Klempe & Rundmo, 2004: 5). Like Social Representations Theory, the Cultural Theory of Risk argues that “judgements are not formed independently of social context” (Tansey & O’Riordan, 1999: 71), assisting on the understanding of “why some risks become politicised and emphasised whilst others remain latent” (Tansey & O’Riordan, 1999: 71) in socially contested debates. The framing of climate change-related risks in accordance to cultural resources or worldviews gives rise to “‘voices’ about CC risks and responses in various public forums” (McNeeley & Lazrus, 2014: 507), or *different ways of making sense of CC*, some of which are dichotomized and distressed about the possibility of catastrophe or collapse, while others possess a less alarmed view regarding environmental risks (Castro, 2005).

First established by the anthropologist Mary Douglas and political scientist Aaron Wildavski (1982), the Cultural Theory of Risk rests on a group-grid topology whose dynamics can, according to the authors, account for the variation in both risk perception and social participation (Oltedal, Moen, Klempe & Rundmo, 2004). Succinctly, while the *group dimension* describes the extent to which individual choice is subject to group determination, the *grid dimension* highlights just how much of one’s life is influenced by external constraints from the groups or organizations they belong to (Thompson, Ellis & Wildavski, 1990). From the intersection of these organizing axes the literature distinguishes between four different rationalities/worldviews, or “constellation(s) of values and beliefs about how society should be organized (McNeeley & Lazrus, 2014: 507), termed *egalitarian*, *hierarchist*, *individualist* and *fatalist*.

Considering people's views towards ecological systems (Lima & Castro, 2005; Thompson, Ellis & Wildavski, 1990), *egalitarians* (high group/low grid) fear for the environment and are skeptical regarding expert knowledge, putting an emphasis on cooperation rather than competition, and supporting political action aimed at increasing social equality. They are frequently represented by environmentalist groups (Oltedal, Moen, Klempe & Rundmo, 2004; McNeeley & Lazrus, 2014).

In clear contrast with egalitarians, *hierarchists* (high group/high grid) possess a deep sense of trust in expert knowledge, emphasizing the order of society and its perseverance. Their sense of fear is aimed towards social uproar and not necessarily nature, which hierarchists believe is manageable and can sustain human-caused impacts to a certain degree (Oltedal, Moen, Klempe & Rundmo, 2004; McNeeley & Lazrus, 2014). They accept the ecological risks when they are justified by the government or experts (Oltedal, Moen, Klempe & Rundmo, 2004; McNeeley & Lazrus, 2014).

The *individualist* rationality (low group/low grid) entails projecting fear in the direction of whatever might obstruct or otherwise challenge individual freedoms. For individualists, a threat would be war or a socialist government looking to upset the opportunity for a person to keep their economic gains. Supporting market liberalism and being politically placed to the right, individualists regard nature as something naturally variable and self-preserving, with humans unable to disrupt its systems (Lima & Castro, 2005; Oltedal, Moen, Klempe & Rundmo, 2004; McNeeley & Lazrus, 2014).

Finally, the *fatalists* (low group/high grid) take nature to be fundamentally unpredictable, making them generally unresponsive towards risks. Though they feel tied to a society bound by rules, fatalists take little part in social life and view the future as something essentially unknowable (Oltedal, Moen, Klempe & Rundmo, 2004; McNeeley & Lazrus, 2014).

Because this investigation is concerned with opposition and resistance to social change arising from textual data regarding CC there was an interest in examining how these voices of contestation could express different environmental beliefs. To that end, the Cultural Theory of Risk provides a system reflecting on the aforementioned rationalities, attributing a myth of nature representing different perceptions towards environmental risks to each of them.

1.1.1. “Myths” of nature: Fragile, tolerant, benign and capricious

Myths/views of nature are “lenses that organize the encounter of individuals with the world, producing different worldviews, or cultures” (Lima & Castro, 2005: 24). They describe how the relationship between society and the environment, including the climate, is configured

(McNeeley & Lazrus, 2014). Each myth serves the role of contributing to a legitimate view of ecological stability, though “each proponent of a particular myth of nature will typically view the other myths of nature as irrational” (Clahsen et al., 2018: 446; Schwartz & Thompson, 1990). This is particularly insightful in that it provides a guiding point allowing to determine if the extracted comments for this investigation, their characterization in light of the Cultural Theory of Risk and resulting analysis, are in line with what the literature suggests applied to the overarching subject of CC minority positions and people’s ideas about the environment.

Based on Karl Dake’s (1992) work and definition of myth of nature, i.e., “one set of beliefs about what the world is like, what its risks are like, and who is to blame for untoward events” (Dake, 1992: 24), the Cultural Theory of Risk argues that there exist four myths of nature, one for each of the four ways of life, namely: “*nature is fragile*” (egalitarianism), “*nature is tolerant*” (hierarchy), “*nature is benign*” (individualism) and “*nature is capricious*” (fatalism).

The egalitarians’ “*nature is fragile*” myth describes the preservation of nature as something essential for maintaining natural equilibrium, with human action threatening that balance, for instance, through activities resulting in the emission of greenhouse gases leading to higher concentrations of carbon dioxide or methane in the atmosphere. According to this myth, acts compromising nature are non-negotiable as they pose substantial dangers to everyone (Goebbert et al., 2012).

The hierarquists’ “*nature is tolerant*” myth represents a sort of middle ground between proponents of the “*nature is fragile*” myth and the “*nature is benign*” myth (Goebbert et al., 2012). In short, adherents of this myth tend to see nature as robust, “but only to a point, and the definition of this point, and how to deal with it, are a task for the competent experts” (Castro, 2005: 188). This means that the existence of risks of exceeding the limits of nature, even if those are not entirely clear, justifies regulation (Tansey & O’Riordan, 1999; Castro, 2005). Hierarquists, then, “pay close attention to the caution raised by the experts sanctioned by their group, and heed the regulatory restrictions on intrusions into nature imposed by legitimate authorities” (Goebbert et al., 2012: 135).

The individualists’ “*nature is benign*” myth paints a picture of nature being highly resilient and, as such, largely impervious to human actions. In this context, the climate system is seen as not easily disturbed and favorable to human-beings, with nature being a source of abundance with little need for the imposition of environmental laws. Environmental risks are here seen as opportunities, with individualists sharing the belief that technological solutions, for example, substitute the need to change behavior (Steg & Sievers, 2000), which goes along with a low environmental concern (Poortinga, Steg & Vlek, 2002; Ellis & Thompson, 1997).

Lastly, the fatalists' "*nature is capricious*" myth holds that nature is basically uncontrollable, and that "both nature's beneficence and disasters occur largely at random" (Goebbert et al., 2012: 135). Subscribing to this myth means accepting the climate system and its fluctuations as something inherently uncontrollable, with humanity just having to cope with erratic events. For a fatalist, calls to action on anthropogenic climate change would likely trigger an attitude in the vein of "Why bother?" (Steg & Sievers, 2000: 254).

Cultural Theory of Risk's focus on the pattern of ideas, placing the individual, instead of organizations or societies, at the center of its attention and views (Castro, 2005), makes it a suitable theory for the study of social contestation of CC in comment sections. The myths of nature, specifically, provide culturally established and recognized ways of making sense of the everyday, and can be used to argue and resist the ideas of others. Additionally, the usefulness of the Cultural Theory of Risk for this investigation also rests on its embrace of the concept according to which non-environmental attitudes and behaviors will never truly disappear, for according to the literature "(...) diversity will remain in ideas, for it will remain in the cultural ways people organize themselves" (Castro, 2005: 195). CTR, like Social Representations Theory, looks into individuals shared interpretative resources and the reproduction of both majority and minority positions in society, which validates its importance for examining skeptical & contrarian views regarding CC.

1.2. Social Representations Theory or: Contesting and negotiating the ideas of the majority

The public's response to transformative ideas from the scientific domain surrounding complex and multifaceted *socioenvironmental and cultural* issues like climate change (CC) is of particular concern to social psychology studies. Specifically, it constitutes a widely captivating and well-suited subject to the core features of Social Representations Theory (SRT). Originally designed by social psychologist Serge Moscovici to explore how expert knowledge transitions into public discourse and common-sense (Castro, 2002; Vala & Castro, 2013), SRT is characterized as a theory of meaning-making looking at how *shared systems of ideas* clash on a given social object, and look for legitimacy without ever being immune to resistance or social change (Castro, Seixas, Neca & Bettencourt, 2018). More elaborately, one of its chief tenets is the assumption that meaning-making regarding a subject like CC happens in and through social relations mediated between individuals, groups and institutions (Moscovici, 1972; Batel & Castro, 2015; Moloney et al., 2014). Additionally, SRT observes that representations do not all

possess the same level of stability and value, nor are they equally shared by individuals or within every social group (Moscovici, 1988; Castro, 2006). Indeed, SRT suggests distinguishing between three types of representations of differing social value (Moscovici, 1988): *hegemonic*, *polemic* and *emancipated*.

Hegemonic representations are dominant and highly valued in a society or culture. Widely shared, often institutionalized and difficult to challenge, hegemonic representations describe, in many ways, the “way things are” (Uzelgun, Lewiński & Castro, 2016: 705). In the context of CC, today they are often expressed by the majority position that human activity is exacerbating the impact of greenhouse gas emissions on Earth’s natural systems, contributing to changes in the climate patterns according to which human societies organize their way of life (Jaspal, Nerlich & Cinnirella, 2014; Castro, 2006; Castro, 2002).

Polemic representations lack the homogeneity of the consensus. Instead, they reflect social controversy (Batel & Castro, 2018), are only valued by some people (Castro, 2006), and characterized by antagonistic relations between groups (Jaspal, Nerlich & Cinnirella, 2014), taking on dichotomic forms where nothing is conceded to the other, with a clear separation between the “us and them”. Polemic representations remind us of the existence of interests and projects that don’t necessarily align with what is held by the majority. What’s more, these representations don’t result automatically from a lack of information on the subject, being more closely related to people’s interpretative resources. Accordingly, climate change can be constructed as a purely naturally occurring phenomenon, a fraud perpetuated by scientists, or part of a highly politized globalist hidden agenda, among other perspectives.

Finally, *emancipated representations* express neither dissensus nor consensus, being the focus of a “battle of interpretations” (Mouro & Castro, 2012: 3.18) and/or generic support (Batel & Castro, 2018). Communicative practices in this vein result from “the exchange of knowledge and ideas of subgroups which have some kind of contact between them” (Bruno & Barreiro, 2020: 22, Moscovici, 1988) and as such often bring into question reservations and uncertainties regarding a topic without ever narrowing down the possibility for cooperation and dialogue (Uzelgun, Lewiński & Castro, 2016). Emancipated representations challenge and support the institutionalized and unquestioned notions of the majority with a degree of compatibility through discourse formats that sustain dialogue, representing a field of diverse meanings circulating in society (Mouro & Castro, 2012; Gillespie, 2008). In the matter of social contestation of CC, emancipated representations can include the concept that there is a need to protect the environment, but scientists’ warnings of a climate emergency are simply exaggerated, or that the proposed solutions for adaptation and mitigation measures by experts

are highly questionable. Conceding something to an other creates argumentative space even in the face of disagreement, with constructions such as the ‘yes... but’ ones (Castro, 2006; Uzelgun, Mohammed, Lewiński & Castro, 2015) pointing to “potential for cross contamination and transformative dialogue between the main representation and the alternative representations” (Gillespie, 2008: 390).

The existence of representations that don’t incorporate the values of the majority on notions like anthropogenic CC reveals several things about how meaning-making relates to the interaction between social object, self and other that takes place in a culture – and about how this interaction offers the conditions for the emergence and transformation of meaning/representations (Vala & Castro, 2013; Castro, Seixas, Neca & Bettencourt, 2018; Moscovici, 1972). It reveals that there is diversity in ideas, but also that some individuals and social groups – no matter how minor they might appear to be – can try to undermine what’s taken to be shared across a society at large (Uzelgun, Mohammed, Lewiński & Castro, 2015; van Rees, 2009).

Moreover, specialists on minority ideas don’t just communicate among themselves. Spaces like comment sections of online newspapers provide a platform where ideas can circulate and clash between people with different worldviews. And, as was observed in the distinction between polemic and emancipated representations, conflicting meanings in on-going social debates give rise to not just controversy and disagreement, but to processes of re-signification and hybridization in values and beliefs (Uzelgun, Lewiński & Castro, 2016; Mouro & Castro, 2012). Crucially, the negotiation of meanings points to how individuals and groups try “coping with change” (Batel, 2012).

Examining discourse and communication from the lens of Social Representations Theory means operating on the idea that legitimacy, in fact, is “not a fixed given, but a provisional result of an ongoing ‘battle of ideas’” (Castro, Seixas, Neca & Bettencourt, 2018: 2; Moscovici & Marková, 2000: 275). It’s a reminder that meaning-making doesn’t happen in an isolated manner. In truth, the clash of meanings goes beyond the interlocutor of a conversation. It encompasses “the institutions regulating the cultural context of that conversation” (Batel & Castro, 2018), as well as other collective entities like think tank networks or political parties (Almiron, Boykoff, Narberhaus & Heras, 2020; Küppers, 2021). This means that representational work perceived as controversial can constitute an attempt to advance specific personal and/or collective goals (Jaspal, Nerlich & Koteyko, 2013), including the intention of converting a representation into the new dominant theme in a given social object, one that doesn’t necessarily obey the consensus of scientific thought.

In essence, the study of change (i.e., polemic and emancipated representations) and stability (i.e., hegemonic representations) in meaning in our societies entails recognizing that representations aren't just there; that change happens because people, groups, institutions and their representations can contest and transform a given social and historical context; and that there should be given a focus on relations and communication instead of just simply on individuals (Batel & Castro, 2015).

1.2.1. Social representations' processes: Anchoring and objectification

The construction of social representations can be further explored via its processes, whose task is to turn unfamiliar and abstract concepts, such as the current CC scientific discourses, into more concrete instruments, facilitating the construction of meanings (Moscovici, 1988). This is important for this investigation for two reasons: first, because it allows for a more in-depth study of the strategies employed by people to contest the hegemonic representation repeated by one of the key (re)producers of social representations, i.e. the media (Olausson, 2011); and, second, because it provides a foundation for the analysis of the constitution of alternative representations, including the ways through which a core (hegemonic) representation can be undermined by contesting one of its peripheral elements (Jaspal, Nerlich & Koteyko, 2013). SRT outlines *anchoring* and *objectification* as the two processes that illustrate the emergence of social representations (Moscovici, 1988).

With *anchoring*, a non-familiar notion is named “to locate the phenomenon within a well-known sphere of life and culture in order to make the new phenomenon comprehensible (Olausson, 2011: 285). The media often takes on the task of naming abstract concepts like CC “into recognizable frames of reference” (Höijer, 2011: 8), for instance, bringing a dramatic dimension to the much more approachable notion of weather and, thus, supplying people with an accessible, albeit every so often misguided, entry point to the subject.

Anthropogenic CC skeptics & contrarians can, in turn, react negatively to the emergence or institutionalization of representations anchored to metaphors of catastrophe or other adverse emotions with claims that CC is a scam, or an uncontrollable natural process of the Earth, with human-beings acting as mere observers. This means that attempts to highlight the need for action through a process of anchoring can have unexpected effects, like commentators “anchoring the acceptance of climate science to religious conviction” (Jaspal, Nerlich & Koteyko, 2013: 21).

Complementarily, *objectification* saturates the abstract concept with reality (Valsiner, 2003), essentially assigning physicalness to a phenomenon. Attaching specific storms, floods,

draughts or heat waves, using imagery of suffering polar bears, or alluding to the extinction of species or disappearance of forests with reference to CC materializes the issue in a way that can seem experienceable and without which the matter would be so much more difficult to grasp considering its overall complexity (Höijer, 2011; Olausson, 2011). On the other hand, in the context of polemic and emancipated representations of climate change, climate science can be objectified in terms of illegitimate financial gain (Jaspal, Nerlich & Koteyko, 2013).

In addition, objectification can also operate through a sub-process of *personification*, where “an idea or phenomenon is linked to specific persons” (Höijer, 2011: 13). The hegemonic representation of CC can thus be contested regardless of the scientific soundness of a given call for action if the “personifying symbol” is subject to criticism or ridicule (Jaspal, Nerlich & Koteyko, 2013), whether that’s an individual like the former vice-president of the United States, Al Gore, the Secretary-General of the United Nations, António Guterres, environmental activist Greta Thunberg, or the collection of students protesting against political inaction to tackle climate change under the international movement School Strike for Climate.

By taking into account representations with varied social value, and the processes that shape abstract expert knowledge into approachable and objectified common-sense realities, this dissertation seeks to fully employ the contributions of Social Representations Theory towards the study of specialists on minority ideas reacting to the coverage of CC-related news in the Portuguese media by resorting to alternative representations. This includes not only the contents of these representations, but also the forms they assume. Below, an approach anchored to ideas from SRT, describing the different communicative forms different alternative representations can have, is explored.

1.3. Semantic Barriers: Inhibiting dialog between self and other

Starting with the idea of the diversity of representations came approaches like the conceptualization of semantic or meaning barriers, which further explore the *interaction and formats of different representations*. For example, understanding how an alternative representation contesting the scientific consensus regarding climate change (CC) constructs its opposition, becomes reinforced and creates distance to a hegemonic representation can be looked at by the analysis of the characteristics of representations/meanings as expressed at a semantic level.

This also brings into question just how the increasing heterogeneity in society relates or not to an increasing heterogeneity in thought (Gillespie, 2008: 389). The inevitable clashing of

different ideas thanks to processes of globalization “does not [necessarily] mean that people become more open to alternative representations, more able to reflect upon their own representations, more tolerant, or more decentered in their thinking” (Gillespie, 2008: 389). To say otherwise, would be to suggest that the various perspectives relating to nature and the environment would all somehow be compatible in people’s imaginations, talk or text, or that incompatibility wouldn’t lead to defensive reactions. Instead, people’s perspectives, metaperspectives (perspectives attributed to others) and meta-metaperspectives (reactions to perspectives attributed to others) often collide, leading to attempts to disrupt the meaning of others and, in the course of that, prevent certain ideas from driving social change (Gillespie, 2020).

The factors that inhibit dialog between self and other following the contact of meanings offer insight into how people or ingroups effectively protect their meanings/worldview from the meanings/worldview of others. On the other hand, efforts to constrain the other’s ideas at the level of meaning-making can also have the paradoxical effect of allowing a certain degree of contact and dialogue, with the contact of meanings bringing about a possibility of impact in the self or the ingroup’s universe (Gillespie, 2020). This tension is best illustrated by Gillespie’s (2020) grouping of semantic barriers into layers of defense, which will be the focus of the next section.

1.3.1. Layers of semantic barriers: Avoiding, delegitimizing and limiting

Polemic and emancipated representations are represented by different discursive formats (Mouro & Castro, 2012), with semantic barriers depicting how these alternative representations fluctuate in a continuum (Gillespie, 2008). While polemic representations don’t concede anything, creating distance with a “us/them” dichotomy which avoids or dismisses the other, emancipated ones often take the verbal form of ‘yes... but’, instead limiting the other’s perspective. The wide variety of semantic barriers exemplifies the many subtleties people or ingroups use when their perspectives are threatened and they look to protect themselves from change. Moscovici (2008) also suggests that some barriers, as in the case of talk or text reliant on the “dynamics of irony and humor” (Gillespie, 2008: 388), can even point towards a free play of representation. Gillespie (2020) proposes distinguishing between three layers of defense which encapsulate this diversity, namely: *avoiding*, *delegitimizing* and *limiting*.

Avoiding focuses on the person, being defined by the non-acknowledgement of the voice of the other, for instance, through the creation of taboos or by dehumanizing an outgroup that’s conceptualized as “an ‘it’ rather than a ‘thou’” (Gillespie, 2020: 22). In this layer of defense,

the possibility for dialogue with an alternative representation is especially difficult, as denying the other their perspective restricts the disagreement space (Lewiński, 2011). For example, CC skeptics & contrarians might not attribute reasons or feelings to scientists or environmentalists, portraying them as parasites, puppets or brainless.

Delegitimizing entails depicting the other's perspective as invalid on the account of the other being ignorant or manipulative (i.e., having an ulterior motive). It involves recognizing the other's perspective, but dismissing it by devaluing the messenger and the message. The disruptive idea can also be weakened by emphasizing the subjectivity of the other's views or beliefs in terms of "they think", their 'perception'" (Gillespie, 2020: 22), or by stigmatizing members of the outgroup. In this sense, climate change skeptics & contrarians might characterize climate change adaptation and mitigation efforts as part of a plot serving a few politically-motivated individuals, or as a project built on false premises by uninformed so-called specialists.

Limiting involves circumscribing the impact of the disruptive idea, whether that's because it's no longer valid, or because it's impact "would cause unintended consequences, be futile or risk undermining another valued goal" (Gillespie, 2020: 23). The semantic barriers belonging to this layer of defense often take the form of 'yes... but' constructions (Uzelgun, Mohammed, Lewiński & Castro, 2015; Gillespie, 2020), which means that the possibility of dialogue between different representations is also greater. Proclaiming that environmental action causes economic harm, or that scientific studies lack the precision needed to make informed all-embracing decisions regarding CC function as processes of rationalizing what is perceived as a radical idea. The expansion of the disagreement space has the chance to reduce prejudices, and in the case of perspectives regarding climate change this can require offering room for the recognition of minority positions (Uzelgun, Lewiński & Castro, 2016).

The semantic barriers' focus on the ways dialogue with other representations is suppressed lends itself to the study of the communicative defense mechanisms employed by climate change skeptics & contrarians following contact with other meanings. Picking up on the layers of semantic barriers in text can offer further insight into minority positions on CC, including the views and beliefs the self attributes to others or outgroups, as well as the configuration of the disagreement space in the debate.

Next, this investigation briefly engages the three previously mentioned perspectives in a dialogue to validate their pertinence for the present study of minority positions on CC.

1.4. Engaging all three theories for the study of minority positions

People's imagination, or work of meaning-making, often reveal that seemingly incompatible ideas can, in fact, co-exist in the ways we reflect and act, and this also applies to subjects regarding the environment (Castro, 2005; Castro, 2006). This doesn't mean, however, that, in modern societies, the circulation of thoughts and knowledge systems, some of which are non-scientific, does not create tensions, with people and groups "choosing which is relevant for the given context, and [if they are] able to defend that choice in relation to possible alternatives" (Gillespie, 2008: 376).

The Cultural Theory of Risk, Social Representations Theory, and the concept of semantic barriers to dialogue all seem to share the notion that controversial views will, in one way or another, remain a part of the ways through which one can think about a number of issues, and that includes both nature in general and climate change (CC) in particular. Already, this assists in understanding the relevance of these theories for the present subject.

When turning our attentions towards minority positions on CC and the debate around the issue on comment sections of online newspapers, the three perspectives in question contribute to our understanding of how people construct and discuss meanings in discourse and communication (Castro & Santos, 2020), come into contact with and create distance from alternative representations, and, through discussions, convey beliefs about a specific view of how nature effectively functions.

The conceptualization of semantic barriers comes directly from SRT, with the former arising from a "focus upon the way in which particular meaning complexes can prevent dialogical engagement with alternative representations" (Gillespie, 2008: 384). Moreover, the three layers of defense that Gillespie (2020) outlines comprise several semantic barriers, some of which were identified originally by Moscovici (2008). On the other hand, the Cultural Theory, and specifically the conceptualization of myths of nature by Dake (1992), engages worldviews with interpretations of nature, providing a framework through which the CC debate can be looked at in relation to people's cultural understanding of the everyday.

Finally, all three perspectives place a strong focus on shared interpretative resources and the cultural contexts surrounding risk assessment and debates, and this emphasis relates directly to the scope and objectives of this investigation on minority positions on CC:

Objectives

This investigation focuses on minority positions regarding CC on the comment sections to CC-related articles on Portuguese online newspapers in order to:

- 1) Analyze how, in these comments, majority positions on climate change are opposed and minority ones advanced *when meanings/representations clash*, and how these minority positions are associated with different worldviews/views of nature.
- 2) Establish how minority positions regarding CC in the comments relate to different types of social representations, namely polemic and emancipated ones, and how commentators undermine the dominant view on CC through processes of anchoring and objectification.
- 3) Explore how minority position regarding CC inhibit the possibility of dialogue with others with meaning barriers, examining how the self and other are reported among skeptics & contrarians in respect to commentators' own beliefs and the beliefs they attribute to others.

SECTION 2

Methodology

2.1. Scope and criteria for newspaper selection

This investigation focused on the comment sections of two mainstream Portuguese online newspapers: Diário de Notícias (DN) (www.dn.pt) and Observador (www.observador.pt).

These media outlets were selected according to five criteria:

- 1) Popularity: There are essentially two major daily newspapers that are considered to meet high standards of journalism in Portugal: Público and Diário de Notícias. This investigation picked the latter. Observador was selected for its popularity and recency, and because it openly supports a right-wing viewpoint in its coverage (Observador, 2014a);
- 2) Distinct editorial stances: Despite its similar nationwide and global focus, as well as general reach in the Portuguese media landscape, these newspapers hold quite distinct editorial lines. Diário de Notícias assumes a moderate viewpoint in its role as a source of news according to journalistic principles. In its point five of the online editorial status, it reads: “DN ensures, in its pages, the possibility of *expression and confrontation of the various currents of opinion existing in the country*, but it does not forget that good journalism is made with the work of journalists and newspaper employees” (DN, 2015). By contrast, Observador adopts what it calls “*an outlook on the country and the world*” (Observador, 2014a), establishing itself on the right side of the political spectrum, as well as assuming what it calls “*the founding principles of Western Civilization, derived from Greco-Roman antiquity from Christianity and the Enlightenment*” (Observador, 2014a);
- 3) Wide coverage of climate change-related news at a national and international level in the years of 2019 and 2020: It was decided that the focus would be on comments from articles published on a two-year period, from January 1, 2019, to December 31, 2020. 2019 was a particularly noteworthy year for environmental activism as well as for various calls for action on climate change (CC) on a global scale, including what was described as the “biggest climate protest ever” (Guardian, 2019). It was also the year of the rise to world fame of the Swedish activist Greta Thunberg. Largely thanks to media coverage across the world, Portugal included, CC and environmental issues in general

were prevalent subjects throughout 2019, making it an ideal year to check on the climate debate happening on comment sections of online newspapers. On the other hand, 2020 is best remembered as the year of COVID-19's outbreak across the world and its related tensions in science-society relations. Although the CC debate appeared to have lost some of its prominence in the media in 2020, it was assessed that, because of its exceptional circumstances, including the spread of misinformation about the pandemic and subsequent public and political controversies, 2020 could still be a valuable source for insight on skeptical/contrarian claims about CC;

- 4) Large number of comments on climate change-related news pieces from the above-mentioned period of two years on both online newspapers;
- 5) Distinct comment policies: When it comes to the comment sections of DN and Observador, it is interesting to note that while DN makes no *explicit* attempt to stimulate the commentator towards sharing its views on the comment box, which includes a simple “Adicionar um comentário...” (Add a comment...) default message, Observador contains a default message on its comment box stating: “Comente e partilhe as suas ideias...” (Comment and share your ideas...”).

2.2. Search and collection of articles and comments

Diário de Notícias and Observador have different ways of categorizing and archiving textual data on their websites, and their tagging procedures are not always coherent across all stories. Because of this, distinct strategies had to be devised for the purpose of searching and collecting climate change-related articles from the aforementioned two-year period. These strategies are described below.

In the case of *Diário de Notícias*, the website's own search engine, sorted by date, was used with the terms “alterações climáticas” (“climate change”) and “aquecimento global” (“global warming”), with additional articles obtained by searching manually using the tags with the same terms. A total of *211 articles were generated*. 54 articles had at least one comment, with a total of 383 comments. 28 articles had at least one comment expressing a minority position, with a total of 96 comments. All skeptical & contrarian views from the 96 comments identified on the 28 DN articles were inspected, *with 23 comments obeying the criteria for selecting and retaining comments* that was designed a priori to address the research objectives of this investigation, and which will be discussed on this section.

Observador displayed a considerably higher number of CC-related articles and comments, with a section named “alterações climáticas” (“climate change”) on the newspaper exclusively dedicated to CC coverage. This motivated the elaboration of a systemic sampling method for CC-related articles from 2019 and 2020, with a sampling interval of 4. This number was produced randomly in the specified range of numbers 1 through 10 through Random.org’s random number generator. A total of 95 articles were generated. 79 articles had at least one comment, with a total of 1085 comments. 55 articles had at least one comment expressing minority positions, with a total of 310 comments. All skeptical & contrarian views from the 310 comments identified on the 55 *Observador* articles were inspected, with 51 comments obeying the criteria for selecting and retaining comments. The results for both CC-related articles generated and comments with minority positions retained from DN and *Observador* from 2019 and 2020 are summarized on the table below.

Table 1. Number of CC-related articles, CC-related articles with comments, comments, comments with minority positions and comments with minority positions retained from 2019 and 2020, by source.

	CC-related articles	CC-related articles with comments	Comments	Comments with minority positions	Comments with minority positions retained
DN	211	54	383	96	23
Observador	95	79	1085	310	51
Total	306	133	1468	406	74

The table shows that even with the systemic sampling method reducing the number of CC-related articles from 2019 and 2020 inspected on *Observador*, this newspaper still contained more articles with comments, comments, comments with minority positions and comments with minority positions retained when compared to DN. The *criteria for selecting and retaining comments* were outlined according to the research objectives. Considering that for analyzing minority positions there was a need to assess both context and arguments, eligible comments were chosen according to the following conditions:

- 1) Their clarity, including the capability to convey information coherently and using grammatically well-crafted sentences;
- 2) Their articulation, providing a good sense of the commentator’s feelings and ideas regarding either the subject reported in the article or another comment the commentator is responding to;

- 3) Their arguments, with a focus on claims that create a clear context to what is stated, and thus allowing for the identification of the type of alternative social representation involved in the discourse and semantic/meaning barriers in use;
- 4) The ability to determine the self's worldview, or view of nature.

By following this criteria for selecting and retaining comments, a *corpus of analysis of 74 comments* was reached. The analysis of the textual data was conducted with the support of the software MAXQDA 2020. All 74 comments were coded according to worldview/myth of nature (egalitarian/fragile, fatalist/capricious, egalitarian/robust or individualist/benign), social representation (polemic or emancipated), and semantic barrier (avoiding, delegitimizing or limiting). It's important to note that a single comment, being comprised of either just a few sentences or several paragraphs, can express more than one representation, and use more than one semantic barrier or construct more than one worldview/view of nature. This too was addressed with the support of MAXQDA 2020. Lastly, the newspaper articles from which the corpus was obtained were themselves characterized by position towards CC (affirming, neutral or skepticizing). This was decided because articles, especially opinion pieces, harbor different ideas about CC. Affirming articles reproduce the scientific consensus and explicitly support it in their content, with climate change-related affirmations being introduced by the authors of the articles; neutral articles neither reproduce nor contest the scientific consensus, providing authorship to climate change-related affirmations; skepticizing articles explicitly contest the scientific consensus with or without supporting authorship, harboring minority positions.

Of the 74 comments analyzed for their skeptical & contrarian features, 21 are provided as examples and analyzed in detail in the section of analysis. It was determined that these 21 summarized the majority of skeptical & contrarian perspectives of commentators on climate change according to the theoretical frameworks utilized.

2.3. Analytical approach

The analysis of textual data was informed by allying the chosen theoretical frameworks on Cultural Theory, Social Representations Theory and semantic barriers to dialogue, as well as analytic methods suited for analyzing qualitative data. It was decided that a combination of thematic analysis and pragmatic discourse analysis, as proposed by Batel & Castro (2018), was suitable for this investigation's research objectives on both reporting on and analyzing themes in textual data and exploring self-other relations.

With thematic analysis, themes were identified in a deductive or top down way (Braun & Clarke, 2006). The thematic analysis was deductively guided by the literature on Cultural Theory, Social Representations Theory and semantic barriers (i.e., theories connected in their study of shared interpretative resources and meaning-making), according to the research objectives. Going beyond the surface meanings of the data (Braun & Clarke, 2006), thematic analysis was employed at the latent level, with the goal of also examining underlying ideas (Braun & Clarke, 2006) among minority positions on climate change (CC). Crucially, thematic analysis paid attention to patterns of meaning in text, both explicit and implicit. To best understand how the possibility of dialogue between meanings is inhibited by CC skeptics & contrarians, the focus was both on the presence and absence of certain themes in the CC debate in comments, “as it is often in what is left unsaid that we can diagnose the operations of power” (Batel & Castro, 2018: 740).

Questions about barriers in discourse arising from the clash of meanings/representations on CC, and the worldviews/views of nature these clashes evoke, are well suited by thematic analysis’ focus on content (Batel & Castro, 2018). Thematic analysis enables the identification of how skeptical & contrarian commentators respond to the CC debate, for instance, through the images they use for contestation, providing a big picture of how said debate is conceptualized by specialists on minority positions – or macro level of meaning-making. On the other hand, this analytic method does present limitations regarding language use and self-other relations (Braun & Clarke, 2006; Batel & Castro, 2018), with matters of the other and its presence in the self’s imagination being recommended for pragmatic discourse analysis (Batel & Castro, 2018).

With pragmatic discourse analysis this investigation sought to gain insight on how skeptical & contrarian commentators resist the hegemonic representation on CC – and, therefore, social change. The core idea is that “words are always more than words” (Billig, 2009), i.e., that language users, using adjectives, adverbs as well as metaphors, analogies, among other techniques and discursive formats, approach communication in *a calculated way* (Batel & Castro, 2018). In essence, this analytic method permits us to look at “what functions discourses serve and what strategic interests are being pursued” (Batel & Castro, 2018: 744), with an emphasis on commentators’ interests and political projects (Batel & Castro, 2018).

Additionally, and by embracing other forms of rhetorical and discourse analysis (Batel & Castro, 2018), pragmatic discourse analysis allows for the analysis of not only the direct perspective of skeptical & contrarian commentators, but also the perspectives they attribute to

others (i.e., metaperspectives) and the reactions to the meanings attributed to others (Gillespie, 2020) – or micro level of meaning-making.

While thematic analysis “does not seek to focus on motivation or individual psychologies” (Braun & Clarke, 2006), it provides a theorization of structural conditions (Braun & Clarke, 2006) without which “analyzing the political dimension of self-other relations” (Batel & Castro, 2018: 744) would lack socio-cultural context. Thematic analysis, then, captures this context in discourses from the limits of the present CC debate happening in comments sections of online newspapers (i.e., content). Pragmatic discourse analysis, on the other hand, provides the tools to delve into the reasons why change is being contested or negotiated by some commentators in the first place (i.e., function and process).

SECTION 3

Analysis

3.1. Overview of CC articles and insightful minority positions on CC in the comment sections

The representational work of skeptical & contrarian perspectives on climate change (CC) is happening in the comment sections of DN and Observador. To better frame the context in which these comments surface, an overview of the 27 online newspaper articles from which the corpus of analysis of 74 CC skeptical & contrarian comments were extracted is provided. This offers a brief look at the topics skeptical & contrarian commentators respond to, as well as to the total amount of interactions in each of the articles with notable minority positions. Newspaper articles are also distinguished by type (news story or opinion piece) and position towards climate change (affirming, neutral or skepticizing).

Looking at Tables 2 and 3 below, it becomes clear that *opinion pieces on Observador attract a great number of interactions, especially those whose position towards CC is skepticizing* (a total of 4). The newspaper articles about CC on DN – *all of which are news stories* – are either affirming (8) or neutral (5) regarding CC. In the case of Observador, news stories reporting on CC are neutral (6), with an exception (1) where space is given to contrarian narratives.

Table 2. DN's CC-related articles from which comments were retained, mentioning their titles, date of publication, type of article, topic discussed, position towards CC, number of comments and number of comments with minority positions retained.

Article number	Title of the article (in English)	Publication Date	Type of article	Topic discussed	Position towards CC	N.º of comments	N.º of comments with minority positions retained
1	Mediterranean warming is 20% faster than the global average	10/10/2019	News story	Effects of climate change	Affirming	7	1
2	Interactive map shows areas of Portugal at risk from rising oceans	29/10/2019	News story	Effects of climate change	Affirming	20	3
3	Climate Strike. Students take to the streets again on the eve of the Climate Summit	28/11/2019	News story	Climate strike	Neutral	3	1
4	Lisbon will plant 20 thousand trees and prepare for climate change	29/11/2019	News story	Climate action	Neutral	4	1
5	Climate Strike. "We won't give up until we win"	29/11/2019	News story	Climate strike	Affirming	21	2
6	António Guterres: "We must stop our war against nature"	01/12/2019	News story	Call to action on climate change	Neutral	3	1
7	Victoria Falls reduced to a trickle due to extreme drought	07/12/2019	News story	Effects of climate change	Affirming	10	2
8	The main conclusions of the climate summit that disappointed Guterres	15/12/2019	News story	Climate summit	Affirming	11	1
9	Youtube directs millions of users to climate disinformation	17/01/2020	News story	Fake news on climate change	Neutral	1	1
10	At the age of 19, Naomi is the anti-Greta. Her word is already spreading around the world	02/03/2020	News story	Naomi Seibt	Neutral	77	7
11	"Almost 100% of deforestation in Brazil is criminal," says scientist	08/10/2020	News story	Illegal deforestation	Affirming	11	1
12	Portugal and Spain will "bake" with average temperature increase	18/11/2020	News story	Effects of climate change	Affirming	23	1
13	Human Rights Court welcomes action from Portuguese youth and orders 33 countries to respond	30/11/2020	News story	Climate action	Affirming	4	1

Table 3. Observador's CC-related articles from which comments were retained, mentioning their titles, date of publication, type of article, topic discussed, position towards CC, number of comments and number comments with minority positions retained.

Article number	Title of the article (in English)	Publication Date	Type of article	Topic discussed	Position towards CC	N.º of comments	N.º of comments with minority positions retained
14	Scientists send "strong message" on climate change to world leaders	24/06/2019	News story	Call to action on climate change	Neutral	17	2
15	Ocean levels could rise with consequences for more than a billion people, new UN study warns	25/09/2019	News story	Effects of climate change	Neutral	61	13
16	Greta among the Doctors	01/10/2019	Opinion piece	Greta Thunberg	Skepticizing	54	1
17	Dear Greta, this is my message to you...	24/10/2019	Opinion piece	Greta Thunberg	Skepticizing	143	9
18	Greta Thunberg "is an idiot," says Jeremy Clarkson	28/11/2019	News story	Greta Thunberg	Neutral	66	3
19	Guterres calls for increased political will from world leaders to fight climate change	01/12/2019	News story	Call to action on climate change	Neutral	35	1
20	Paris Agreement looming and a collective failure. Can a summit avoid "climate catastrophe"?	02/12/2019	Opinion piece	Climate summit	Affirming	73	3
21	When all prophets become dangerous. Including Greta Thunberg	04/12/2019	Opinion piece	Greta Thunberg	Skepticizing	108	5
22	Little Greta gave me something to believe in	07/12/2019	Opinion piece	Greta Thunberg	Skepticizing	17	2
23	Antarctica recorded temperature above 20°C? It may not be quite like that after all	20/02/2020	News story	Effects of climate change	Neutral	5	2
24	Planet's temperature may stabilize at values of three million years ago, says expert	26/02/2020	News story	Effects of climate change	Skepticizing	5	1
25	No, the pandemic is not good for the environment. But it may leave clues for a sustainable future	01/04/2020	Opinion piece	Call to action on climate change	Affirming	40	6
26	Government announces 1,3 million euros to assess vulnerability to climate change	07/09/2020	News story	Climate action	Neutral	3	2
27	2021: to start changing one's life	27/12/2020	Opinion piece	Call to action on climate change	Affirming	7	1

Regarding topics, *Greta Thunberg and, by association, climate strike related stories, and Naomi Seibt, a German climate change skeptic promoted by an American right-wing think tank (Reuters, 2020), are subjects of particular interest for commentators, producing several*

comments, including minority positions. Pieces highlighting the effects of CC and calls to action by scientists, politicians (especially Secretary-General of the United Nations, António Guterres) and environmentalists also result in numerous contributions.

Lastly, in the newspaper articles from which this investigation’s data set was extracted, 2019 revealed itself to be a more popular year among commentators – as well as journalists and columnist – in discussing CC related articles in DN and Observador, with a total of 653 comments (78,8% of all comments), versus 176 comments (21,2%) from articles published in 2020. This was expected. 2019 was a notable year both in terms of calls to action and international strikes for climate – and, thus, coverage of CC in the media –, while 2020 stood out, instead, for the COVID-19 pandemic.

The Table 4 below helps to reveal two additional facets of the newspaper articles from which the corpus of analysis was extracted. The first one is that *the majority of Observador’s articles with insightful minority positions from commentators are not affirming in their position towards CC*, being either neutral or skepticizing (11 versus 3). The second one is that *even though the total number of skepticizing articles (all of which are published on Observador) is only 5, these articles contain more total comments than articles with an affirming or neutral position*.

Table 4. Number of CC-related articles, comments and comments with minority positions retained by articles’ position towards CC.

	Affirming		Neutral		Skepticizing	
	DN	Observador	DN	Observador	DN	Observador
Articles	8	3	5	6	0	5
	Total = 11		Total = 11		Total = 5	
Comments	107	120	88	187	0	327
	Total = 227		Total = 275		Total = 327	
Comments with minority positions retained	12	10	11	23	0	18
	Total = 22		Total = 34		Total = 18	

Breaking it down according to source, it’s clear that even though DN registers the greater number of comments among its affirming articles when compared to other positions, affirming

articles on Observador have the least number of comments when compared to other positions. This can be a reflex of there being more affirming than neutral articles in the case of DN, and less affirming than neutral or skepticizing articles in Observador, but the fact remains: *in this sample, Observador is a more popular destination for skepticizing articles regarding CC and also interactions between commentators, including those with minority positions.* In terms of comments with minority positions retained, *neutral articles are the ones generating more insightful skeptical & contrarian perspectives overall.*

The following 21 extracts from the corpus of 74 comments illustrate contrarian & skeptical perspectives on climate change. This more detailed analysis is organized in three sub-sections. The first one analyzes comments in light of Cultural Theory. The second analyzes comments in light of Social Representations Theory. The third analyzes comments in light of semantic barriers to dialogue. Though the notable skeptical & contrarian examples provided are split in three sub-sections, one for each theory, *all three theories are linked by their focus on shared interpretative resources and meaning-making.*

In all three sub-sections and for every one of the 21 extracts below, detailed analysis will be conducted with a focus on content, function and process with three steps in mind: the establishment of the commentators' views; the establishment of the view's commentators attribute to others; and the establishment of the commentators' responses towards how they depict others.

3.2. Comments in light of Cultural Theory

Cultural Theory (Douglas & Wildavski, 1982; Dake, 1992; Castro, 2005) distinguishes between four different types of worldviews that express different beliefs about how society should be organized and how nature is viewed. "Myths" of nature, in particular, can be seen as resources through which commentators are capable of both expressing beliefs regarding how nature works and, in the process, contest the scientific consensus, or hegemonic representation, on climate change (CC).

Table 5 reveals the frequency of worldviews/myths of nature from the corpus of analysis according to articles' position towards CC. It shows that, in this data set, *worldviews reflecting a hierarchist rationality/robust nature or individualist rationality/benevolent nature are the most common among CC skeptics & contrarians.* Comments expressing a hierarchist rationality/robust nature are slightly more prevalent in articles which convey skeptical & contrarian narratives, while comments reflecting an individualist rationality/benevolent nature

are more dominant among articles with a neutral stance on the subject. Notice, as well, that *skeptical & contrarian comments reflecting an egalitarian rationality/fragile nature are essentially inexistent*, as was expected.

Table 5. Frequency of worldviews/myths of nature from the corpus of analysis of 74 comments according to articles' position towards CC.

	Affirming	Neutral	Skepticizing	Total
Fragile	0	1	0	1
Tolerant	8	8	11	27
Benign	9	15	4	28
Capricious	6	9	3	18
Total	23	33	18	74

The 8 extracts provided in this subsection reveal different ways to make sense of CC. Table 6 reveals how those extracts are connected to the newspaper articles commentators are reacting to:

Table 6. Extracts provided for illustrating worldviews/myths of nature in contesting CC, by the worldview/myth of nature it expresses, the article the commentator is reacting to and the orientation of the comment, by order of appearance in this subsection.

	Worldview/myth of nature expressed	Newspaper article from which the extract was taken from (article number) and orientation
Extract 1	Hierarchist/Tolerant	17 (Refusal of extremism)
Extract 2	Hierarchist/Tolerant	21 (Conspiratorial worry over social threats)
Extract 3	Individualist/Benign	20 (CC as a hoax risking human well-being)
Extract 4	Individualist/Benign	26 (Market over nature)
Extract 5	Individualist/Benign	25 (Viewing the atmosphere as highly regenerative)
Extract 6	Fatalist/Capricious	2 (Humans as mere observers)
Extract 7	Fatalist/Capricious	20 (Appealing to preparations for the uncontrollable)
Extract 8	Fatalist/Capricious	24 (Reinterpreting the science to highlight natural CC)

Next, this sub-section is broken into four parts, with each one dedicated to a worldview/myth of nature (Douglas & Wildavski, 1982; Dake, 1992).

3.2.1 Egalitarians' "nature is fragile" view: The worldview of CC advocates

Fear for the environment and for humanity's effect on the world's natural equilibrium were effectively absent characteristics from the eligible comments. Indeed, it was expected that since

the focus of this investigation are minority positions on CC there wouldn't be many instances where skeptical & contrarian commentators would also express a belief that nature is ephemeral. This comes as a confirmation of the literature on the egalitarians' "nature is fragile" view (Dake, 1992), which is frequently represented as being associated by environmentalists (Oltedal, Moen, Klempe & Rundmo, 2004; McNeeley & Lazrus, 2014).

3.2.2 Hierarchists' "nature is tolerant" view: Taking issue with raising the alarm over climate change (illustrated with 2 extracts)

The notion that humanity must take action to address anthropogenic CC can be portrayed by commentators as an extremist or alarmist view. *Comments that reflect the view of a tolerant nature often take the stance that while CC is real and that humans are at least partly to blame for it, there is a politically-charged narrative which goes beyond ecological risks.*

The hierarchists' "nature is tolerant" view accounts for 36.5% of the extracts referring to Cultural Theory from the corpus of analysis – the second highest percentage among extracts coded according to worldviews/myths of nature. *Commentators viewing nature as robust are generally concerned with the conservation of the existing state of affairs, and they do so by either contesting the legitimacy of others, or by highlighting views which are compatible with their own. That includes prioritizing values other than the environment (like social order), calling for moderation (instead of alarm) and appealing to the perspective of a climate science well-matched with these principles.*

This investigation provides and analyses in details 2 extracts expressing the hierarchists' "nature is tolerant" view. In the first one, a commentator portrays CC calls to action as "hysteria", creating a barrier undervaluing the others' "radical" perspectives in favor of a middle-of-the-road view:

Extract 1 (Comment to article 17, Observador) – Refusal of extremism

There is climate change! *And that, at least in part, it is our responsibility, I also believe so!* What I find absurd is all this hysteria that doesn't solve anything and that causes "everyone to keep to themselves", either stating that we are on the verge of an environmental cataclysm or claiming that there are no changes at all as a result of man's action!

Before directing her criticism towards the "hysteria", i.e., the collective of climate change advocates, the commentator takes caution to make her point clear regarding her views on CC's realness. There is an acknowledgement of risk and in that sense, it seems as if criticism isn't so

much aimed at what people say but, in turn, at the manner in which they say it. Action is perceived as being constraint by perpetrators of hysteria. Therefore, for the commentator, appeals towards climate action have an adverse effect on actually acting on CC. The other, both CC advocates and skeptics, is reported as “stating that we are on the verge of an environmental cataclysm or claiming that there are no changes at all as a result of man’s action”. From the perspective of Cultural Theory’s myths of nature this comment is a clear example of a “nature is tolerant” myth. Nature is tolerant within bounds and, in respect to the hierarchist’s worldview, social order is emphasized.

In contrast, the perceived social risks of clamoring for climate action can also take centerstage in discourse, with acknowledgement of climate change being less emphasized than in the previous extract:

Extract 2 (A.21, Observador) – Conspiratorial worry over social threats

"We have to dismantle them all!"...This phrase alone was enough to identify Miss Greta and her group! Dismantle or deconstruct is what we have been witnessing, unfortunately, for a long time! They dismantled the families, the traditional marriages with divorce, pregnancies with abortion, the schools with the LGBT gender ideology (...) *The climate emergency, although real, was the bait with which she won the public over, to now get to the bottom of the matter, which is what she wrote last 11/29. If you look closely, the issues that drive Joacine are the same, just presented differently! Greta and Joacine, and their groups, want immigrants to invade our lands, dominate us and make us their slaves, because we, you and I, have colonized, enslaved and exploited them. We are racist and unfair, so now we need to replace the politicians who suck because they don't do this job! But replace the politicians with which ones? One feels like asking, doesn't it? Very simple: Replace them with those of the "New World Order"!*

Although there is concern for CC from the commentator, which drives home the idea of worry over ecological stability in line with the “nature is tolerant” myth (Dake, 1992), the focus of this extract rests on the response towards social threats being carried out by the collective other. Because of this, the hierarchist worldview is much more dominant than its view of nature equivalent. In comparison with the previous extract, where contestation is aimed at disempowering social innovation on account of the other’s hysteria, here there is a dichotomized battle of ideas (Moscovici & Markova, 2000).

The commentator's outlook signals that the perspectives of Greta Thunberg, left-leaning member of the assembly of the Republic Joacine Katar Moreira and "their groups" effectively constitute a worldview incompatible with that of not just the commentator, but also "you", which also expresses a polemic representation. Her comment is, then, aimed at other readers of the article as a sort of warning to others, and follows the critical character of the source article from *Observador* to which she responds (article 21). It's possible that the already skepticizing position of the opinion piece creates the conditions which legitimize more fringe discourses, including, in this case, conspiratorial themes.

As far as the hierarchists' "nature is tolerant" view is concerned, contestation over CC manifests itself mostly from a sociopolitical standpoint. From the point of view of the literature (Dake, 1992), commentators recognize the existence of risks of exceeding the limits of nature and manifest trust over experts, though less so when there is a perceived political narrative attached to these actors. Environmentalists are a cause of social concern and this is best exemplified by reactions towards climate strikers in general and Greta Thunberg in particular. In these instances, calls for action or new policies are taken as overreactions, lack of good sense or even a coordinated effort towards reaching hidden goals.

3.2.3 Individualists' "nature is benign" view: Depicting people as victims of pro-environmental behavior (illustrated with 3 extracts)

The political dimension of the CC debate is even more noticeable when we move to comments aligned with the individualists' "nature is benign" view (Dake, 1992). The main difference here when compared to the previous section is that *environmental concern is now much less present in discourse, or is altogether disregarded, having been identified cases which outright deny the existence of CC.*

The individualists' "nature is benign" view accounts for 37.8% of the extracts referring to Cultural Theory from the corpus of analysis – the highest percentage among extracts coded according to worldviews/myths of nature. This shows that *the CC debate can be contested at the level of culture by driving ecological risks to the background, or even by ignoring them. Implicitly or explicitly voicing concerns over values like freedom or market liberalism and, at the same time, questioning the authority, intelligence or motivations of the other can be understood as a strict opposition to change. Depicting people as victims of environmental policy – in the sense that their wellbeing is perceived as being threatened by CC action – is perhaps the most revealing trait of the extracts below, and acts as a counter-point to opposing worldviews.*

The three extracts below illustrate the individualists' "nature is benign" view. The first one focuses on the socioeconomic consequences of taking action against CC in the context of the Paris Agreement. Calls to action and environmental laws can be contested on the grounds of exclusively constituting opportunities of enrichment for some actors while putting society's wellbeing at risk. It's not nature who's in danger; it's human-beings who are threatened by the other's ill-will. The commentator negatively reacts to an (affirming) opinion piece on Observador focused on the 2019 climate summit and countries' collective inability to respond:

Extract 3 (A.20, Observador) – CC as a hoax risking human well-being

The "climate emergency" is the UN's latest attempt to get serious about "climate change" without which their reserves will continue to be in "extreme drought" as the Chinese only pay for results, the Europeans pay when they can and Trump pays for objectives.

Are Africans willing to give up economic development and live off UN subsidies so that they have no industry?

Are Europeans willing to lose jobs by the thousands, to have cars sitting idle and of no commercial value, with less food, less comfort in their homes, and probably no homes at all?

Will Canadians want to go back to sledding, heating themselves with tallow candles and only leaving the house three months a year?

This is what scares me, the climate "emergency" is a hoax that will be unmasked when universities are free again and science is objective.

It's sad, but nobody believes in anything anymore. This is what we have come to!

By accusing the UN of using the "climate emergency" – itself characterized as an "hoax" – as an excuse to profit, the commentator is implicitly suggesting that the climate system is fundamentally resilient. The contestation is carried out with recourse mainly to two techniques: placing concepts between quotation marks, thus highlighting the perceived ridiculousness attached to them, and asking rhetorical questions aimed at reducing the argumentative power of the other. This extract, along with others expressing the individualist worldview/"nature is benign" myth, also reveals that the commentators expressing concern over the economic effects of supposed radical measures cultivate mistrust over experts. Indeed, according to the commentator, the present knowledge regarding climate systems is produced by universities that aren't free, and a subjective science. To conclude his perspective, the commentator looks to generalize his reasoning by formulating a belief that it's not just him – "nobody believes in

anything anymore". The matter is, again, highly politized, once more pointing to an irreconcilability of cultural resources.

Support for market liberalism is a trait of the individualist rationality (Oltedal, Moen, Klempe & Rundmo, 2004), and this too creates tensions in how individuals react to state interventions or investments towards responding to CC. The next extract reveals that the threat of a left-leaning government overrides any environmental concern, with the individualists' market worldview prevailing over any considerations regarding nature. It comes as a reaction to the announcement of a state project to evaluate the Portuguese territory's vulnerabilities to climate change:

Extract 4 (A.26, Observador) – Market over nature

A study with the predetermined conclusion, paid for by our taxes feeding pseudo-scientist parasites, to justify the future imposition of even more taxes, this time on the evil "carbon". Also justifying total state control over any human activity, since there is nothing that does not emit carbon. Communism by the back door.

Resistance to change reaches a high-point, with the commentator displaying his own interests (market liberalism) and political projects (right-leaning) through controversy. The themes of CC or ecological risks are effectively missing from discourse, with carbon emissions constituting an inevitable consequence of human activity, which the state is, in his view, compromising. A socialist (or communist) government and environmental law innovation are opposed, for the commentator's values lie elsewhere.

Finally, the COVID-19 pandemic has also shown indications of influencing the climate change debate, shedding light on the positive externalities of reducing industrial activity, internal-combustion-engine vehicle usage or air travel, among other factors (Nature, 2021; OECD, 2021). Some commentators have taken the reported increase in air quality, as an opinion piece on Observador pointed out, as proof that the issue over CC is not as complex or far-reaching as it has been described:

Extract 5 (A.25, Observador) – Viewing the atmosphere as highly regenerative

The point here is that cutting emissions has an immediate effect on increasing air quality. Which shows that the problem is less structural than has been conveyed.

Of course, once this is understood, the whole narrative of *climate cataclysm (which is different from environmental cataclysm)*, produced mainly by trash and other waste in soils,

aquifers, and oceans) falls apart. That is, *the atmosphere regenerates very quickly*, and this does not fit the belief of school kids and their instructors. Hence, for example, mixing climate issues with waste production of disposable material, which is frankly dishonest. (...)

While it's uncertain if this was the commentator's perspective all along, or if reporting on the subject contributed to his interpretation, it's clear that nature, from the approach of CC, is viewed as not easily disturbed by human-beings. From this conclusion, the commentator feels legitimated in strategically contesting the push of climate strikers, who must now "come up with another narrative". After all, "the atmosphere regenerates very quickly", implicitly suggesting that, in the matters of climate, human conduct doesn't require much changing.

3.2.4 Fatalists' "nature is capricious" view: Disregarding climate change by stressing the unpredictable (illustrated with 3 extracts)

The CC debate going on in comment sections of online newspapers sometimes includes the notion that nature's randomness renders any pro-environmental action as essentially futile. This argument is affiliated with the fatalist worldview and the "nature is capricious" myth (Dake, 1992) and represents yet another controversial response to the consensus, challenging meaning assumptions.

The individualists' "nature is capricious" view accounts for 24.3% of the extracts referring to Cultural Theory from the corpus of analysis. Commentators expressing this worldview contribute to the CC debate by departing from the assumption that nature is unpredictable. While contact with other rationalities usually results in a "deep disagreement" (Fogelin, 2005), *it has been revealed that, in science-society relations, people can in fact attempt to side with scientific knowledge in the aspects that matter to them in an effort to advance their projects and make their ideas heard.*

To illustrate this rationality/view of nature, 3 extracts are provided and analyzed in detail below. In the first one, an article regarding a peer-reviewed study about the rise of sea levels in the next decades due to CC, including in the Portuguese territory, triggered a dispute in the comment section:

Extract 6 (A.2, DN) – Humans as mere observers

To earth's dynamics it matters little what man does, burn oil or forests. Whether we turn our habitat into a latrine and extinguish other species is the problem of the new generations.

But in those thousands of years the planet continues to rotate, the tectonic plates to drift, and the oceans to rise and fall: we are just observers.

Succinctly, the commentator is implicitly questioning any form of climate change adaptation or mitigation measures. CC itself, as a concept, is absent from discourse, yet it's clear that the commentator is unresponsive towards ecological risks of any kind, including pollution or biodiversity loss. The other's legitimacy is contested in the extract by ruling out both humanity's influence on "earth's dynamics" and a capacity to accurately predict the future ("in those thousands of years").

An intermediate position, where although nature is uncontrollable, we can at least prepare for its oscillations, has also been put forward in extracts such as the one below:

Extract 7 (A.20, Observador) – Appealing to preparations for the uncontrollable

In the history of the Earth, there have always been, regardless of the existence of man, warming and cooling phases; it's a fact! Trying to counteract this would be like trying to stop the Earth from having longer days!

This current hysteria around the problem only prevents us from preparing for it; and that is what we have to do. *A strong eruption of a volcano or an ordinary solar flare has more influence on the climate than all human activity for 10 years.* These problems are not solved by sailing around or skipping school. Poor little Greta isn't to blame for this nonsense, but the politicians who follow her are.

The difference between this perspective and a view more in tune with the "nature is robust" view is a subtle one, and it's necessary to look at what's not present in the extract to best understand where this commentator's contribution fits in Cultural Theory. Though he refers to a "problem" and a need to prepare for it, humanity's responsibility in exacerbating the issue of climate change is articulately minimized ("Trying to counteract this would be like trying to stop the Earth from having longer days!"). The apparent lack of a political project reveals a moderate disconnect with social life. It's not exactly a "Why bother?" attitude (Steg & Sievers, 2000: 254), and yet there seems to be little human-beings can do.

Scientific knowledge about CC can also be reinterpreted in a way that best suits the commentator's worldview. An article concerning comments by a specialist from Instituto Português do Mar e da Atmosfera regarding the existence of previous CC and Earth's (and not human's) ability to reorganize is taken by skeptics & contrarians as a view in support of their

ideas. This final extract expressing a fatalists' "nature is capricious" view shows how, in the CC debate, *commentators can take ownership of ideas by creating distance between compatible and incompatible knowledge in the way they imagine the world:*

Extract 8 (A.24, Observador) – Reinterpreting the science to highlight natural CC

Finally a measured opinion on this topic. However *the so-called greenhouse gases released by man (the so-called bad bug to shoot down) represents only 1% of the total. Yet I don't see much media interest in explaining the influence of the oceans and sun on the earth's temperature.*

Maybe that's why the RTP1's pro e contra program does censorship when the subject is about climate. Maybe we already know everything about the climate and there is no need for further debates and listening to those who have other opinions. But from what I see the solution is always to raise taxes to save the climate.

Namely 100 billion a year for the UN, *we will all pay for a problem invented by politicians instead of solving problems that we can really solve* such as famine in Africa. 100 billion a year could solve many problems of our blue planet.

Even though the specialist talks about the need to minimize human impacts and raises questions regarding humanity's conditions to resist CC, her comments about naturally occurring climate change seem to be the only relevant aspect for the commentator. The specialist's view constitutes a "measured opinion" according to the commentator, yet "we will all pay for a problem invented by politicians". The reality is that there are "problems that we can really solve" and there's saving the climate. The former is fact, while the latter is a matter of opinion.

3.3 Comments in light of Social Representations Theory: Polemic and Emancipated Representations

Social Representations Theory concerns itself with the study of how meaning is both reproduced and contested in a thinking society (Moscovici, 1988). Table 7 reveals the occurrences of types of social representations from the corpus of analysis of 74 comments according to articles' position towards climate change (CC)¹. It shows that, *in this data set, polemic representations are the most common type of representation, being especially*

¹ As pointed out in the method, a single comment can express more than one representation. It's because of this that Table 7 has a frequency of 78 cases (instead of 74, one for each comment) expressing a social representation.

prevalent in articles with a neutral and affirming position towards CC. It's possible that because articles with a skepticizing position are themselves riddled with minority positions, contestation is more frequent precisely in the articles with a neutral or affirming stance. Notice that skeptical & contrarian comments reflecting a hegemonic representation of the climate change debate are, obviously, absent.

Table 7. Frequency of social representations from the corpus of analysis of 74 comments according to articles' position towards CC.

	Affirming	Neutral	Skepticizing	Total
Hegemonic	0	0	0	0
Polemic	19	33	16	68
Emancipated	3	4	3	10
Total	22	37	19	78

The 6 extracts provided in this subsection reveal cases of minority positions on CC reflecting types of social representations alternative to the dominant or hegemonic one, namely polemic and emancipated. Table 8 reveals how those extracts are connected to the newspaper articles commentators are reacting to:

Table 8. Extracts provided for illustrating polemic and emancipated social representations in contesting CC, by the type of social representation it expresses, the article the commentator is reacting to and the orientation of the comment, by order of appearance in this subsection.

	Type of social representation	Newspaper article from which the extract was taken from (article number) and orientation
Extract 9	Polemic	9 (Belief in another, non-manipulative, climate science)
Extract 10	Polemic	25 (Accusing the other of propaganda)
Extract 11	Polemic	20 (Objectification of CC to ideas of abundance)
Extract 12	Polemic	5 (CC action as far-left political action aimed at impairing capitalism)
Extract 13	Emancipated	13 (The price to pay for comfort)
Extract 14	Emancipated	25 (Negotiation of upcoming challenges)

Next, this sub-section is broken into two parts, one dedicated to polemic representations and another one devoted to emancipated representations (Moscovici, 1988).

3.3.1 Polemic representations: Contesting without conceding anything to the other (illustrated with 4 extracts)

Though the hegemonic representation on climate change constructs the issue as a serious socioenvironmental problem, the CC debate is not without controversy. *Calls to action on CC can trigger antagonistic reactions when commentators' beliefs are not aligned with the scientific evidence.* Contesting without conceding anything to the other is a trait of polemic representations. These representations dichotomize groups: whereas the ingroup is cohesive, the outgroup is portrayed in a very negative light and, for example, accused of propaganda.

Polemic representations account for 87.2% of alternative representations among this investigation's data set, suggesting that *in 2019 and 2020 skeptical & contrarian commentators commenting on DN and Observador were more likely to react with antagonism than simply with reservations.* These representations in the climate change debate depart from a number of different assumptions, though there are common characteristics among the extracts. The most noticeable one, however, is the fact that the extracts leave little room for negotiation of at least some parts of the hegemonic view, constructing the issue as controversial.

The polemic ideas found in the comment sections analyzed talk about climate hysteria, misinformation, political propaganda or shadowy figures working to dismantle society – they therefore do not echo the consensus on the climate debate. However, they provide templates for reacting against hegemonic ideas in a way that constructs the existence of conflict or insincerity in climate science, or among decision-makers and environmentalists. Processes of anchoring and objectification in the context of polemic representations offer familiarity to oftentimes abstract notions, and in this case can be used to anchor climate change proponents to religious fanaticism, or attract ridicule to public symbols of climate change awareness like Greta Thunberg and António Guterres.

We now turn to the illustrative extracts supporting the synthesis above (4 are provided), looking at how commentators with minority positions can contest how articles depict climate change. In the following extract, criticism is directed towards a news story letting commentators know about climate disinformation videos YouTube is allegedly directing viewers to:

Extract 9 (Comment to article 9, DN) – Belief in another, non-manipulative, climate science Attention!!! Who tells me that this kind of news is not also pure manipulation. There are probably videos that are garbage and to disinform. But *there are climate scientists who do not accept global warming not in the way it is exposed and not through videos to disinform, but through hard data and say why and the manipulations of the IPCC reports between the summary report and the full report.* I'll show some videos of information and not disinformation: <https://www.youtube.com/watch?v=Z8eqJquw5Wo;>

<https://www.youtube.com/watch?v=OnPdU-PY16A>

and

[https://www.youtube.com/watch?v=MhCC7Mp-x4E²](https://www.youtube.com/watch?v=MhCC7Mp-x4E2)

With the commentator's beliefs regarding CC being conceptualized as disinformation, he uses the comment section to accuse both the article and IPCC reports of being manipulation. In order to substantiate his point of view and, in effect, support his alternative representation, the commentator takes the opportunity to share YouTube videos from notable climate change contrarians Ricardo Augusto Felício and Luiz Carlos Molion. He distributes these clips framing them as "information" from climate scientists who do not accept global warming "in the way it is exposed". There is an attempt to fabricate a controversy in the scientific community in reaction to a news story which explicitly contributes to the stability of the hegemonic representation on CC by making a distinction between climate science and fake news.

Though there weren't many instances where the COVID-19 pandemic crossed paths with the climate change debate in the Portuguese media, there was at least an opinion piece in *Observador* whose author attempted to shed light on the assumption that the slowdown in industrial activity and halting of several economic sectors would bring positive long-term impacts to the environment and climate change specifically. While there were cases where commentators contested both the existence of the virus and CC, others only disputed climate change. In the following extract, a commentator even factored deaths to the new coronavirus as cause to stop "climate change propaganda":

Extract 10 (A.25, *Observador*) – Accusing the other of propaganda

We couldn't do without the climate change propaganda (...)

Climate change is part of the life cycle of the planet and *only through innovation (something that does not happen in socialist/communist countries) can we adapt to the new conditions that the planet gives us.*

Enough of this propaganda, especially when people are dying! (...)

No more paying attention to Gretas and other *i_diot_s* who just want to make a name for themselves. They are just like the end of the world prophets from 2000 years ago, but now with the media spreading that propaganda all over the world.

The funny thing is that these people typically criticize religions, but they are the ones acting as a cult...But that must be why. They criticize religions (some of them of course, not

² Links provided by the commentator.

all...there is one especially that is never criticized by these enlightened people) because they want to be the ones to occupy that place with their cult.

There is a melting pot of minority positions regarding climate change happening in this extract, including: the belief that CC is mostly a naturally occurring phenomenon; the linking of the CC debate to Greta Thunberg; an expression of distinct political ideas concerning how societies can adjust to CC; and even the anchoring of “climate change propaganda” to religious conviction. The commentator projects the other as just wanting to make a name for themselves and, in reaction, he compares this metaperspective to “prophets from 2000 years ago”. The subject is highly politized, pointing to an incompatibility of cultural resources, or a “deep disagreement” (Fogelin, 2005) where the contact of meanings results in antagonism. Though the idea of climate change adaptation is present in discourse and somewhat valued, it’s not something within reach of socialist or communist countries.

Climate change can also be conceptualized as something inherently good for humans. In the extract below, a commentator commenting on a feature regarding the COP25 climate summit and the need for radical measures to tackle CC contests the hegemonic representation by questioning its alarmist approach from a different, yet equally polemic, perspective:

Extract 11 (A.20, Observador) – Objectification of CC to ideas of abundance

Global warming is always seen as bad because nobody thinks that it could be good - we will have more land to grow crops in Canada and Russia, more rain, food, etc. *You only hear one side, it seems like we are in the middle ages.*

In contrast to the previous extract’s “us versus them” approach, this paragraph reads as much more of a personal account of the CC debate. The commentator’s view is that “nobody thinks” that global warming could be good, while the other conceptualizes it as something bad. He reacts to this positioning the CC debate as a two-sided affair, where only the hegemonic representation is heard as if “we are in the middle ages”. By objectifying climate change – anthropogenic or not – to notions of abundance for humans he provides other skeptics & contrarians an image contrary to that of the scientific consensus and, thus, offers a readily available alternative representation – or minority position – of the social object.

Finally, skeptical & contrarian commentators can further draw from political discourse to polarize the CC debate, sometimes with recourse to conspiratorial ideas. This time, though, the other isn’t positioned as ignorant as much as they’re defined as dangerous figures threatening

a valued way of life, in the vein of an individualist worldview. The following comment appears in reaction to a news story about the fourth student-led pro-climate protest that happened in Lisbon, in 2019:

Extract 12 (A.5, DN) – CC action as far-left political action aimed at impairing capitalism
It is all very well to reuse/recycle materials and fight against pollution. However, *these young people are being exploited by marxist-leninists, disguised as “green” and “environmentalists,” who are far more interested in causing problems for businessmen (for “capital,” as they say) than in solving any environmental problems.* It has been clearly identified that the source of all environmental problems is the galloping population growth in Africa and Asia, which these activists do not have the courage to speak out against. And *the “greens” (Marxist-Leninists in hiding), who are instrumentalizing these things in the shadows,* are not interested in drawing attention to this problem either, because they *are more interested in putting all the blame on “capitalism”.*

To start off, climate change is replaced with pollution or simply “environmental problems”. It’s plausible that because of the commentator’s beliefs and political projects the notion of CC isn’t admissible or, at the very least, desirable, in the way he projects the world. Especially considering that the other is viewed as someone looking to upset his market-oriented outlook. Furthermore, the commentator contests the hegemonic representation by providing an alternative viewpoint of the social object where humanity’s impact on the world comes from “the galloping population growth in Africa and Asia”.

In contrast with extracts calling out the political left, socialism or communism, here the commentator adopts a much more specific designation of “Marxist-Leninists in hiding” to create division and distance in the CC debate with little room for negotiation. Lastly, anchoring CC action to human misery, economic problems or reduced quality of life was detected in other extracts, both polemic and emancipated representations.

3.3.2 Emancipated representations: Voicing concerns while maintaining dialogue (illustrated with 2 extracts)

Representations on climate change are not limited to full consensus and full controversy. There exists a continuum between social representations giving energy to the societal debate on CC. Instead of being only a matter of believing or not believing, this debate over stability and also

change encompasses as well the negotiation of meanings, or non-dichotomized views, among individuals and groups. It is in this context that emancipated representations arise.

Emancipated representations account for just 12.8% of alternative representations in the corpus of analysis. Though there is a small percentage of occurrences when compared to polemic representations, emancipated representations in the CC debate are rich in that they reveal a variety of minority positions. *These range from questioning scientists' and environmentalists' proposed solutions, emphasizing the loss of human comfort associated with CC action, or debating priorities in the face of environmental, social and economic challenges.* The key difference here is that while polemic representations create distance to the other, inhibiting dialogue, emancipated representations are not incompatible with the hegemonic representation, being admissible to believe that more encompassing frameworks regarding climate action can produce a positive effect on promoting cooperation and re-signification (Uzelgun, Mohammed, Lewiński & Castro, 2015; Mouro & Castro, 2012).

Regarding illustrative extracts, there are several comments on DN and Observador expressing reservations regarding CC and its portrayal, though never to a point where contact between meanings is impossible. *This investigation chose to provide 2 particularly insightful comments that express emancipated representations.* In the first one, a commentator argues that although environmental issues are a problem, that is the price we must pay for humanity's quality of life.

Extract 13 (A.13, DN) – The price to pay for comfort

Nature has its laws, there was once a period when the whole earth turned into a ball of ice, there was no gasoline in that time, what is the reason? *I believe there must be some influence of contaminating gases, and plastics in the seas and garbage everywhere, but that is the result of our existence as human consumers.* Electricity is fundamental for our existence and comfort, but I have always heard complaints against atomic energy, against dams, against diesel generator motors and more. *What about humanity? We'll be living in a cavern.*

The commentator's own view is expressed clearly and explicitly, taking the verbal form of 'yes... but' (Gillespie, 2020; Uzelgun, Mohammed, Lewiński & Castro, 2015) characteristic of emancipated representations and the semantic barrier of "limiting" (Gillespie, 2020). Though he concedes that human activity negatively impacts the environment, he rationalizes those consequences and implicitly questions action on CC by giving prominence to people's comfort.

Acting on climate change, and especially the idea of decarbonization, is understood as somewhat of a threat to humans, meaning he never dismisses the legitimacy of the outgroup's perspective. Instead, opposition operates at the level of the outcome of fighting against CC.

Pretty much the same process is at play in the instances where skeptical & contrarian commentators emphasize the economic impacts associated with taking action on CC. Where views diverge is in how much the idea of acting on CC is limited. Commentators might neither be able to avoid or invalidate the other's perspective and still have environmental issues lie in the background of their ideas. It's worth to look at what is not present in discourse in order to best understand what people are trying to do when contesting the hegemonic representation on CC. Below, a commentator shares his view on the economic consequences of the pandemic on the comment section of an opinion piece exploring the idea that the reduction of emissions by itself won't solve climate change:

Extract 14 (A.25, Observador) – Negotiation of upcoming challenges

I don't share so many of the fears about pollution, but I believe that the economic damage will be very great.

The image that I can best give is that of a person who has taken a big tumble, and when he starts the recovery process he will not get back in shape quickly, it will be a gradual process because the recovery will not be the same all over the body, and after "recovery" there is still a period of fear and withdrawal, and what usually happens is that the person defends himself more. In the event that there is an "unrecoverable" blemish left, the body will adapt to the new limitation. It is nature.

While the source article (article 25) makes several references to the reduction of pollution levels thanks to a decrease in industrial production during 2020, it leads with how that may or may not impact the fight on CC – and its conclusion is that the post-pandemic period will see a large increase in economic activity as well as a revision and postponing of environmental and sustainability targets. The commentator sums up most of the issues brought-forward by the author of the article by explicitly stating that he doesn't share "so many of the fears about pollution". This is the commentator's only instance in the extract where he addresses the topic of the opinion piece. Though little space is assigned to the subject, and his view is almost exclusively dedicated to the economic damages that the COVID-19 pandemic will provoke, the idea of environmental action is not challenged. There is, instead, a process of negotiation

between the ideas put forward by the article, indicating a process of hybridization in values and beliefs (Uzelgun, Lewiński & Castro, 2016), i.e., an emancipated representation.

3.4 Comments in light of semantic barriers to dialogue

Semantic barriers to dialogue in talk or text focus on the contact of meanings between people and the reactionary responses produced in this clash (Gillespie, 2020). Table 9 reveals the occurrences of semantic barriers from the corpus of analysis of 74 comments according to articles’ position towards climate change (CC)³. It shows that, in this data set, *delegitimizing – i.e., acknowledging the other’s perspective, but dismissing it as invalid – is the most common layer used by skeptical & contrarian commentators*. Articles with an affirming position towards CC specifically attract comments seeking to delegitimize the other when compared to the other two layers. In contrast, *avoiding – i.e., a non-acknowledgement of the other’s perspective and their dehumanization – is a rarer form of barrier among skeptical & contrarian commentators*. *This can be interpreted as anthropogenic climate change being a hard concept to deny or circumvent entirely*.

Table 9. Frequency of semantic barriers to dialogue from the corpus of analysis of 74 comments according to articles’ position towards CC.

	Affirming	Neutral	Skepticizing	Total
Avoiding	1	7	3	11
Delegitimizing	17	19	13	49
Limiting	7	12	8	27
Total	25	38	24	87

The 7 extracts provided in this subsection reveal cases of minority positions on climate change (CC) expressing barriers suppressing majority positions through form. Table 10 reveals how those extracts are connected to the newspaper articles commentators are reacting to:

Table 10. Extracts presented for illustrating semantic barriers to dialogue in contesting CC, by the type of semantic barrier it expresses, the article the commentator is reacting to and the orientation of the comment, by order of appearance in this subsection.

³ As pointed out in the method, a single comment can express more than one semantic barrier. It’s because of this that Table 9 has a frequency of 87 cases (instead of 74, one for each comment) expressing a semantic barrier.

	Layer of semantic barrier	Newspaper article from which the extract was taken from (article number) and orientation
Extract 15	Avoiding	18 (Avoidance by demeaning CC advocates)
Extract 16	Avoiding	17 (Refusal of dialogue through dehumanization of the other)
Extract 17	Delegitimizing	5 (Sowing doubt about the outgroup)
Extract 18	Delegitimizing	21 (Distinguishing between “real” and politicized scientists)
Extract 19	Delegitimizing	16 (Acknowledging a cultural war)
Extract 20	Limiting	15 (Learning to live with CC)
Extract 21	Limiting	4 (Limiting the impact of pro-environmental action)

Next, this sub-section is broken into three parts, one for every one of the three layers of semantic barriers to dialogue, avoiding, delegitimizing and limiting (Gillespie, 2020).

3.4.1 Avoiding: Profiling climate change proponents as an ‘it’ (illustrated with 2 extracts)

Denying the other a perspective through avoidance is one of the ways commentators protect their worldview from social change. The scientific consensus on anthropogenic CC can pose a threat to climate change skeptics & contrarians, which in turn can restrict the possibility of dialogue between individuals and groups with different worldviews. On the first layer of semantic barriers, the other can be denied a voice by the use of dehumanizing descriptions or by degrading the other’s intelligence.

In this data set, there are few extracts focusing mainly on avoiding acknowledgment of climate change or painting protesters and scientists in dehumanizing terms (only 12.6 % of the extracts referring to semantic barriers to dialogue). This suggests that even in skepticism & contrarianism, and as a whole, skeptical & contrarian commentators commenting on CC related articles on the Portuguese media recognize the perspective of anthropogenic climate change – even if they don’t necessarily agree with it. It also supports the idea that the contact of meanings doesn’t commonly result in full suppression. Anthropogenic climate change is, thus, a hard concept to avoid entirely.

To illustrate this barrier, 2 extracts are provided. In the first one, a commentator reacts to an article in Observador about Jeremy Clark’s provocative references to Greta Thunberg speaking to The Sun. The outspoken English broadcaster specialized in motoring commented that in spite of acknowledging the existence of severe environmental issues and trusting scientists, he considered Greta an “idiot” for stating that we are all going to die, which in his view isn’t going to solve anything.

Extract 15 (Comment to article 18, Observador) – Avoidance by demeaning CC advocates
You who support Greta: yes, you, who think you are morally superior because you think you are saving the world by praising this idiot. *You are stupid, or ignorant, or simply ill-informed*, and time will tell what this "movement" is, made to take some more taxes from us, and to empower new industries, which are not viable, but that already have the investment of the largest financial powers in the world, and therefore will happen, filling the pockets of many people. *Thirty years from now, we will do the same thing again with another bullshit and another Greta, and other idiots will eat the gruel and the cakes!*

Advocates of CC action are here contested on the account of contributing to a “movement” built out of deceptive premises. The perspective of the commentator in the context of climate change is one of denial, a view which can be more accurately observed in the closing remarks of the comment (“we will do the same thing again with another bullshit”). The other, however, is devoid of ideas, being both morally reprehensible and lacking intelligence (“yes, you, who think you are morally superior (...) You are stupid, or ignorant, or simply ill-informed”), which expresses avoidance. The commentator’s strategy aims at demeaning the supporters of Greta Thunberg not only by questioning the intelligence of the supporters, but also the intelligence of the Swedish environmentalist. Additionally, to sustain his view and create distance, the commentator attributes to the other the belief that they feel morally superior by supporting CC action. Yet perhaps the most revealing attempt to reject the other’s perspective is the avoidance of naming what the other is trying to save the world from. Climate change is entirely absent from discourse.

Like the commentators’ own perspectives, efforts to dehumanize the other can be explicit or implicit and point to many subtleties. While the previous extract still raises some reasonable uncertainties regarding the strategies pursued by the commentator, with accusations of ignorance and misinformation also pointing towards an act of delegitimization, the following comment is much more assertive in its focus on avoidance. In fact, right from the start, the commentator puts himself on the side of two notable Brazilian CC contrarians, Ricardo Augusto Felício and Luís Carlos Molion. This extract emerges from one of the articles found in this investigation that outright question the hegemonic representation of climate change, and it’s to the author of the opinion piece that the commentator starts to direct his comment:

Extract 16 (A.17, Observador) – Refusal of dialogue through dehumanization of the other

I fully agree with what you wrote, I have been studying the works of Ricardo Augusto Felício and Luís Carlos Molion for some time.

But honestly, from the comments read to your article, the situation is serious, absurd and totally frustrating. When one reads these comments, one realizes the brainwashing or even deactivation of the brain, that they did and do to these people.

The widespread lack of knowledge in various areas is astonishing, which makes it so easy for these "people" to be manipulated.

The CO₂ paradigm is so deeply rooted that when we talk about carbon dioxide, it seems that we are talking about something completely different, which in this case, perhaps, reminds us of the forgotten biology classes about photosynthesis in plants.

In any case, I think that I will also be scolded by this generalized and massified idiosyncrasy, which will probably call me a persecution maniac.

To anyone who finds what you wrote so absurd, [and] I stand by what you defend. I invite you to look up the textbooks on physics, thermodynamics and climatology, to start with, to come here and, according to these sources, to explain the relationship between CO₂ and the much-vaunted greenhouse effect. Although I sincerely doubt that they will.

This commentator's perspective is also one of denial of anthropogenic climate change, a belief made clear by his full contestation of the scientific consensus. To differentiate between his view and that of the outgroup, he distinguishes between an undefined 'they' which 'brainwashes' and 'deactivates the brain' of the masses and the "works" of two CC contrarians. The commentator attempts to elevate his ideas by suggesting that advocates for CC action are manipulative, which also implicitly signifies that climate science is contaminated by obscured interests. The outgroup is profiled as an 'it' ("these 'people'"), pointing to a rigid separation between perspectives and an impossibility of dialogue. What's more, the commentator anticipates the reaction of the outgroup according to the perspectives he attributed to it ("In any case, I think that I will also be scolded by this generalized and massified idiosyncrasy, which will probably call me a persecution maniac"), effectively constituting minority positions on climate change as taboo.

3.4.2 Delegitimizing: Discrediting the authority of experts (illustrated with 3 extracts)

Skeptical & contrarian commentators can also resort to delegitimizing. This layer of defense entails acknowledging the other's perspective but dismissing it on account of it being, for instance, uninformed or deceptive (Gillespie, 2020).

It's been observed that *delegitimization is the most common of all three layers of semantic barriers used in the examined skeptical & contrarian comments from Diário de Notícias and Observador*. Over 50% of the extracts referring to semantic barriers to dialogue point to acts of dismissal of the other's perspective. *Most of these can be organized between attempts of discrediting the outgroup for its lack of knowledge, or being suspicious of its true intentions, often with an association of science and politics*. It's in this layer that the politization of the CC debate is more evident. Once again, *while most skeptical & contrarian commentators can't deny anthropogenic CC, contestation is still possible at the level of ideas regarding the perceived consequences of CC action and alleged character of its main advocates*. Whether people suspect of climate change as means of enrichment for some social actors, or they fear what action entails for more traditional values, there's still a battle being fought in text by specialists on minority positions trying to undermine change.

To illustrate this barrier, 3 extracts are provided. Below, a commentator questions the motives of messengers of transformative ideas, making explicit his perspective that there is a hidden agenda behind the calls to action on CC. The extract also reveals how the outgroup's perspective is still partly recognized by the self:

Extract 17 (A.5, DN) – Sowing doubt about the outgroup

In the 90's the hole in the ozone layer was what would end the world. Now nobody touches the subject anymore, *they are always preparing new traps when it doesn't work. We must be conscious of consumption and that fuels need to be renewed, but not live like hysterical idiots*. <https://g1.globo.com/ciencia-e-saude/noticia/2019/10/25/por-que-o-buraco-na-camada-de-ozonio-esta-no-menor-tamanho-ja-registrado.ghtml>⁴

The messenger – an indeterminate ‘they’ – is the focus of the first part of this comment. By challenging the motives of the outgroup, the commentator effectively protects his own “universe of meaning from being destabilized” (Gillespie, 2020: 22). The indirect quotation “they are always preparing new traps when it doesn’t work” shows two things regarding this commentator: that, in his view, issues raised in the past (like the hole in the ozone layer) didn’t amount to much, and that the other is envisioned as being calculating. For its part, this commentator doesn’t entirely brush off an engagement with the other’s perspective, and though

⁴ Link provided by the commentator.

there is an attempt to weaken its force there exists some compatibility between meanings in the idea that “We must be conscious of consumption and that fuels need to be renewed”.

Because this commentator is reacting to a news story focused on a climate strike in Lisbon there is reason to believe that while “they” stands for climate scientists, “hysterical idiots” most likely refers to the people participating in the protest. This distinction is important because it reveals that, even in the same context, different targets give rise to different defensive reactions. What’s more, it shows that *it’s possible to doubt the motives of climate scientists while still caring about concepts like energy transition – and contest those who advocate for that transformation*. The commentator ends his argument with a link to a news piece that legitimizes his perspective. He both discredits the other and tries to reinforces his point of view by bringing attention to an article regarding an abnormal weather pattern limiting ozone depletion, even though this is explained as not being “a sign that atmospheric ozone is suddenly on a fast track to recovery” (NASA, 2019).

The association of science and politics is also a prevalent link in the social contestation of CC. The intersection of these major subjects is not new in the imagination of climate change skeptics & contrarians, having been established in earlier CC debates and the climategate affair specifically (Jaspal, Nerlich & Koteyko, 2013; Nerlich & Koteyko, 2009). Interestingly, it’s still very much a common connection among skeptics & contrarians, even if rejecting the existence of CC entirely is not possible. But as was noted before, *it’s conceivable to acknowledge the potential of an idea, such as the transformative ideas associated with climate change action, or its general concepts, and still try to isolate that view because of its threatening character*. In the extract below, the commentator tries to undermine the messengers of such ideas on CC by raising concerns over their politicization:

Extract 18 (A.21, Observador) – Distinguishing between “real” and politicized scientists
Today there are countless real scientists, not just those politicized by the UN and public funding, who say that it is very doubtful that you can control the climate by acting ONLY on the CO2 "button". The model is far more complex, which is why the catastrophic predictions made in the recent past have never come true. (...)

The commentator doesn’t deny climate change, nor its anthropogenic causes. Instead, his attempt to dismiss the outgroup comes from the metaperspectives that he attributes to “those politicized by the UN and public funding”, however vague they might appear. Whether it’s because the other is seen as claiming that we need only to act on the “CO2 button”, or as having

more obscured motives, there is a clear effort to delegitimize the authority of climate scientists and, by extent, the social representation on CC. The commentator reacts to these metaperspectives by conveying the idea that there exists a scientific controversy in the field of climate science, one that is contested by “countless real scientists” and the “politicized” ones.

Finally, the intersection of science and politics in the contestation of climate change’s social representation is sometimes even more pronounced. Some skeptical & contrarian commentators use semantic barriers to discredit the outgroup on account of its perceived political projects or so-called ideologies:

Extract 19 (A.16, Observador) – Acknowledging a cultural war

Greta defends the problem of "climate change", which she fears will lead humanity to the end of the World! *She has the applause of everyone and invitations from world organizations, to speak among experts, scientists, governors, journalists and all the rest, because she has a speech that interests globalizers, billionaires, leftists...* On the other hand, the also very young girl, 15 years old, equally Swedish, equally brave, Isabella Nilson Jarvand, also went microphone in hand, to the front of the Parliament, to defend pro-family policies, to fight against uncontrolled immigration, against LGBT indoctrination and gender ideology in schools, and against the dominant thinking that is destroying her country and our civilization. Has anyone heard about this second child, so brave? Did anyone hear that she had been invited by international bodies to speak about these values that are much more important than the environment? (...)

On the previous extract, the association of science and politics in the context of the societal CC debate did not necessarily result in a denial of anthropogenic CC. The commentator, instead, supported the idea of a scientific controversy with disparate conclusions about how the climate model works – and about who is and isn’t influenced by ulterior motives. Here, CC takes a back seat in discourse. Its prominence in social life is positioned as an excuse by “globalizers”, “billionaires” and “leftists” to advance an agenda of world domination and destruction of other values to which the commentator has an affinity for. Even so, delegitimization still happens essentially through questioning the motivations of the outgroup. The commentator implicitly refers to a conspiracy put forward by the other and that risks society as it is today – this is her belief. The outgroup, for its part, is seen as opportunistic and, as such, insincere about its care for the environment, which, at any rate, is much less important than standing up for the presently threatened traditional family values, among others. There is a strong clash of meanings

happening here which goes beyond the CC debate. The perceived danger of social change through climate change action gives rise to a cultural war which inhibits dialogue between perspectives. Resistance seems to grow when the debate is positioned as a political issue. And in the case of the opinion piece on Observador this commentator is reacting to, climate change is established as such, with Greta Thunberg sarcastically portrayed as a prophet, or poster child of a new colonialism, whose fight against climate change will result in the impoverishment of developing countries.

3.4.3 Limiting: Questioning climate change action without dismissing it (illustrated with 2 extracts)

Skeptical & contrarian commentators restricting the social representation of CC sometimes focus on the ideas themselves instead of targeting the messengers, and work towards subduing the other's perspectives instead of dismissing them. Limiting, then, entails a greater degree of contact (the other's ideas being manifestly perceived as less dangerous) and, as a consequence, a greater orientation towards dialogue, being related to emancipated representations. While simply limiting the other's perspective doesn't necessarily indicate a depoliticization of the CC debate, it can mean that the transformative idea is at least closer to having an impact on the self's universe (Gillespie, 2020).

Barriers in the layer of limiting account for 31% of the extracts referring to semantic barriers to dialogue. It's hard to know if these semantic barriers will grow in expression among climate change skeptics & contrarians rather than barriers pointing to the layers of avoiding or delegitimization (even if it has been established that outright denial of anthropogenic climate change is rare among people writing on comment sections on the Portuguese press). What seems clear is that *limiting covers a larger degree of tensions, encompassing arguing that CC action is futile, risks undermining other values, endangers the status quo, among other arguments*. Another thing that has been suggested by the comments is that *the climate change debate is less politicized at this level*. The non-dismissal of the outgroup's perspective signals a possibility of dialogue between perspectives – and, ultimately, of impact on the self's worldview.

To illustrate this barrier, 2 extracts are provided. Semantic barriers to dialogue belonging to the layer of limiting include bringing attention to the futility of acting on CC. In the case of the following extract, the focus is the idea of reducing emissions and adapting to rising oceans due to climate change:

Extract 20 (A.15, Observador) – Learning to live with CC

The water level will rise, no matter what. There is no point in thinking that it is avoidable. We might as well think about how to live with it. As for *the one billion who will suffer because of this, most of them, and a few more, have malaria and hunger as their main and most urgent concerns.* We had better deal with Malaria and famine first - which we even know how to deal with because we have dealt with them in the past and got rid of both in the West - while the water rises or doesn't. We're also going to get hit by an asteroid if we do nothing, and NASA is even sending a telescope into the air to detect Near Earth Objects earlier. *It's prudent, but not urgent.*

The threat of sea level rise is acknowledged, it's just not taken as an urgent matter. The commentator adopts the perspective that because it's inevitable that the water level will rise (a view connected to the fatalists' "nature is capricious" view), efforts should go elsewhere. Acting on CC is rationalized and its transformative potential limited on account of there being more "urgent concerns", in this case, the fight against malaria and famine. It's not clear whether the commentator agrees or not with the concept of anthropogenic CC: all that is clear is that some goals are more valuable and take precedence over other issues.

Pro-environmental action can also be contested without any apparent or explicit political motivation, or without rendering it as futile. Below, a commentator takes issue with a plan to plant 20 thousand trees in Lisbon as celebration of the fact that the city will be awarded the European Green Capital distinction in 2020:

Extract 21 (A.4, DN) – Limiting the impact of pro-environmental action

The planes scrape the city, the old Carris buses pollute lungs, ears, nerves. There are no houses at decent prices and rent for the poor and the well-off and for young people who want to start a family or just leave home. Homeless people sleep all over the city. *Are people not part of the environment?*

The effect of a project made to contribute to the goal of achieving carbon neutrality is limited because it's perceived as being restricted to the environment, i.e., not contributing to the citizens' welfare on aspects like accessible housing or noise pollution. The commentator doesn't dismiss CC, nor is he explicitly against this project, but works to limit its impact, supporting the notion that the layer of "limiting" covers a large range of barriers. Even so, the

commentator's question at the end of the extract leaves room for negotiation, suggesting a potential for hybridization in values.

Conclusion

Skeptical & contrarian views regarding climate change (CC) do not represent the majority of views on the CC debate. Early on in this investigation it was established that, in line with what's observed in other European countries (Almiron, Boykoff, Narberhaus & Heras, 2020; Küppers, 2021), climate change skepticism & contrarianism is presently limited to a minority in Portugal (Rocha, 2015). What was also put forward was that ample consensus regarding a social object does not necessarily represent the end of the story. Although there is agreement among the majority about the existence and risks of anthropogenic climate change, controversial ideas will not disappear, and depending on the social context they could even thrive. This investigation on minority positions on CC justified itself on account of the recent electoral successes in the European continent of far-right or populist political parties whose policy, as shown by the literature, is associated with CC skepticism & contrarianism (Boykoff, 2016; Forchtner, 2019; Almiron, Boykoff, Narberhaus & Heras, 2020; Küppers, 2021).

To study this facet of the CC debate, this investigation turned to the comment sections of CC-related articles from 2019 and 2020 from two distinct sources of journalistic work in Portugal, *Diário de Notícias* (DN) and *Observador*. It focused on minority positions regarding CC in order to:

1. Analyze how, in the comments, majority positions on climate change are opposed and minority ones advanced when meanings/representations clash, and how these minority positions are associated with different worldviews/views of nature.
2. Establish how minority positions regarding CC in the comments relate to different types of social representations, namely polemic and emancipated ones, and how commentators undermine the dominant view on CC through processes of anchoring and objectification.
3. Explore how minority position regarding CC inhibit the possibility of dialogue with others with meaning barriers, examining how the self and other are reported among skeptics & contrarians in respect to commentators' own beliefs and the beliefs they attribute to others.

Additionally, it was important to ask some other questions: who are commentators with minority positions communicating to? Who are they trying to convince? And, finally, what

general narrative of CC emerges – and can it reflect patterns or templates that can be replicated or reused when CC is under debate? To support this investigation and meet its objectives, particularly insightful skeptical & contrarian comments were analyzed in detail according to the literature on Cultural Theory, Social Representations Theory and semantic barriers to dialogue, i.e., theories connected in their study of shared interpretative resources and meaning-making. Commentators' ideas were examined according to the presence and absence of themes in the CC debate with the goal of looking at explicit and implicit meanings, as well as according to the use of language, paying attention to direct perspectives, perspectives attributed to others and the reactions to the meanings attributed to others.

It was found that skeptical & contrarian comments regarding CC can indeed be found in the comment sections of CC-related articles in the two newspapers chosen. Strict denialism of CC is rare. In DN, outright denial of anthropogenic climate change is effectively missing from both articles and comments. In *Observador*, there is a more pronounced presence of skeptical & contrarian narratives in both articles (especially opinion pieces) and comments. *Observador's* right-wing outlook on the world has an effect on the quantity and quality of skeptical & contrarian perspectives from commentators, with skeptical & contrarian commentators reacting to articles covering minority positions on CC. Articles with a neutral position on CC especially attract more insightful minority positions from commentators, calling attention to the importance of portraying CC in an affirming manner in the media.

Understanding skeptic & contrarian commentators' worldview and how they oppose and argue against “believers” through Cultural Theory helps to shed light on how they position themselves in relation to others in the CC debate. When social order is highly prized, commentators tend to portray calls to action as exaggerations and environmentalists are causes of concern. When freedom as value takes precedent, they question the intelligence or motivations of others. When nature is taken as unpredictable, commentators can deem efforts to counter climate change as pointless.

The expression of ideas in sync with the belief that nature is tolerant or impervious to human action specifically oftentimes leads to a neglect of ecological risks. The focus turns, instead, to how the self perceives the other's narratives. CC advocates are rarely portrayed solely for their care of nature. In the imagination of CC skeptics & contrarians whose views point to representations of a robust or benevolent world, environmentalists, decision-makers, and climate scientists are understood as political entities with political interests. This view can also vary in intensity. If nature is seen as robust, skeptical & contrarian commentators will express support for specialists, just not “politized” ones, pointing to a purified versus

contaminated view of science. If nature is seen as benign, CC can effectively disappear from discourse. Here, skeptical & contrarian commentators will contest all manner of decisions leading to impositions from the government, with climate action constituting a threat to human freedoms. In both cases, however, there is room for provocative or even conspiratorial thought, confirming the incompatibility of different cultural resources.

Social Representations Theory revealed just how controversial and diverse the social object can be in the minds of skeptical & contrarian commentators, demonstrating, once more, that notions of information deficit cannot tell the whole story about minority positions on CC. On the one hand, there were representations decidedly hostile towards the other, both in cordiality and competence. These were the representations to which ideas of collapse anchored to climate change elicit reactions of both distrust and deep opposition. It was at this level too that the hegemonic representation was sometimes anchored to religious conviction, creating further distance to the hegemonic representation. Polemic representations regarding CC were also notable in their recurrent attempts to fabricate a controversy among the scientific community. Where the alleged scientific consensus was plagued with ideology, an alternative climate science wasn't. Public symbols, especially Greta Thunberg, frequently symbolized the entire CC debate, attracting ridicule and mockery.

On the other hand, there were representations – although clearly fewer in number – which went beyond the notion of CC believers and non-believers, and into the realm of hybridization in ideas, or non-dichotomized views. At the emancipated level, thoughts become more diverse, there is generic support for social transformation, and contact with the hegemonic representation doesn't result in antagonism. The other's competence may still be questioned at times, but there is much more friendliness in the way the outgroup is perceived, even when the social object is politicized.

With the semantic barriers to dialogue the emphasis was especially on the discursive formats of alternative representations, i.e., the contact of meanings between individuals – and on how much hegemonic representations were being suppressed. Avoidance, i.e., strict denialism, was rare. The other can be portrayed without pleasantness or competence, but while it's possible to question climate scientists, environmentalists and decision-makers, i.e., the messengers, the notion of CC is mostly not. Recognizing the other's perspective but being uncertain of its motives and dismissing the other because of that was the most common expression of skepticism & contrarianism at this level of meaning-making, which is connected to polemic representations.

Skeptical & contrarian commentators also argue about the consequences for human wellbeing and comfort of acting on CC, limiting the impact of CC action. At this level of meaning-making there is a battle of ideas happening, with limiting being associated with emancipated representations. Different social actors or groups elicit different defensive reactions from the same skeptical & contrarian commentators, and it's been shown that it's even possible to doubt climate scientists while still caring for transformative notions like energy transition. It's particularly at the meaning barrier of limiting that dialogue appears to be less contentious.

When taking into account the contributions of these theories other aspects of skeptical & contrarian commentators emerge. Skeptical & contrarian views expressing a hierarchist or individualist worldview, polemic representation and, as such, meaning barriers with forms characteristic of avoidance or delegitimization, manifest a tangible difference – or opposition – between the ingroup and the outgroup. Skeptical & contrarian perspectives in this polarized or dichotomized vein create distance to the other and try to legitimize minority positions to the ingroup, stigmatizing the outgroup. It's safe to say that they constitute formulated ways for the ingroup to react adversely to CC and its proponents. Here, the role and effect of CC skeptic & contrarian think tanks cannot be understated, supplying minority positions – or general narratives of CC – that can be reproduced by people on the everyday. Skepticizing opinion pieces on the media too can contribute to perpetuate skeptical & contrarian narratives. Most insightful minority positions on CC in the comment sections of CC-related articles from DN and Observador are at this level. In contrast, when commentators are expressing emancipated representations, or meaning barriers with forms characteristic of limiting, further dialogue and impact from other (hegemonic) perspectives seems possible. These representations express neither full consensus nor full controversy, often take the form of 'yes... but', and allow negotiation between meanings.

Despite choosing to survey minority positions on CC in comment sections of two notable online newspapers in Portugal, this investigation was still limited in scope and is not empirically generalizable. An even richer insight into user engagement in the CC debate could theoretically be attained by not just turning to other sources of journalistic work, but also – and especially – message boards, social media such as Facebook, Instagram and TikTok, or social news aggregators like Reddit. Additionally, instead of concentrating on what people write about, a similar study could be conducted with an emphasis on the opinion pieces expressing disagreement with the scientific consensus on CC published on major (online or physical) newspapers. Future studies regarding CC minority positions in Portugal could also focus on

interviewing commentators with skeptical & contrarian perspectives for even more clarity regarding people's worldviews. In alternative, a focus group comprised of CC advocates and CC skeptics & contrarians would likewise produce insightful results for analysis of the possibility of dialogue between individuals and groups with opposing views.

Skepticism & contrarianism can manifest itself in a variety of ways. Perhaps that's the crucial thing to remember here. Rejection of anthropogenic climate change is an obvious form of denial, but there are other ways through which people avoid, contest and negotiate with social objects. Hopefully, this research has helped reveal that even if anthropogenic CC is a hard concept to deny entirely in Portugal, people's values and cultural outlook are pivotal in determining how they imagine and respond to CC – and CC advocates. Recognizing this can be helpful for the field of science communication and policymaking in developing more inclusive strategies. There is transformative potential among minority positions, particularly when they inhabit the emancipated continuum. The proliferation of interests and diversity of ideas makes it harder to imagine a one-size-fits-all solution, but it remains true that what's consensual today might not hold the same quality tomorrow. It's because of this that communicating the need to respond to climate change should always strive to embrace different cultural contexts aimed at reducing tensions between individuals and groups with different perspectives on the world.

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