

A critical analysis of the discursive strategies for circulating climate change denial

by

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Declaration

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Abstract

Despite consensus within the scientific community, the notion of anthropogenic (human-induced) climate change is still denied by a large percentage of people, as well as key actors within the public policy domain, particularly in the context of the United States. At the forefront of climate change denial lie industry-funded think tanks that frequently publish content which attempts to disrupt the notion that scientific consensus exists around anthropogenic climate change. Through these efforts, various think tanks have successfully helped to circulate doubt and confusion around anthropogenic climate change. As a result, they have effectively “fogged up the room” to the point that they win the debate by means of “inaction”, particularly within policy and decision-making spaces. This thesis focuses on one of the most prominent think tanks within the context of the “denial machine”, namely The Heartland Institute, analysing its discursive strategies for circulating climate change denial at a public scale. Methodologically, a critical discourse analysis is conducted in relation to various seminal texts published by The Heartland Institute. In doing so, this thesis finds that:

- The Heartland Institute’s discourse around climate change is deeply ideology-laden. Specifically, Heartland’s arguments for refuting climate change science are more closely related to questions of economic policy than to the science of climate change itself.
- Through the discursive practices of truth-claiming, adversarial framing, recontextualisation and articulation, The Heartland Institute frames itself as “speaking truth to power” (Foucault, 1984) by countering the so-called “hegemony” of mainstream climate science, and in particular the Intergovernmental Panel on Climate Change (IPCC). In doing so, The Heartland Institute contributes to the preservation of the dominant social and economic paradigm and the societal power structures that they entail.
- Finally, this thesis explores how, by framing IPCC-aligned climate scientists as being politically-motivated and ideologically-corrupt, The

Heartland Institute leverages “post-truth” politics as a means of circulating climate change denial.

Opsomming

Ten spyte van konsensus onder wetenskaplikes word die idee van antropogeniese klimaatsverandering steeds deur 'n groot persentasie mense, sowel as sleutelfigure binne die openbare sfeer, en spesifiek in die Verenigde State van Amerika, ontken. Op die voorpunt van die ontkenning van klimaatsverandering is industrie-befondsde dinkskrums wat gereeld inhoud publiseer wat poog om die idee omver tewerp dat wetenskaplike konsensus rondom antropogeniese klimaatsverandering bestaan. Deur hierdie pogings het verskeie dinkskrums reeds daarin geslaag om twyfel en verwarring oor antropogeniese klimaatsverandering te sirkuleer. As gevolg hiervan het dié dinkskrums effektief daarin geslaag het om die water so te vertroebel dat hul as wenner uit die debat tree bloot deur apadies te wees, veral wanneer dit gaan oor beleid en besluitneming. Hierdie tesis fokus op een van die mees prominente dinkskrums in die konteks van die "ontkenningsmeganisme", naamlik die Heartland Instituut, en ontleed die Instituut se diskursiewe strategieë waarmee dit klimaatsontkenning op 'n samelewingswyse skaal sirkuleer. Die metodologie van kritiese diskopers-analise is gebruik om verskeie invloedryke publikasies van die Heartland Instituut te ontleed. Na aanleiding hiervan bevind hierdie studie dat:

- Die diskopers van die Heartland Instituut oor klimaatsverandering swaar ideologies-gelaai is. In die besonder, Heartland se argumente wat poog om klimaatswetenskap te weerlê, het meer met vrae oor ekonomiese beleid te doen as met die wetenskap van klimaatsverandering.
- Deur die diskursiewe praktyke van waarheidspostulering, antagonistiese opstelling, herkontekstualisering, en artikulasie hou die Heartland Instituut homself voor as "die artikuleerde van die waarheid teenoor magshebbers" ("speaking truth to power", Foucault, 1984) deur die sogenaaamde "hegemonie" van hoofstroom-klimaatswetenskap en spesifiek die "Intergovernmental Panel on Climate Change" (oftewel die IPCC) teen te gaan. Hierdeur dra die Heartland Instituut by tot die handhawing van die dominante sosiale

en ekonomiese paradigma van die samelewing, asook die magstrukture wat dit behels.

- Deur die klimaatswetenskaplikes wat met die IPCC geassosieer word, uit tebeeld as polities gemotiveerd en ideologies korrum, eksploteer die Heartland Instituut 'n post-waarheidspolitiek as middel om die ontkenning van klimaatsverandering te versprei.

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List of Acronyms and Abbreviations

CDA	Critical Discourse Analysis
COP	Conference of the Parties
CTTs	Conservative Think Tanks
GCMs	General Circulation Models
IPCC	Intergovernmental Panel on Climate Change
NASA	National Aeronautics and Space Administration
NIPCC	Nongovernmental International Panel on Climate Change
UNEP	United Nations Environmental Program
UNFCCC	United Nations Framework Convention on Climate Change
US	United States (of America)
WMO	World Meteorological Organization

Definition of Terms

Anthropogenic climate change:

Changes in atmospheric conditions that originate from human activity.

The climate change debate:

The climate change debate refers to the opposition in beliefs regarding the question of whether or not climate change (or global warming) is caused by man-made factors (such as fossil fuel emissions). From the perspective of discourse analysis, it is acknowledged that normalising the notion of a “climate change debate” in itself contributes to the politicisation of the issue, whilst perpetuating the climate denialist view that there is uncertainty and a lack of consensus regarding the question of man-made influence on climate change. Nevertheless, the notion of ‘climate change debate’ is used throughout this thesis in reference to the conflict between the mainstream view of climate change and its affiliated scientific consensus (that climate change is, in fact, man-made) on the one hand, and climate change denialists on the other (with an emphasis on The Heartland Institute).

Climate science/climate change science

Throughout this thesis, ‘climate science’ and ‘climate change science’ are used interchangeably. Both terms refer to research that centre around proving anthropogenic climate change as a scientific phenomenon.

Critical discourse analysis (CDA)

CDA is an approach to the study of discourse that aims to provide insight into the manner in which particular forms of discourse are able to reproduce, uphold, or perpetuate certain forms of inequality, domination, and power relations. In line with Fairclough’s (1995) conception thereof, CDA as a research method entails a three-dimensional framework for studying discourse. In terms hereof, (spoken or written) language texts as well as discourse practice (text production, consumption and distribution), and discursive events are analysed as instances of sociological phenomena.

Ideology

Ideology can be understood as the complex relationship between “ideas, beliefs and opinions” (Verschueren, 2011: 7). In more practical terms, this entails the manifestation of “underlying patterns of meaning, frames of interpretation, worldviews or forms of everyday thinking and explanation” (Verschueren, 2011: 7). Furthermore, ideology can be understood as the complex relationship between “ideas, beliefs and opinions” (Verschueren, 2011: 7). Without constituting ideology itself, however, these variables (ideas, beliefs and opinions) make up the “contents of thinking” that are projected within the domain of interpersonal communication (Verschueren, 2011: 7). Ideology can therefore better be understood as the manifestation of “underlying patterns of meaning, frames of interpretation, world views or forms of everyday thinking and explanation” (Verschueren, 2011: 7). As formulated by Mannheim (1991: 337):

The ideas expressed by the subject are thus regarded as functions of his existence. This means that opinion, statements, propositions, and systems of ideas are not taken at their face value but are interpreted in the light of the life situation of the one who expresses them.

Ideology critique

In adopting a more critical definition of ideology, namely as “language in the service of power” (Thompson, 1988: 371), a focus is drawn to the way in which language can serve to sustain particular “relations of domination”. Thus, an ideology critique entails studying how “structural aspects of symbolic constructions facilitate the mobilisation of meaning”, which in turn perpetuate “systematically asymmetrical” power relations (Thompson, 1988: 371).

The Heartland Institute

Founded in 1984, the Heartland Institute is a conservative and libertarian think tank situated in Chicago, US. With a central focus on public policy, the Institute’s work includes publishing reports and summaries for policy-makers on issues relating to educational reform, government spending, healthcare,

tobacco policy, and free-market environmentalism. In recent years, the Heartland Institute has become a prominent think tank within the context of the climate change debate, arguing that no consensus exists in relation to climate change science, and that global warming may, in fact, be beneficial to the planet.

Chapter 1: Introduction

1.1 Introduction

During a public presentation at the U.S Atmospheric Research Institute in 1994, a large audience of atmospheric scientists were warned to “choose carefully [their] adjectives to describe climate models. Confidence or lack of confidence in the models is the deciding factor in whether or not there will be policy response on behalf of climate change” (Lahsen, 2013: 2). With specific reference to General Circulation Models (GCMs) that emulate future climate impacts caused by human-induced ‘greenhouse gases’, this sentiment arguably represents a fundamental crux of the general debate around climate change, namely: how it is communicated (Lahsen, 2013). This thesis deals with the question of climate change communication in a public sphere, with a particular emphasis on the discursive and rhetorical strategies employed by The Heartland Institute, a conservative think tank in the US. The Heartland Institute will be the chief focus of this thesis because of their global reach and scope of influence within the context of climate change denial.

In the scientific community, consensus around the reality of climate change sits around 97% (Cook, Oreskes, Doran, Anderegg, Verheggen, Maibach, Carlton, Lewandowsky, Skuce, Green, Nuccitelli, Jacobs, Richardson, Winkler, Painting & Rice, 2016; Doran & Zimmerman, 2009; IPCC, 2014a). Despite such agreement, however, it is crucial to note that scientific consensus does not translate into acceptance thereof as a foundation for policy and decision-making (Dryzek *et al.*, 2011). Rather, decisions relating to policy are often made against the backdrop of political ideology, media influence and political lobbying by particular industry representatives, especially within an American context (Dunlap, McCright & Yarosh, 2016). Although the figure has gone up by twelve percentage points in the past three years, only 49% of the American population is now “extremely” or “very sure” that anthropogenic climate change is indeed a real phenomenon and that it is occurring. Crucially, then, it is evident that a rift exists between consensus around climate change within the scientific sphere (97%), and consensus in

the public sphere (49%), particularly at policy-making and civil discourse levels (Dunlap, McCright & Yarosh, 2016). At a policy level, it is also evident that consensus surrounding climate change does not play a significant role in determining environmental policy, with several actions having been taken by US administrators this year to reverse certain environmental policies implemented by president Obama (Greshko, Parker & Howard, 2017).

Thus, the “global environmental knowledge” relating to climate change, represented by the Intergovernmental Panel on Climate Change (IPCC), does not manifest into direct policy action (Turnhout, Dewulf & Hulme, 2016). As this thesis attempts to illustrate, this is largely because a powerful narrative of denial exists in opposition thereto, put forward by influential actors at both private and institutional levels. Specifically, this narrative of denial exists against the backdrop of a “well-funded, highly complex, and relatively coordinated ‘denial machine’”(Dryzek, Norgaard & Schlosberg, 2012), which can be understood as the conglomeration of individual and institutional actors, as well as a range of climate bloggers, politicians and media stakeholders. Most important in the context of this thesis, ‘think tanks’ also play a pivotal role within the “denial machine”, circulating large amounts of denialist content via different platforms, whilst being interwoven, both financially and strategically, with political actors and fossil-fuel industry corporations (Dunlap & Jacques, 2013; Jacques, Dunlap & Freeman, 2008; Stefancic & Delgado, 1996). In the USA, The Heartland Institute acts as a key think tank within the context of the climate change debate and arguably as a forerunner of the “denial machine” itself.

In terms of the strategy employed by actors such as The Heartland Institute within the “denial machine”, it can be understood as an attack not on the notion of climate change itself, but rather on climate science as a whole, often with an emphasis on particular scientists or scientific theories (Dunlap, McCright & Yarosh, 2016). In other words, the “denial machine” sets out to diminish, undermine and trivialise the case for policy and regulation that could potentially mitigate climate change (Dryzek *et al.*, 2011). By directly attacking the scientific foundation of such policies, denialist actors challenge and

undermine both the gravity and severity of climate change in a public sphere, thereby attempting to directly sway the views and opinions that policy-makers and everyday citizens have on the matter (Jacques, 2006). Furthermore, a common strategy employed in this regard is to attack the notion that scientific consensus around climate change exists in the first place, resulting in a degree of doubt within the public sphere (Jacques *et al.*, 2008).

The nature of climate science, and science in general, is also an important factor in this regard. Apart from its complex, tentative and inherently uncertain nature and the problems that arise as a result, climate change science is particularly difficult to communicate (Dryzek & Lo, 2015). Specifically, issues of communication arise in relation not only to the magnitude of the implications of the climate change message and its interpretation at a public scale, but also in relation to the inability of ordinary citizens and the lay public to fundamentally grasp the message in a way that incites concern, action and willingness to change (Dryzek *et al.*, 2012). Most pertinent to this thesis is the communication barrier caused by active resistance against the scientific narrative of climate change, pioneered by the “denial machine” and their ideological affinity to preserving the status quo and preventing regulatory intervention on environmental issues (McCright & Dunlap, 2000). Actors within the “denial machine” seek to preserve the status quo and prevent regulatory intervention to defend and uphold political and economic interests, as will be elaborated on below.

1.1.1 The Position of Ideology

The notion of climate change denial must be considered in direct relation to ideology. Illustrated by recent data, beliefs relating to climate change depend largely on political ideology (Funk & Rainie, 2015). Specifically, data shows that within the US, 39% of conservatives do not believe climate change to be human-induced, whilst only 29% of them believe in the correlation between climate change and human activity (Funk & Rainie, 2015). Similarly, research within this field shows a direct link between denialist efforts at public, at

institutional as well as individual levels, and an underlying conservative political ideology (McCright & Dunlap, 2000; Oreskes & Conway 2010) .

Specifically, it has been argued that, tied up within the agenda of the “denial machine”, is a “stauncl commitment to free markets and disdain of government regulation” (Dryzek *et al.*, 2011).

With this in mind, it is critical to note that, from a denialist perspective, the acknowledgment of the reality of climate change results in an implied critique of the “industrial capitalist economic system”, in that anthropogenic climate change is a direct (yet unintended) consequence of fossil fuel use (Dryzek *et al.*, 2011: 144). This is because fossil fuel output, with specific reference to oil and coal, is tied directly to the “industrial capitalist economic system” of our global society, in that it produces over 80% of the world’s energy, whilst being a primary contributor to climate change (IPCC, 2014). Hence, from a broader theoretical lens, it can be argued that the denial of climate change forms “part of a more sweeping effort to defend the modern Western social order” (Dryzek *et al.*, 2011: 144). Alternatively, it can be argued that within a denialist framework, climate change itself is not understood as an ecological problem, but rather “as a problem for the pursuit of unbridled economic growth” (McCright & Dunlap, 2011: 146).

Against this backdrop, and in light of recent political events; from ‘Brexit’ to the inauguration of Donald Trump as President of the United States and the ‘National Front’s’ political strides made in France, a clear ascendance of nationalism and populism has emerged in recent years (Dunlap, McCright & Yarosh, 2016; Sheehy, 2017). Furthermore, this political emergence can be seen in parallel with the emergence of more radical climate change denial, with actors openly and vigorously going so far as to attack peer-reviewed journal articles (Dunlap & Elsasser, 2013). Lastly, in line with the digital age in which we now find ourselves; marked by social media, blogospheres and ‘fake news’, rhetoric and communication in the public sphere have become increasingly distorted and influenced by ‘post-truth’ social and political dynamics, as will be explored at a later stage in this thesis (De Pryck & Gemenne, 2017).

1.1.2 The Implications of Climate Change Denial

Within an ethical framework, this narrative of denial has the effect of hampering interventions and measures of protection that attempt to mitigate the exploitation of the planet's resources (Wyatt & Brisman, 2017). Furthermore, by means of the denial campaign building on the 'Climategate'¹ scandal and exposing various "relatively minor" errors in the 2007 IPCC Fourth Assessment Report, the credibility of climate science as a whole has been "seriously damaged" (Dryzek, Norgaard & Schlosberg, 2011).

Similarly, with key political figures openly doubting the validity of climate science, the risk arises for environmental policy to be compromised and to become "less science-based" in years to come, potentially resulting in further delays of environmental policy processes. (Björnberg, Karlsson, Gilek & Hansson, 2018:1). Hence, it can be argued that certain ethical implications arise as a result of these denialist efforts, in that the project of climate change mitigation as a whole is significantly hampered, primarily in relation to policy measures that may serve to ameliorate the detrimental effects of climate change (Dryzek *et al.*, 2011). Specifically, ethical consequences can exist in the form of a time delay, whereby mitigation efforts are slowed down to a considerable degree, potentially resulting in further environmental degradation within the timeframe in which policy-mitigation efforts were hampered. Furthermore, ethical implications exist in relation to people's responsibilities to future generations (intergenerational justice), as well as the degradation and injustice that natural systems themselves may face (Gardiner, 2006).

By looking at these points as fundamentally connected to one another, it can be argued that climate change denial stands at its figurative crux, and that the

¹ 'Climategate', also known as the Climatic Research Unit email controversy, occurred in November 2009, when the email server of the Climatic Research Unit at the University of East Anglia was hacked, resulting in the "leak" of emails and computer files. Various climate change sceptics pointed to the leaked emails as evidence that climate change was a "scientific conspiracy", and that they illustrated the degree to which scientists manipulated data relating to climate change (Dryzek *et al.*, 2011).

“denial machine” has until this point, been relatively successful in spreading doubt and uncertainty relating to anthropogenic climate change (Dunlap *et al.*, 2016; Klein, 2014). It can also be argued that ‘setting the record straight’ about anthropogenic climate change and clarifying its existence and severity is now a more urgent task than ever, in that the threat of further environmental degradation looms at an increasingly alarming rate.

In light of the above, this thesis further sets out to explore the notion of climate change denial, with a particular emphasis on the rhetorical and linguistic strategies employed by The Heartland Institute as a key institutional think tank that consistently denies climate change science in a public sphere.

1.2 Historical development of climate science

Before analysing the phenomenon of climate science denial, it is useful to provide a preliminary introduction to the concept of climate change and the broader history of climate science itself. For the sake of conceptual clarity, climate change can be understood as the “discernible increase in mean global temperature resulting from the release of greenhouse gases produced by human activity” (McCright & Dunlap, 2000: 1). Practically, climate change manifests through more frequent and intense incidents of flooding, heat waves, droughts and hurricanes (Wyatt & Brisman, 2017). Due to its influence on political, economic, environmental and social systems, it has been argued that climate change is one of the most profound challenges faced by humanity (Dryzek *et al.*, 2011). Interestingly, when seeking possible solutions thereto, it has also been noted that our social problem-solving mechanisms were not engineered, “and have not evolved, to cope with anything like an interlinked set of problems of this severity, scale and complexity” (Dryzek *et al.*, 2011).

Despite natural patterns of fluctuation in the earth’s temperature for millions of years, the notion of human-induced climate change is a relatively novel one, having only been introduced less than two centuries ago (Boykoff & Rajan,

2007). The question of whether or not there ought to be concern about anthropogenic climate change is one which has come and gone during the last century, but which has gained considerable traction since more or less the 1980s (Pearce, Brown, Nerlich & Koteyko, 2015). Crucially, Nerlich *et al.* (2015) view this period as the historical point in which an intersection occurred between climate change science, politics and media coverage (Boykoff & Rajan, 2007).

Regarding the development of climate change science itself, the notion can be traced back to the 18th century, when it was argued by certain Enlightenment thinkers that the colonization of North America by European countries could have a definitive impact on regional-scale climates due to the impact of forest-clearing and agricultural cultivation (Kim & Hyun, 2004). Although this was more speculation than scientific research, the world of meteorology was later shaken up (in the mid-19th century) to an even greater extent when a Swiss geologist, Lousis Agassiz, introduced the theory of Ice Ages (Kim & Hyun, 2004).²

Following this discovery, scientists from a multitude of disciplines who were interested in further understanding the notion of climate change and its possible causes, conducted research on this topic (Imbrie & Imbrie, 1979). In 1861 an Irish physicist, John Tyndall, conducted research on carbon dioxide in the atmosphere, and found that the glacial period (115000 – 117000 years ago) may have been caused by changes in the constitution of the earth's atmosphere (Kim & Hyun, 2004). Several years later in 1896, a Swedish physical chemist, Svante Arrhenius, undertook a follow-on study and found that it was not water vapour which made a distinct contribution to atmospheric change, as previously assumed by other researchers, but rather radiation caused by CO₂, and the effects thereof (Kim & Hyun, 2004). Arrhenius's calculations attempted to portray the effects that atmospheric CO₂ would have

² This relates to the theory that the earth experienced a sequence of worldwide ice ages throughout history, which resulted in the presence or expansion of continental and polar ice sheets and alpine glaciers (Imbrie & Imbrie, 1979).

on the earth's surface temperature. Specifically, he argues that an increase in CO₂ and the blocking of thermal radiation would lead to an estimated doubling of CO₂ in the atmosphere and an annual average warming of about 5-6°C (Uppenbrink, 1996). As noted by Kim and Hyun (2004) as well as Powell (2011), this figure is relatively close to the modern calculations made by new GCMs.

1.2.1 Climate Science in the 20th Century

Through further developments in his research and with the help of his colleague Arvid Hoegbom, Arrhenius, in 1904, argues that “the slight percentage of CO₂ in the atmosphere may, by the advances of industry, be changed to a noticeable degree in the course of a few centuries” (Uppenbrink, 1996). On the historic timeline of climate science, Arrhenius can therefore be seen as the first scientist to quantitatively portray a link between fluctuations in carbon dioxide concentration and the earth’s climate (Uppenbrink, 1996).

Despite these findings, the climatic implications of anthropogenic CO₂ did not seem to be potentially threatening within the framework of scientific discourse at the time. Generally, it was still believed that anthropogenic CO₂ in the atmosphere would be offset due to uptake of CO₂ in the ocean, and that the long-wave absorption band of CO₂ was particularly narrow, implying an overlap with water vapour and a subsequently diminished “role of CO₂ in the atmospheric radiative process” (Kim & Hyun, 2004: 11).

Contrary to the general scientific sentiment of the time, Guy S. Callendar, an amateur meteorologist and steam engineer, disagreed with these assumptions and attempted to revive and further explore Arrhenius’s theory of human-induced global warming (Callendar, 1938). Despite Callendar’s (1938) arguments that human industry would continue to increase the earth’s mean surface temperature (with all other factors remaining in equilibrium), it was not until global warming hypotheses were based on physico-mathematical modelling that the subject was taken seriously. As argued by Kim and Hyun

(2004: 12), this reveals insight into the “traditional cultural hierarchy of science”, whereby scientific disciplines with “high precision, control and mathematical rigour” were deemed to have more value, whilst “the climatology pursued by Callendar could have been lacking in those respects” (Kim & Hyun, 2004: 12).

Following this period, climate science witnessed an arguable lull, where its status was kept “low in the hierarchy of sciences” (Kim & Hyun, 2004:12). This can be attributed to the descriptive nature of climatology at the time, where scientists and meteorologists embraced a “static conception” of climate, implying that it was believed to be a consistent natural phenomenon (Kim & Hyun, 2004). It was only several years later, in the 1950s, that new developments in the context of climate science arose. Specifically, a new approach to climate research was adopted: that of complex numerical models, whereby both physical as well as dynamical processes were accounted for in scientific inquiries (Kim & Hyun, 2004). As argued by Kim & Hyun (2004), by the 1970s this line of approach had assumed “intellectual hegemony” within the scientific realm of climate research.

From the 1960s onwards, it becomes increasingly difficult to differentiate climate science and research in and of itself from the political and ideological idea of environmentalism that began to strongly take shape at this time. For example, a definitive moment in the history of environmental awareness occurred alongside the publication of Rachel Carson’s *Silent Spring* in 1962, which had the agenda of exposing the detrimental effects of chemical pollutants, and played a significant role in kick-starting the wave of environmental awareness and activism that followed (Carson, 1962).

Ten years later, in 1972, John Sawyer published “Man-made Carbon Dioxide and the Greenhouse Effect”, a seminal article in *Nature*, in which he provides a summary of the scientific knowledge of the time (Nicholls, 2007). Crucially, this paper also brought to light the accurate prediction of the rate of global surface temperature increase between 1972 and 2000 (Nicholls, 2007):

The increase of 25% CO₂ expected by the end of the century therefore corresponds to an increase of 0.6°C in the world temperature – an amount somewhat greater than the climatic variation of recent centuries (Sawyer, 1972).

Following this period, the 1980s saw a more definitive understanding of the effects of chemicals and aerosols on the atmosphere, despite a lack of general agreement on the “existence, scale and magnitude of these indirect effects” (Treut, Somerville, Cubasch, Ding, Mauritzen, Mokssit, Peterson, Prather, Qin, Manning, Chen, Marquis, Averyt & Tignor, 2007: 109). Furthermore, scientists such as James Hansen gained prominence in the 1980s, particularly after the publishing of “Climate impact of increasing atmospheric carbon dioxide” in 1981, in *Science* (Hansen, Johnson, Lacis, Lebedeff, Lee, Rind & Russell, 1981). Later in the decade, in 1988, it was also Hansen who provided an assessment which illustrates that human-induced global warming had altered the global climate to a significant and measurable extent (Hansen, Fung, Lacis, Rind, Lebedeff, Ruedy, Russell & Stone, 1988).

1.2.2 Climate Science in the Modern Period (1988 to present)

The year 1988 was also a fundamentally important year within the context of climate science’s historical timeline, in that the World Meteorological Organization (WMO) then founded the Intergovernmental Panel on Climate Change (IPCC) alongside the United Nations Environmental Program (UNEP). Currently, the IPCC still functions as an active organization and as a prominent figure within the climate change space, in terms of which ‘assessment reports’ are published every five to six years (Osorio-Arce & Segura-Correa, 1988). These reports, compiled by various working groups³, entail an overview of the current state of climate change.

³ Working groups are formed by invitation only, and are comprised on government officials and climate change experts from both scientific and public policy fields.

For example, in a recent IPCC report (2014a), the principal findings are that oceanic and atmospheric warming are “unequivocal”, and that various impacts and metrics (such as sea level change) have occurred at historically unprecedented rates since 1950 (IPCC, 2014a). Furthermore, the report states that “there is a clear human influence on the climate”, and that the dominant cause of global warming since 1950 can be attributed to human beings, “with the level of confidence having increased since the fourth report” (IPCC, 2014). More recently, in October 2018, the IPCC published a ‘special report’ in which 2°C and 1.5°C scenarios are compared (IPCC, 2018).

In terms of future projections, which are a crucial component of understanding climate science within a modern context, global surface temperature is expected, in line with the IPCC report (2014a), to *likely* exceed 2.0 °C. In line with this, changes in the ocean temperature are expected, as well as changes to the global water cycle, thereby implying various feedback loops and knock on effects such as the increased disparity between wet and dry regions, as well as other climatic and atmospheric repercussions, such as increases in hurricanes, tsunamis, droughts or other natural disasters (IPCC, 2018).

When analysing climate science within a modern framework, the issue of scientific consensus is of pivotal importance, especially if the IPCC’s reports are to be used as sources of information for the purposes of further scientific research on climate change, as well as policy-making in response thereto. In the literature review of this paper, greater insight will be provided on the general consensus of scientists around the existence of climate change. For now, it suffices to note that, through different exercises of sourcing articles and coding the summaries of over a thousand scientific papers on climate change, various authors have shown the scientific consensus around climate change to lie between 93 and 99% (Anderegg, Prall, Harold & Schneider, 2010; Cook, Oreskes, Doran, Anderegg, Verheggen, Maibach, Carlton, Lewandowsky, Skuce, Green, Nuccitelli, Jacobs, Richardson, Winkler, Painting & Rice, 2016; Farmer & Cook, 2013).

1.3 The Historical Trajectory of Climate Change Denial

The denial of climate science and climate change can be traced back to the 1970s when American conservatism became both a general social movement as well as a “source of several counter-movements aimed at combating various progressive causes” (Jacques *et al.*, 2008: 350). It is within this domain of “counter-movements” that the social movement of climate change denialism began, and in which research and discourse surrounding the phenomenon started to increase (Stefancic & Delgado, 1996).

Following several “progressive gains” in the 1960s and early 1970s, promises were made by Reagan’s administration to “get government off the back of the private sector”, resulting in more free-market reign and less policy regulation around issues such as pollutant output (Dunlap & McCright, 2012:146). In reaction to these promises, however, a backlash from environmentalists prompted the administration to “moderate its anti-environmental rhetoric and action, albeit not its objectives” (Dunlap & McCright, 2012: 146). Ultimately, this sequence of events taught conservatives and industry bodies that their success would lie not in questioning the *goal* of environmental protection, but rather the *need* thereof, specifically by questioning the evidence of climate science (Dunlap & McCright, 2012: 146). This strategy of ‘environmental scepticism’, whereby the severity of environmental issues is disputed, gained further momentum following the 1980s, and had significant traction by 1990, when the surge of global environmentalism and the Soviet Union’s downfall facilitated the notion of a ‘green threat’ (environmental movement) as a substitute for the dissipated ‘red threat’ of Communism (Jacques *et al.*, 2008).

Furthermore, the first IPCC report was published in 1990, in which it was confirmed that the earth was warming, but without an explanation as to what caused the warming (Powell, 2011). Crucially, this report can be interpreted as the backdrop for the first Earth Summit held two years later (1992) in Rio De Janeiro (Dunlap *et al.*, 2016). This summit saw attendance from the likes of George H.W. Bush, who, despite only agreeing to sign “the most timorous

treaty”, urged other world leaders to take “concrete action to protect the planet” (Powell, 2011: 47).

In a similar fashion, the second Assessment Report by the IPCC (1995) preceded the next climate summit, which was held in Kyoto, Japan, in 1997 (UNFCCC, 1998). The conclusion of this summit was that “the balance of evidence suggests a discernible human influence on global climate” (UNFCCC, 1988). It is worth noting that this conclusion is distinctly neutral in terms of its phrasing, with qualifying words like “suggests”, “discernible” and “influence”. Nevertheless, as noted by Powell (2011: 48), this gingerly-worded culmination of the conference “could not mask the fundamental conclusion: having established that global warming is real, the scientific community was becoming increasingly aware that humans were the cause”.

Despite their hesitant phrasing of consensus relating to climate change, the IPCC as an institution symbolised an “unprecedented international effort to develop a scientific basis for policy-making” (Dunlap & McCright, 2012: 146). In response, a strong coalition was formed between organizations, researchers and think tanks representing the mainstream conservative movement, the fossil fuel industry and its leading drivers of capitalist expansion, in order to counter efforts of the IPCC and deny climate change science to uphold their political and economic interests (Dunlap & McCright, 2012). As noted by Jacques *et al.* (2008), this coalition escalated the movement of environmental scepticism to a considerable extent, and the whole field of climate science was labelled as ‘junk science’.

1.4 Understanding the ‘Denial Machine’

In further following the historical trajectory of climate change denial, the strategies of the “denial machine” changed from merely circulating scepticism, to literally ‘manufacturing’ doubt, scepticism and uncertainty in relation to climate science (Powell, 2011). This distinction entails the latter including actual production of content and research that plainly denies mainstream

climate change science. Since the 2000s, this has been the “preferred” method for promoting scepticism around anthropogenic climate change (Dunlap & McCright, 2012: 147). Oreskes and Conway (2010) hereby note that between the 1997 Kyoto Protocol and the 2009 Copenhagen Accord, there has been a significant increase in “contrarian science”, in which the ‘uncertainty’ of global warming and its anthropogenic contributions are emphasised. Since then, the “denial machine” has expanded its arsenal of strategies, going beyond manufacturing uncertainty and employing other methods, such as “criticizing peer-review, refereed journals, governmental grant making, scientific institutions and the expertise and ethics of scientists” (Dunlap & McCright, 2012: 146).

Today, climate change denial is arguably at its most critical stage, with influential actors such as America’s President, Donald Trump, openly and outspokenly denying the existence of climate change (De Pryck & Gemenne, 2017). In the process, Trump is further stimulating the development of a ‘post-truth’ epistemological domain, where his opinions and stances on various issues have become increasingly “outrageous” (De Pryck & Gemenne, 2017). Specifically, climate-denial in a ‘post-truth’ context implies argumentation in a space where “facts no longer provide a compelling epistemic base for presenting and resolving disputes” (De Pryck & Gemenne, 2017: 123). Rather, facts are interpreted in a “parallel universe of alt-news, alt-facts, and alt-reality”, implying that on a discursive and epistemological level, scientific arguments can be diminished or discarded by mere “reference to personal beliefs” (De Pryck & Gemenne, 2017: 124).

Within the context of contrarian leaders, it must be kept in mind that despite his status as a central cultural reference point of climate change denial in the present age, and despite the often outrageous nature of his opinions, President Trump is not the first or only “sceptical politician” to be in power (De Pryck & Gemenne, 2017: 122). In his presidency between 2001-2009, President George W. Bush refused to ratify the Kyoto Protocol and furthermore undermined climate science to a significant degree (Dunlap & McCright, 2008). In a more recent context, Tony Abbot, Australia’s former

Prime Minister, also came forward as a “convinced climate contrarian”. In his book *Battlelines* he claims that “whether humans have had a significant impact on the climate as a whole is much less clear. Climate change is a relatively new political issue, but it’s been happening since the earth’s beginning” (Abbott, 2013; De Pryck & Gemenne, 2017: 122). Similarly, the former president of France, Nicolas Sarkozy, also emerged as a climate change denier, and argues that climate change is not ‘anthropogenic’ in nature, in that it is not triggered by any form of human influence (Dagorn, 2016).

It is worth noting that climate change denial in the political sphere is generally perpetuated by politicians who share similar socio-economic beliefs, in terms of which “they have an acute sense that climate policies would damage their national economies” (De Pryck & Gemenne, 2017: 123). Furthermore, it is interesting to note that the overwhelming majority of these politicians are conservative white men, as portrayed by McCright and Dunlap (2011),

1.5 Research Questions and Objectives

The preliminary investigation suggests that there is an increase in climate science denial, resulting in a more general, public denial of anthropogenic climate change. Due to this increase, fuelled by conservative think tanks such as The Heartland Institute in the US, media outlets and various actors within the “denial machine”, various implications arise. From the worsening of climate change itself, to the hindering of policy advancement that attempts to reduce the further degradation of the planet’s natural systems and resources, the denialism of climate change results in a hampered effort to mitigate climate change.

The associated research questions focused in this study are as follows:

- In analysing the content circulated by The Heartland Institute, what are their discursive and ideological strategies of climate scepticism in circulating climate change denial?
- How does The Heartland Institute use language to establish, justify and perpetuate claims that denialists have the final truth, and what is the role of right-wing ideology in this regard?
- What are the effects of this denialism in relation to the concepts of meaning, power, truth and epistemology?

By answering these research questions, the objective of this study is to expose and elucidate the rhetorical strategies and linguistic methods by which climate change is denied on an institutional and political scale. My reasons for doing so are based on the hypothesis that a specific type of discourse is used to serve a particular, underlying political ideology that justifies and perpetuates a fundamentally unsustainable world, and that this discursive effort results in a genuine impediment to efforts of climate change mitigation. With regards to the last question, my focus on these concepts in particular aims to shed light on the ethical consequences of climate change denial.

1.6 Delimitations of the Study

This thesis is based on the belief that climate change does in fact exist, and that the denial thereof is a politicised, intentional action that is (to an extent) organized and overseen by certain political actors and institutions, especially within an American context. Despite a commitment to ideological (political) neutrality and objectivity, within the parameters of critical theory, there is the risk of subjective bias in writing this thesis. However, significant effort will be made to avoid this. This will be done by focusing on close analyses of literature in the public domain, and by making use of well-established methodologies of critical discourse analysis and ideology critique. Furthermore, this is based on the position of being politically neutral while

working from the assumption that climate change is real. In other words, I accept climate change as a scientific fact, established independently of political considerations.

Another characteristic of this research is that it is not a study about climate science in its totality. Rather, this research focuses on a certain group's reaction to climate science. Having said that, it must also be kept in mind that climate science is itself in a state of perpetual development, and is thus per definition incomplete. In response to this *problematique*, I will not assume the typical ideological position of dismissing climate science for this reason, but instead allow myself to accept the advances of climate sciences as the best possible source of knowledge about climate change available for humankind thus far, even if this knowledge is characterised by uncertainty in some areas, and thus needs to be developed further.

1.7 Research Methodology and Design

The research approach will firstly consist of a comprehensive literature review within the context of climate change sociology. An emphasis will be placed on literature dealing with the topics of science denialism, the nature of climate science, climate change denial and the ethical implications thereof.

Following this, the methodology will consist of a critical discourse analysis of texts published by The Heartland Institute, a climate-science sceptical American think tank with a particularly vast scope of influence.

Through a critical theoretical framework, The Heartland Institute's texts will undergo a discourse analysis and ideology critique in an effort to highlight and expose the underlying principles and strategies of denialist rhetoric. Following this analysis, an assessment will be made on the exposed denialism within the context of the public domain, with an emphasis on what the implications of such denialism may be. This assessment will focus specifically on implications in the domains of truth, power, ideology, meaning, and epistemology.

Against this background, my thesis is structured as follows: Chapter 2 consists of a literature review, in which I aim to cover as much relevant literature relating to climate change denial as a sociological phenomenon as possible, as well as literature relating to ideology.

Chapter 3 proceeds with an outline of the methodology employed in this thesis, covering the fundamental and practical components of critical discourse analysis, in line with Fairclough's (1995) conception thereof.

Thereafter, Chapter 4 consist of the critical discourse analysis itself, in terms of which several key texts by the Heartland Institute are analysed and scrutinized at levels of language, meaning, and intertextuality.

Chapter 5, Findings and Discussion, entails a summary of the key findings produced in the critical discourse analysis, and what such findings mean in relation to certain metaphysical phenomena, ranging from meaning and ideology, to truth, epistemology and power.

Lastly, Chapter 6 provides a conclusion and overall summary of the thesis, as well as a postscript, in which a process of reflection occurs that sheds light on the question of where we now stand in relation to the issue of climate change.

Chapter 2: Literature Review

2.1 Introduction

The phenomenon of climate science denial is not a novel one, nor is it academically uncharted. It has been studied and approached from various disciplines, ranging from environmental economics, rhetoric and communication studies to anthropology, sociology and environmental ethics (Gardiner, 2006; Van der Linden, Leiserowitz, Feinberg & Maibach, 2014; McCright & Dunlap, 2000; Pretty, 2013). Although the issue cannot be explored in any form of academic silo, this thesis approaches the question from a primarily sociological and philosophical angle, incorporating critical social and political theory. This approach may be fruitful in that it aims to explore and elucidate not only the linguistic *means* of climate change denial, but also the ethical implications of such denial.

Academic literature around the notion of climate change denial can arguably be traced back to Dunlap's analysis of public opinion on the environment during the Reagan era (Dunlap, 1987). The theoretical framework within which this was analysed, namely the sociological domain of 'counter-movements' has, however, existed for a considerably longer time (Lo, 1982). A counter-movement was originally defined as a "movement mobilised against another social movement" (Turner, 1957). Later, however, it was Lo's (1982) definition that was more widely adopted, in which he describes a counter-movement as a "movement that makes contrary claims simultaneously to those of the original movement". This framework was primarily used to study right-wing social movements and counter-movements that differed in their degrees of political direction, ranging from "conservative" to "radical" and eventually "extremist" (Lo, 1982: 107).

Because this thesis deals primarily with climate change denial from the

perspective of a conservative political think tank, The Heartland Institute, it is essential to adequately define these terms. Lo's (1982: 107) definition of "right-wing movements" provides a good fit, in that they are defined as:

movements whose stated goals are to maintain structures of order, status, honour, or traditional social differences or values... The right may be contrasted with the left, which seeks greater equality or political participation.

This definition, formulated in 1982, is laden with a strong sense that counter-movements are fundamentally tied to underlying attachments to particular ideologies. As outlined below, this is also the case with climate change science denial.

2.2 The Role of Ideology

The nature of pro-environmental, anti-industrialist arguments entails that they criticize the general sustainability of the current capitalist economic framework. On an ideological level, it must therefore be noted that such arguments, particularly those criticising modern industrial practices and economic systems, are inherently threatening to a particular American way of life (McCright & Dunlap, 2000). Thus, as outlined in the introduction, the agenda of sceptics and denialists has arguably been to "defend" modernity and its attached notion of advancement from environmentalists, who are perceived and portrayed as waging a "war against progress" (Jacques *et al.*, 2008). From this perspective, the denial of climate change must be understood in relation to a deeper, fundamental ideological conflict that sits at the heart of political philosophy, namely the conflict between left-wing, progressive, liberal thought on the one hand, and right-wing, conservative thought on the other.

When examining the notion of 'ideology', it is important to note that it has evolved significantly whilst having played a pivotal role in the development of the social sciences (Verschueren, 2011). From once existing as an academic discipline in its own right, to now being perceived rather as an "object of

investigation”, ideology can pragmatically be understood as the complex relationship between “ideas, beliefs and opinions” (Verschueren, 2011: 7). Without constituting ideology itself, however, these variables (ideas, beliefs and opinions) make up the “contents of thinking” that are projected on a superficial level within the domain of interpersonal communication (Verschueren, 2011: 7). In terms of its traditional meaning, ideology can therefore better be understood as the manifestation of “underlying patterns of meaning, frames of interpretation, world views or forms of everyday thinking and explanation” (Verschueren, 2011: 7).

In further analysing the notion of ideology, a key principle on which many of the premises in this thesis rest, it is essential to apply a suitable definition. In traditional sociological practice, the notion of ideology is ascribed a relatively normative definition and meaning. For example, in *Ideology and Utopia: An introduction to the sociology of knowledge*, Mannheim (1991) distinguishes between “particular” and “total” ideology. He defines “particular” ideologies as “local representations” of things in the world and aspects of reality that might be “coloured” by specific interests or viewpoints (Mannheim, 1991: 337). Such representations are limited to specific domains and contexts, whilst applying specifically to individuals (Mannheim, 1991). This could for example include religion as a particular component of a person’s worldview. In contrast, “total” ideologies consist of entire thought categories and means of thinking that determine how people perceive and interpret their environments, and include for example the sum of a person’s upbringing, worldviews, religious beliefs and educational influences. The fundamental connection between these two forms of ideology is that they both rest on the premise that a person’s perception and worldview are distinctly determined by their position in society (Mannheim, 1991). As formulated by Mannheim (1991: 337):

The ideas expressed by the subject are thus regarded as functions of his existence. This means that opinion, statements, propositions, and systems of ideas are not taken at their face value but are interpreted in the light of the life situation of the one who expresses them.

In that this thesis seeks to elucidate the ideological motives that underpin climate change denial and their ties to the capitalist economic framework to which the Western world is bound, a more critical understanding of ideology may be useful. In adopting a more critical stance towards ideology that accounts for social dynamics and power relations, Thompson's (1991: 6) definition renders itself particularly useful. Ideology is critically defined as "meaning in the service of power" or "language in the service of asymmetrical power relations", whilst ideology research as a whole is approached as the study of "the ways in which meaning serves to establish and sustain relations of domination". Habermas, who Thompson closely aligns with, provided a critical understanding of language that is also useful, and notes that language "serves to legitimize relations of organized power", and that insofar as these legitimatizations are not articulated, "language is also ideological" (Habermas, 1990: 259).

When applying this definition, as will be done in later chapters of this thesis, it is important to note that 'power' does not denote its conventional meaning in this regard, namely governmental or institutional power. Rather, a form of cultural, societally-implied form of power is being referred to, which ultimately links to the publically and socially spread denial of climate science (Thompson, 1991). This power could for example exist in the context of institutional gender inequality, whereby pay-gaps have historically been engrained in the context of many careers.

In analysing this approach to ideology and demonstrating how it can be applied as a methodological framework, Thompson (1988: 371) notes that when conducting research within the framework of depth hermeneutics and against the backdrop of a "concern with ideology", such an analysis ought also to entail a "distinctive, critical turn" (Thompson, 1988: 371). He argues that when assessing symbolic constructions (discursive expression in the form of text, speech or body language) within the context of discourse, our attention ought to be drawn to the particular "relations of domination" in which such symbolic constructions are "produced and received" (Thompson, 1988: 371). Generally, this approach can be applied to social institutions, where

particular agents or groups are “endow[ed]” with power in “systemically asymmetrical ways”, thereby implying inaccessibility to, and exclusion from power for other groups and agents (Thompson, 1988: 371). Traditionally, in ideology research a focus has been placed on societal asymmetries relating to divisions of race, gender, class and nation-state (Thompson, 1988).

In providing insight into the practical means of operationalising the ‘depth hermeneutics’ approach, Thompson (1988: 372) notes that the discursive analysis of a particular text or medium of communication ought to focus on the “structural aspects of symbolic constructions which facilitate the mobilization of meaning”. It is noted that no particular framework or guideline exists for the execution of this approach, and that many different strategies exist for assessing structural features and “relations of symbolic constructions”, depending on the context and form of discourse (Thompson, 1988: 372). In providing suggestions in relation hereto, Thompson (1988: 372) notes how the *syntactic structure* of forms of discourse can be studied in order to explicate their “ideological character”. *Nominalization* and *passivization* are examples of this (Thompson, 1988). The first, *nominalization*, is a process whereby descriptions of action and the participants involved within a sentence are “turned into nouns”, for example when “the banning of imports” is said as opposed to “the Prime Minister has decided to ban imports” (Thompson, 1988: 372). *Passivization*, on the other hand, is the process of expressing verbs in their passive form. This occurs when, for example, “the suspect is being investigated” is used instead of “police officers are investigating the suspect” (Thompson, 1988: 372). As linguistic devices, these mechanisms are part of a bigger process, namely the *reification* of language (Thompson, 1988: 372). As a result, objects and things are represented in the place of actors and agency. In the context of ideology, this results in discourse in which time is conceived as an “external extension of the present tense”, thereby alluding to a “dimension of society ‘without history’ at the heart of historical society” (Thompson, 1988: 372). As a result, language is perceived being neutralised, resulting in the “covering up” of fundamentally important societal relations and historical considerations.

Similarly, it is proposed that linguistic constructions and their structural features can be approached in terms of their *narrative structure* when analysing their ideological character (Thompson, 1988). Thompson (1988) observes how specific narrative devices are employed in the linguistic construction of different forms of discourse, ranging from “everyday conversations to novels, newspaper articles and television programmes” (Thompson, 1988: 373). As noted by Thompson (1988: 372), a story (with definitive characteristics such as a plot and characters) can be utilised to sustain relations of domination by representing them as *legitimate*, in that “the legitimisation of social relations is a process that commonly assumes a narrative form”. In such a way, even unfair, unequal or fundamentally unjust power relations can be represented as legitimate.

Lastly, to make sense of Thompson’s “depth hermeneutics” approach to analysing discourse, it is important to note the role of interpretation. In spite of the formal or discursive methods available to assess symbolic constructions and their structural features for the sake of analysing ideology, Thompson (1988: 373) argues that the need for “creative interpretation” is not eliminated. Specifically, it is argued that when conducting an analysis of ideology, interpretation plays the role of explicating “the connection between the meaning of symbolic constructions and the relations of domination which that meaning serves to sustain” (Thompson, 1988: 373). In other words, it is argued that interpretation serves the purpose of synthesis, where the results of socio-historical and discursive analyses are assessed in conjunction with the explication of meaning and its ties to a particular ideology or “relation of domination” (Thompson, 1988: 373). Ultimately, it is argued that the interpretation of ideology is charged with a “double task”; namely the “creative explication of meaning” on the one hand, and the portrayal of how such meaning is able to sustain particular relations of domination on the other (Thompson, 1988).

Crucially, ideology cannot be understood in isolation from language. As much as ideology is fundamentally tied to underlying patterns of meaning and frames of interpretation, as outlined above, it is also intrinsically tied to its

discursive form of expression and the rhetorical purpose that it serves (Verschueren, 2011). The implication is that language use or discourse is a primary manifestation of ideology, “which may reflect, construct and/or maintain ideological patterns” (Verschueren, 2011: 17). Despite the potential for other “manifestations” of ideology, “such as a flag symbolising nationalist feelings”, language must be granted privileged status as the most important manifestation thereof, in that language is the “main instrument for spreading complex patterns of meaning” (Verschueren, 2011: 17). For the purposes of this thesis, language is provided “privileged status” as ideology’s primary vehicle of manifesting itself, in that language is fundamentally tied to the “structures of domination” in a society, with a specific emphasis on the “ownership of the means of persuasive rhetoric” that are furthermore “unequally distributed” in most societies (Verschueren, 2011: 18).

2.3 The Circulation of Denial

In their analysis on the “counter-movement” concept and the links between conservative think tanks and climate change denial, Jacques *et al.*, (2008: 351) point out that the “major tactic” employed by the counter-movement has been contesting the gravity of environmental problems and eroding the legitimacy of environmental science by encouraging and circulating the concept of ‘environmental scepticism’. The rhetoric of ‘environmental scepticism’ entails directly challenging and countering the scientific evidence for environmental problems, from climate change to biodiversity loss. In line with this, such scepticism denies and negates the need for regulations, legislation and policy interventions to uphold environmental quality (Dunlap & Jacques, 2013). Historically, these mobilised ‘efforts’ of scepticism were focused on particular issues such as acid rain, ozone depletion and secondhand smoke, whilst science denialism in the realm of political discourse also focused on discrediting evidence relating to the harms of tobacco and vaccinations (Dunlap & Jacques, 2013). As put forward in *The Inquisition of Climate Science* (Powell, 2011), this ‘tactic of scepticism’ fuels the outcome of “manufactured” public uncertainty, which further perpetuates

the notion that regulatory action is not warranted due to the scientific evidence not being legitimate.

In better understanding the campaign of denial and its pervasive patterns of circulation, it is imperative to understand the role of the fossil fuel industry in perpetuating such denial by providing the necessary financial crutch for the “denial machine” to lean on (Powell, 2011). In a 2007 exposé report titled “*Smoke, Mirrors and Hot Air: How ExxonMobil Uses Big Tobacco’s Tactics to Manufacture Uncertainty on Climate Science*”⁴, insight is provided into the world of large fossil fuel corporations and the manner in which such corporations, specifically ExxonMobil, play a pivotal role in upholding the agenda of climate science denial (Union of Concerned Scientists, 2007). In looking at Exxon’s strategies, the report compares the tactics of public climate science denial to those used by large tobacco companies during the 1970s and 80s, in which the public was “misled” about the “incontrovertible scientific evidence linking smoking to lung cancer and heart disease” (Powell, 2011: 111). Specifically, this “disinformation campaign” employs the same methods of circulating “manufactured uncertainty” by “laundering information”, calling for “sound science”, promoting pseudoscience, and significantly, utilising industry connections and government affiliations to “deny and delay action” (Powell, 2011: 112). For example, two of the leading “big tobacco” lobbyists and representatives to deny the harmful effects of smoking, namely Stephen Milloy and Frederick Seitz, were later also employed by ExxonMobil for the sake of contributing to and driving public uncertainty around the topic of climate science (Union of Concerned Scientists, 2007).

In examining financial data relating to this campaign, it is evident that between 1998 and 2005, the ExxonMobil corporation provided approximately \$16 million to more than 40 organizations that deny climate change and global warming (Powell, 2011; Sample, 2007). Of this, \$ 1,625,000 was allocated to

⁴ This report was published by the Union of Concerned Scientists, a Cambridge-based, international advocacy group that promotes scientific research in the fields of climate science, agriculture, energy, and nuclear power (Union of Concerned Scientists, 2018).

the American Enterprise Institute (AEI), which publically called on scientists to publish articles criticizing the IPCC Fourth Assessment Report, offering a reward of \$10 000 per article (Sample, 2007). Another factor worth noting in this regard is that ExxonMobil's then CEO and Chairman, Lee R. Raymond, served as an executive member and vice chairman of AEI's board of trustees (Powell, 2011).

In 2008, ExxonMobil announced that it would “discontinue contributions to several public policy research groups whose position on climate change could divert attention from the important discussion on how the world will secure the energy required for economic growth in an environmentally responsible manner” in its annual “corporate citizenship” report (ExxonMobil, 2008). Since then, however, various allegations have arisen in the media implying that ExxonMobil continues to brief journalists that they no longer fund these groups, but continues to do so nevertheless (Adam, 2009).

2.4 The role of the Media

Although many key actors exist within the ecosystem of climate change denial, as outlined above, the media as a whole plays one of the most important roles in determining how climate change is perceived by everyday citizens (Carvalho, 2007). In the literature surrounding this question, various studies have shown the strong degree to which the public perception and attitudes of citizens regarding scientific opinions can be influenced by the media (Boykoff & Boykoff, 2007; Stamm, Clark & Eblacas, 2000; Wilson, 1995, 2000). As put forward by Carvalho (2007), scientific findings and ideas are not merely mirrored in the media. Rather, science is “reconstructed”, and media depictions of something are the result of various factors and decisions, such as the “newsworthiness” of an issue, the degree of attention such an issue will be afforded, and who will speak for and represent the issue (Carvalho, 2007: 223). Furthermore, the manifestation of such reconstruction and the way it is perceived is also influenced by other “news values”, such as political affiliations, as well as “economic considerations and editorial lines” (Carvalho, 2007: 223). As a result, media discourses have the effect not only

of including (or excluding) certain worldviews, but also of producing and reproducing such worldviews and values entirely (Allan, 2004; Fairclough, 1997).

In light hereof, it can be argued that the media plays a key role in the “production and transformation of meaning” (Carvalho, 2007). As put forward by Gamson (1999: 23), the media acts as a pivotal “validator” of science, in that it conveys facts as “institutionally validated claims of the world”. In this regard, various degrees of “validation” exist, with the IPCC for example, positioning itself as a “primary validator” in the field of climate science, putting forward first-hand scientific information (Gamson, 1999). The media, however, acts as a “secondary validator”, in that its role is to document and potentially diffuse the factual claims made by “primary validators” (Gamson, 1999). Despite this crucial role, the media also acts as a “primary validator” in certain cases, most notably relating to controversial issues. In the case of climate change, for example, “their gatekeeping role is more important as they decide which would-be primary validators will be given a voice, and how much of a voice” (Carvalho, 2007: 225; Gamson, 1999: 24). Similarly, Carvalho (2007: abstract) notes how ideology functions as a “selection device” in deciding what is “scientific news”, as well as who the authorized “agents of definition” are in relation to scientific matters.

The question of climate change in the context of the media is particularly interesting, in that the societal challenge of climate change is in itself a “complex scientific issue”, similar to scientific phenomena such as biotechnology or nanotechnology (Carvalho, 2007: 223). Regarding the existence of anthropogenic climate change, various studies have been undertaken to determine the certainty thereof within the scientific community, with answers ranging from 95 to 100% (Anderegg *et al.*, 2010; Cook *et al.*, 2016a). Nevertheless, in spite of such certainty, the media’s depiction of climate change often and generally suggests that the scientific community is “divided in the middle” when the existence of anthropogenic climate change is brought into question (Carvalho, 2007: 224).

In the literature surrounding media coverage of scientific questions, various researchers have analysed the “constitutive role of language” in the media, thereby providing significant insight into the “discursive processes involved in the management of science and policy” (Carvalho, 2007: 224; Anderson, 1997; Hager, 1997). Notably, in attempting to understand how climate change is represented in the media, Boykoff and Boykoff (2004) indicate that press coverage around climate change among national newspapers in the US has the effect of misleading the public. Specifically, it was argued that the “journalistic norm of balance”, in which exposure is afforded to both parties in the climate change debate, has resulted in “biased” depictions of knowledge on climate change (Boykoff & Boykoff, 2004: 114). As a result, their study shows, excessive exposure is afforded to articles that deny the anthropogenic nature of climate change as well as its scientific provability (Boykoff & Boykoff, 2004). From the 3543 articles examined, published in newspapers such as *The New York Times*, *The Washington Post* and the *Wall Street Journal*, it was found that only 6% of climate change-related articles directly associate the cause of climate change with human activities, while the rest convey the image of scientific uncertainty in relation to the question of climate change. To summarize their study, Boykoff and Boykoff (2004) succinctly note that:

adherence to the norm of balanced reporting leads to informationally biased coverage of global warming. This bias, hidden behind the veil of journalistic balance, creates both discursive and real political space for the U.S government to shirk responsibility and delay action regarding global warming (Boykoff & Boykoff, 2004: 134).

In another study, Antilla (2005) provides an analysis of the frames of perspective constructed by wire services and newspapers in the U.S. Hereby, an emergent contrast between the media-generated image of uncertainty on the one hand, and the increasing amount of consensus within the scientific community itself on the other, is illustrated (Antilla, 2005). Similarly, Carvalho (2007: 238) analyses “critical discourse moments” in the history of Britain’s reporting on climate change. He describes how, during the release of IPCC reports, *The Times* newspaper was significantly influential in discrediting the “greenhouse effect” and its ties to human causation. In contrast, newspapers

such as *The Guardian* and to an extent *The Independent* portrayed a more accurate representation of the consensus around anthropogenic climate change within the scientific community (Carvalho, 2007: 238).

Ultimately, when looking at the media's role in communicating climate change, it can be argued that media sources such as newspapers can have a definitive impact on the public perception and understanding of scientific issues such as climate change. Furthermore, by means of discursive mechanisms, they are capable of constructing "fields of action and fields of inaction" in relation thereto (Carvalho, 2007: 239). This further illustrates the "crucial cross-insemination between the normative and the descriptive, or the axiological and epistemological in the media's discursive reconstruction of science" (Carvalho, 2007: 239). The fundamental link to ideology must also be kept in mind here, in that any media attention given to a specific scientific claim is arguably derived from and capable of upholding a certain ideology (Carvalho, 2007).

2.5 The role of think tanks

In looking at think tanks specifically, Dunlap and Jacques (2013: 701) point out that they have long been acknowledged as the organizational base of the conservative movement, and that they have "taken the lead" in manufacturing uncertainty around climate change science. Crucially, when observing conservative think tanks (CTTs) and their pivotal role in publicly denying climate change, they must be analysed against the backdrop of the theory around "counter-movements" (Jacques *et al.*, 2008). Arguably, it is within this domain of "counter-movements" that the social movement of climate change denialism began, and in which research and discourse surrounding the phenomenon started to increase (Stefancic & Delgado, 1996).

When looking at the conservative counter-movement specifically, defined by Lo (1982: 182) as the "new right", it can be understood as a "general social movement whose leaders link single-issue campaigns with consistent

conservative ideology: free markets, anti-communism and social conservatism". When analysing CTTs within this framework, they can be understood as "non-profit, public policy research and advocacy organizations that promote core conservative ideals such as 'free enterprise', 'private property rights', 'limited government' and 'national defence'" (Schumaker, Kiel & Heilke, 1997| Austin, 2002: 79). The impact of CTTs can be traced back to the 1970s, when they were originally launched as an "institutional answer" by American business leaders who experienced increasing fears of "creeping socialism" (Austin, 2002: 79). The strategy employed was of facilitating an activist "counter-intelligentsia" which would be capable of conducting an effective "war of ideas" against those in support of government campaigns that had the objective of mitigating certain social issues such as poverty (Austin, 2002; Jacques *et al.*, 2008: 355).

In looking at the efforts of CTTs to this point, it can be argued that what started off as a project of counteracting the "liberal underpinnings of governmental programmes and the progressive social movements of the 1960s and 1970s" has become an extremely successful endeavour (Jacques *et al.*, 2008: 356). In further analysing this success, it has been suggested that think tanks have "flourished" to such a considerable extent in the US specifically, as a result of the "permeability" of its bureaucratic elites, its "relatively weak" political parties and the separation of power between administrative and congressional branches (Jacques *et al.*, 2008: 356; Weaver, 1989). In other words, the intersection between large corporations, political parties and the culture of "lobbying" provides the space for political think tanks, who are often funded by industrial giants such as Shell or Exxon Mobil, such as in the case of climate change denial (Jacques *et al.*, 2008).

Jacques *et al.* (2008) note how CTTs have achieved the status of an "alternate academia" in that they are treated as credible sources by the media, while their representatives are treated as "independent experts on policy-relevant issues". In terms of their methods and strategies, it has been highlighted how CTTs employ personnel, both in-house and commissioned, to create and publish large amounts of print material in the form of op-eds, policy

briefs, magazine articles and books (McCright & Dunlap, 2000). Over 20 years ago, Allen (1992: 104) firmly expressed that:

Over the past two decades, the volume of studies and analyses produced by the major conservative policy-research institutions is staggering. Judging from the content of political debate in recent years, there can be little doubt that the cumulative effects of all these books, periodicals, and articles has been to alter significantly both public opinion and the agendas of political elites.

In 2008, a study was undertaken which analysed 141 English-language and environmental, climate-science sceptical books published between 1972 and 2005 (Jacques *et al.*, 2008). The study found that 92 per cent of these books, the majority of which were published in the US, were directly linked to CTTs (Jacques *et al.*, 2008). Furthermore, upon analysing CTTs themselves, particularly those involved with environmental issues, it was found that “90 per cent of them espouse environmental scepticism” (Jacques *et al.*, 2008: 356).

Furthermore, through media appearances, public speeches and congressional testimonies, CTTs have ultimately been acknowledged to have a definitive impact on American policy-making and politics, influencing aspects of everyday life, from tax policies to the “fundamental framing of political debate” (Dunlap & Jacques, 2013). Within this political and public discourse arena, certain institutional actors function as key catalysts in pushing the agenda of climate science scepticism. Most notably, organizations such as The Heartland Institute, or the Marshall Institute in the United States, as well as the Institute of Public Affairs (IPA) in Australia, act as key drivers in the denialist agenda (Björnberg *et al.*, 2018).

Apart from the publications circulated by think tanks, Sharman (2014) analyses the role of online blogs in circulating climate science denialism. In her analysis, she notes that these types of denialist-fuelling blogs focus strongly on the scientific aspect of the climate change debate. As a result of this “overt scientific framing”, it is argued that the differences in political, ideological and ethical world views between the different parties are excluded, resulting in a further de-contextualisation and eschewing of the debate.

Furthermore, it has been shown how bloggers, “citizen scientists” and newspaper columnists make up what is known as the “conservative echo chamber” (Dunlap & Elsasser, 2013). Specifically, various studies have shown the considerable extent to which this “echo chamber” influences the public’s perception of climate change (Hoffman, 2011; Holliman, 2011; Knight & Greenberg, 2011). For example, in his analysis of the “Climategate” saga, where climate scientists’ emails from the Climate Research Unit at the University of East Anglia were released, Holliman (2011) illustrates the “vital role” played by bloggers in generating the notion of a “Climategate” in the first place. Similarly, it has been shown how conservative newspaper columnists, editorials and letters to the editor by climate change sceptics also have considerable impact in swaying the public’s perception on climate change in general, as well as climate science specifically (Hoffman, 2011; Holliman, 2011; Young, 2013).

2.6 Rhetoric and Climate Change Communication

In looking at studies relating to climate change denial as a discursive practice, the paper “Doubt, Delay, and Discourse: Sceptics’ Strategies to Politicize Climate Change” published by Roper *et al.* (2016) in *Science Communication*, formulates a novel theoretical framework in terms of which the persuasive, discursive strategies against anthropogenic global warming and climate change can be analysed.

In creating such a framework, the authors combine Bordieu’s (1991) concept of social and political fields with the linguistic-cultural notion of articulation, as defined by Laclau and Mouffe (1985), Hall (1986) and Fairclough (1995). In understanding Bordieu’s (1991) ‘social and political fields’, the first can be understood as a “multidimensional construct”, in terms of which inhabitants are grouped according to shared interests, proximity and strength of interests. By means of a dialectic, constitutive process, it is noted how “shared interests produce shared discourses, and vice versa” (Roper *et al.*, 2016). Secondly, Bordieu’s (1991) “political field” can be understood as the arena in which an

intersection occurs between politicians, political interests and political agents (voters), with competition existing between politicians for the purpose of representing citizens within the social field. A central crux of Bordieu's (1991) argument is that political fields are arranged around "discursive poles" due to the "struggle between different political interests", typically understood as the conflict between "Left" and "Right" ideologies (Roper *et al.*, 2016: 273). In line with this, it is argued that "the closer to the discursive poles, the more contentious the discourse", due to the added degree of politicisation and polarisation (Roper *et al.*, 2016: 273). As argued by Bordieu (1991: 188):

The power of a discourse [in a political field] depends less on its intrinsic properties than on the mobilising power it exercises, that is, at least to some extent on the degree to which it is recognized by a numerous and powerful group that can recognize itself in it.

In line with the above position, it is argued that the process of identification occurs upon discourse resonating with people's particular, already-established and embedded beliefs (Bordieu, 1991). Depending on the scope of recognition and the degree of power and persuasion within particular discourse, then, it can logically be argued that when a large majority of people identify with a particular discourse, this discourse may become "common sense, and neutralized in the centre" (Roper *et al.*, 2016). Although it is common for multiple "common-sense" versions of an issue to exist within a social field, it is crucially noted that once these are placed in competition with one another, "they tend to be politicised rather than neutralised", thereby pushing such issues into the political sphere (Roper *et al.*, 2016: 783).

Crucially, political fields cannot operate independently from social fields, in that they require identification with the issues and discourse of groups within the social fields that they are attempting to represent. Thus, those with an interest in influencing a particular discussion within the political field require "the support of those from social fields (voters) on whom politicians depend" (Roper *et al.*, 2016: 784). In order to attract this support, and for the purpose of increasing identification with particular issues, the process of *articulation* is

utilised, whereby specific interests are “discursively aligned with popularly held views” (Roper *et al.*, 2016: 784).

Articulation can be better understood as a discursive practice in terms of which cultural meaning relating to phenomena is tied to other, established discourses (Grossberg, 1986; Laclau & Mouffe, 1985; Slack, 1996). Crucially, as noted by Roper *et al.* (2016: 783), the result of articulation is the facilitation of a “new, apparently unified, discourse made of distinct components that can make sense only under particular circumstances and yet can be put forward in an attempt to establish an authoritative explanation of the phenomenon”. In the process, discursive articulations lead to the construction of new domains of “common sense” that can hold significant power over other competing discourses (Roper *et al.*, 2016: 783).

In the context of climate change discourse, then, where it can be argued that public acceptance *ought to* exist in light of overwhelming scientific consensus, as well as the factual nature of the question as to whether the earth’s temperature is warming and what the causes are, it is evident that the process of discursive articulation, among others, is applied by sceptics to disrupt “common sense” surrounding the topic (Roper *et al.*, 2016). Hereby, in a somewhat paradoxical process, an alternative “common sense” is established “in opposition to the existing discourse” (Roper *et al.*, 2016: 274). Specifically, the argument is made that through the process of articulation, a primary communication strategy of climate change sceptics, the anthropogenic global warming thesis is constructed as highly contentious, resulting in the disruption of consensus and the stimulation of political debate, thereby delaying the process of decision-making (Roper *et al.*, 2016).

In further exploring the role of communication and rhetoric within the context of the climate change debate, it is vitally important to account for ‘communication politics’, whereby the argumentative and linguistic strategies applied by both sides of the debate have arguably definitive roles in influencing not only the outcome of the debate itself, but also the public’s perception in relation thereto (Knight & Greenberg, 2011). As put forward by

McCright & Dunlap (2010), the sceptic's cause has grown in the face of contradicting scientific evidence largely as a result of how the denialist movement has strategically communicated and framed its message.

In their analysis of 'adversarial framing' within the climate change debate, Knight and Greenberg (2011: 324) argue that climate change sceptics have framed their arguments in such a way that they have succeeded in making their cause "publicly visible, resonant and legitimate". According to the authors, the sceptic's message has employed and incorporated a considerable degree of adversarial framing, understood as the process of producing and reproducing "division, exclusion, and antagonism" (Knight & Greenberg, 2011: 324).

Broadly speaking, this rhetorical strategy of adversarial framing includes methods such as criticising, impugning, vilifying and stigmatizing the opposition party in a debate, thereby "bolstering" one's own cause by means of eroding and compromising the trustworthiness of one's opponent (Knight & Greenberg, 2011: 324). In the context of climate change, this strategy has practically consisted of "a willingness to attack climate scientists, environmentalists, politicians, journalists and other Anthropogenic Global Warming (AGW) realists as well as climate science" (Knight & Greenberg, 2011: 324). Specifically, climate change sceptics have adopted the strategy of attacking the motives, interests and professional practices of the scientific claims-makers, "as well as the validity of their claims" (Knight & Greenberg, 2011: 324).

As will later be explored, significant implications arise when analysing the effects of the argumentative and rhetorical strategies employed within the context of the climate change debate. For example, McCright and Dunlap (2000: 512) note that, when climate change denialists "rail against" climate change "realists", accusing them of exaggerating their views on climate change or "fear-mongering", the discourse itself becomes "more name-calling than actual scientific discussion". Thus, when looking at both sides of the debate (and not merely the denialist camp), it must be acknowledged that

“identity and tactics” are dangerous factors which result in the normalisation of *ad hominem* attacks in the form of name-calling, character assassination and finger-pointing as “weapons of struggle” (Knight & Greenberg, 2011: 327). Generally speaking, the risk exists that these rhetorical strategies will be used at the “expense” of debate over the genuinely substantive issues that ought to be considered (Knight & Greenberg, 2011: 328). This further raises the question of what effects and consequences arise as a result of climate science denial.

2.7 The Nature of Denialism

In the literature surrounding the psychological phenomenon of denial, Cohen (2001: 4) defines it as an “unconscious defence mechanism” existing primarily at an individual scale. Cohen (2001), however, also acknowledges that certain forms of strategic, public or political denial are “highly organised and calculated”. Science denial, on the other hand, is defined as “unwillingness to believe in existing scientific evidence” (Björnberg *et al.*, 2018). Despite this distinction, there are references throughout the literature to the categories of denial as identified by Cohen (2001). According to these, denial can exist either in the form of (1) literal denial, whereby the genuine assertion exists “that something did not happen or is not true” (Cohen, 2001: 7). Secondly, there exists the category of (2) interpretive denial, whereby “raw facts” are not denied, a different meaning is attributed to the facts in question compared to what others apparently see or believe (Cohen, 2001). Lastly, Cohen (2001) describes (3) implicative denial, which may be most relevant to the question of climate science scepticism or denial. With this form of denial, no attempts exist to deny facts or their “conventional interpretation” (Wyatt & Brisman, 2017). Rather, the “psychological, political or moral implications” of a fact are denied (Cohen, 2001). From an ontological perspective, implicative denial therefore does not constitute a refusal to acknowledge a certain reality, but rather a “denial of its significance or implications” (Wyatt & Brisman, 2017).

In looking at science denialism, specifically, as opposed to Cohen’s (2001) more general analysis of denial, reference is often made to Diethelm & McKee

(2008), who identify five characteristics or types of science denialism. Apart from the more obvious forms such as conspiracy theories and “outright logical fallacies”, these authors also identify strategies such as relying on fake experts or upholding impossible standards of what research can deliver, as well as selectively choosing and circulating articles that support their views (Björnberg *et al.*, 2018).

In further understanding the nature of denial within the sociological framework of climate change, Wyatt and Brisman (2017) emphasise that denial and scepticism, within the context of this debate, must be understood separately. The fundamental point is hereby raised that methodological scepticism, utilized routinely within scientific research and which practically manifests in the examining of assumptions and conclusion, is in fact one way of advancing science, and that it ought to be embraced. On the other hand, science denial can be understood as the “refusal to believe something no matter what the evidence” (Washington & Cook, 2011: 1; Wyatt & Brisman, 2017). Ultimately, the distinction lies in the positive, beneficial practice of scepticism *in* science, as opposed to scepticism *of* science. The latter, as noted by Washington & Cook, (2011: 1) often occurs because “it is fashionable and agrees with current dogma”.

Another important relationship to take note of when making sense of the specific aspect of climate change that is being denied, is that between ‘ignorance’ and ‘denial’ (Wyatt & Brisman, 2017). Proctor (2008), in arguing for ‘agnontology’, the study of ignorance, differentiates between “ignorance as native state (or resource), ignorance as lost realm (or selective choice), and ignorance as deliberately engineered and strategic ploy (or active construct)”. Ultimately, this last form of “deliberately engineered” ignorance fundamentally intersects with Cohen’s (2001) notion of ‘public’ or ‘organised’ denial. Proctor’s (2008) conception of ignorance as “deliberately engineered” furthermore coincides with Cohen’s (2001) notion of implicatory denial, in that both phenomena facilitate the same outcome. Specifically, both strategies result in the denial of “political, psychological, or moral implications” of a fact, rather than the fact itself (Cohen, 2001: 4).

2.8 The Effects of Climate Change Denial

As pointed out in the introduction of this thesis, the denial of climate change science has various implications, both concrete and ethical. Although these implications are explored more extensively within Chapters 5 and 6 of this thesis, it is worth highlighting the literature regarding the question of the effects of denialism.

At the level of public perception, civil discourse and public policy, the institutionalised denial of climate change, driven by the “denial machine” (see Chapter 1.1), results in the hampering of climate change mitigation efforts (Dunlap *et al.*, 2016a). Specifically, with regards to policy that could potentially ameliorate climate change, denial efforts by think tanks and other institutional actors result in the delay of policy action, as well as the more pervasive phenomenon of “inaction” within the context of decision-making (McCright & Dunlap, 2000). Climate change denial, as perpetuated by think tank institutions such as The Heartland Institute, has the effect of circulating doubt within the domain of civil discourse, in line with the phenomenon that only 49% of the American population is now “extremely” or “very sure” that anthropogenic climate change is indeed occurring.

In further assessing the implications of climate science denial, McCright and Dunlap (2000) point out that in the context of debate, pro-environmentalists who support the cause of climate change mitigation are burdened with the onus of convincing others (on individual, state and national levels) to proactively *change* their behaviours and in some instances, beliefs. On the other hand, climate change deniers “win with *inaction*” by avoiding to establish the facts of the matter and rather preventing efforts to counter climate change that may negatively affect their ideological and economic positions (McCright & Dunlap, 2000). Wyatt and Brisman (2017) point out how in the US, deniers have until now consistently won the debate by merely “fogging up the room enough” to prevent pro-environmental laws from being enacted, as opposed

to winning on argumentative merit. As a result, deniers have successfully sown the “seeds of doubt” about climate change, including its causes and consequences (South & Brisman, 2013).

In analysing the ethical implications of this denial, Wyatt and Brisman (2017: 31) note that by sacrificing “the needs of the larger society” in favour of “smaller, wealthy/elite social groups”, climate change deniers have in fact also jeopardized the scientific process as a whole, and have “placed the very definition of ‘science’ at stake”. Specifically, this “contempt for hard science” has transformed the contextual nature of science to now stand as “plural and open-ended” (Wyatt & Brisman, 2017: 31). Not only does the perception of science as a ‘dismissible endeavour’ put science as a whole under threat, it also poses the risk of derailing the means by which climate change may be mitigated, namely through innovation (in the form of science) (Wyatt & Brisman, 2017).

In the following chapters, I will elaborate on the themes highlighted in this literature review, focusing in Chapter 4 in particular on a critical discourse analysis of the rhetorical strategies used by the Heartland Institute to manufacture and spread climate change denialism. In Chapters 5 and 6, I will turn to the effects of these discursive strategies, highlighting their implications in relation to questions of ideology, power, truth and epistemology. Before doing this, however, I will devote Chapter 3 to a discussion of my methodology and research design.

Chapter 3: Methodology and Research Design

3.1 Introduction

This chapter sets out to provide insight into the research methodology, theoretical framework and research strategy employed in the chapters following. As outlined in the introduction of this thesis, the rationale of this research is to provide a detailed exposition of the discursive mechanisms employed by The Heartland Institute (hereafter ‘Heartland’ or ‘the Institute’), a leading think tank within the movement of climate change denial. In framing the context of this research, Heartland and its varying forms of discursive semiotic practices, particularly in the digital sphere, have been chosen as case study material and primary sources for this study due to its large sphere of influence. Not only does this selection narrow the scope of the study, it also emphasises the role of denialist discourse within the public sphere; a primary operating space for public policy think tanks.

In conducting the research at hand, the following three research questions are to be kept in mind for the sake of guiding the research:

- In analysing the content circulated by The Heartland Institute, what are their discursive and ideological strategies of climate scepticism in circulating climate change denial?
- How does The Heartland Institute use language to establish, justify and perpetuate claims that denialists have the final truth, and what is the role of right-wing ideology in this regard?
- What are the effects of this denialism in relation to the concepts of meaning, power, truth and epistemology?

3.2 Critical Discourse Analysis

3.2.1 Analytical Framework

In order to answer the research questions posed in this thesis, a critical discourse analysis (hereafter ‘CDA’) will be conducted against the theoretical backdrop of Thompson’s (1988) ‘depth hermeneutics’ approach, as outlined in the literature review, and in line with the analytical framework of Fairclough’s (1995) methodology for CDA. This analysis will cover several seminal texts published by Heartland.

Before outlining the methodology of CDA, a clear conception of what ‘discourse’ entails ought to be reached. In his renowned conception of discourse, Foucault (1972) notes that it ought to be understood as the collective sum of what language use entails, from the process of thought construction to identity perception, as well as action. Similarly, discourse can be understood as the organization and structuring of the manner in which something is talked about which “give[s] expression to the meanings and values of an institution” (Kress, 1989: 7). In doing so, discourse provides “descriptions, rules, permissions and prohibitions of social and individual action” (Kress, 1989: 7). In defining the scope and boundaries of the notion of discourse, it is worth noting that Fairclough (1993) extends the term to include semiotic practices within the framework of other semiotic modalities, from visual images to nonverbal movements. Parker (1989: 57) also defines texts as “delimited tissues of meaning which may be written, spoken or reproduced in any form that can be given an interpretative gloss”. Discourse thus refers not to language as simple conversation, but rather to everything that language use entails, including the active construction of thoughts, identities, and actions (Foucault 1972, 1980; Gee 2003; Kress 1985).

In moving onto the methodology of CDA itself, it is noted that despite CDA being a niche within the greater framework of discourse analysis, it still entails a variety of approaches that differ in methodology, theory, and areas of research interest (Fairclough, 2012). The methodology of critical discourse

analysis itself can be broken into three different theoretical and methodological approaches (Jahedi, Abdullah & Mukundan, 2014). Specifically, these varying approaches can be derived from CDA's three most prominent thinkers, namely Fairclough, Wodak⁵ and Van Dijk.⁶ For the sake of this thesis, Fairclough's (1995) three-dimensional framework for studying discourse will be the primary lens and tool of analysis.

Fairclough (1992), whose theoretical alignments lie in the domain of linguistics and sociolinguistics, perceives discourse as a "form of social practice", whereby a dialectical relationship between language and society is emphasised. Furthermore, Fairclough (1995) provides a three-dimensional framework for CDA. This approach, which will predominantly be applied in this thesis, entails the analysis of discourse as practice (the production, distribution and consumption of texts), discursive events (as moments of sociocultural practice), and the analysis of language texts themselves (written

⁵ Whereas Fairclough focuses on the connections between power, ideology and discourse, Wodak's (2001) approach to CDA can be deemed as a historical-discourse approach (Jahedi *et al.*, 2014). In terms hereof, discourses as linguistic and social practices can be perceived as "constituting non-discursive and discursive social practices and, at the same time, as being constituted by them" (Wodak, 2001: 66). Methodologically, Wodak's (2001) approach differs from Fairclough's in that she employs an interdisciplinary strategy of "triangulation", whereby historical, socio-political and linguistic perspectives are combined and compared with a range of context-dependent semiotic practices "within specific fields of social action" (Jahedi *et al.*, 2014: 31).

⁶ Van Dijk (1991) applies a socio-cognitive approach to discourse, whereby the micro-structure of language is connected to the macro-structure of society. In analysing notions of power, social inequality and dominance at a macro level, in conjunction with a micro-level approach to language use, communication and discourse, Van Dijk attempts to show how societal structures correlate to discourse structures by means of actors and their minds (Van Dijk, 1991). In applying this approach to media texts, for example, Van Dijk (1991) analyses the discursive reproduction of race and ethnic-relational inequality. Similarly, Van Dijk (2006: 364) strongly emphasises the role of manipulation in public discourse, whereby he, for example, assesses the rhetoric of Tony Blair's political persuasion in light of the principle that "manipulation is illegitimate in a democratic society, because it (re)produces or may reproduce, inequality".

or spoken). This approach has been selected due to its combined approach of interpretation at a micro-level (textual/linguistic analysis), meso-level (“level of discursive practice”) and at a macro-level (combining interdiscursive and intertextual elements) (Fairclough, 1995). Apart from being the most prevalent methodology in CDA research, this approach also facilitates the room to explore the language around climate change denial in a deep manner, further enabling the therein to be better acknowledged. With further regard to Fairclough’s (1992;1995) approach, it can be understood as analysis with text as a central focus, surrounded by two layers of context.⁷ The first layer of context is comprised of “interaction”, understood as “processes of meaning negotiation between the discourse participants”, whilst the second layer of context is comprised of “society’s institutional structures” (Angermuller, 2018: 14; Fairclough, 1992).

With this in mind, the methodology of CDA will be explored further, with emphasis on its fundamental principles and its practical application in Chapters 4 and 5.

3.2.2 Principles and Application

In outlining the fundamental principles of critical discourse analysis, as outlined by Fairclough and Wodak (1997), the first principle can be understood as CDA’s focus on addressing social problems.⁸ In practically applying this to the case study at hand, this principle entails firstly identifying a ‘social problem’ from the researcher’s critical perspective. In the context of this thesis, this social problem is identified as the discursive strategies

⁷ According to Fairclough (1992), “text” is broadly defined as the oral and/or written manifestations of language.

⁸ It is worth noting that the general endeavour of understanding discourse in relation to social problems and practices stems from the broad perspective of poststructuralism (Wood & Kroger, 2000). This intellectual movement, pioneered in French cultural analysis, history and philosophy (by, e.g. Derrida, Foucault), entails transcending the concern with the structure of language to account for a broad variety of features of language use, such as its ties to ideology (Wood & Kroger, 2000).

employed by Heartland, which are effectively utilised for the sake of circulating climate change denial on a public scale. The ‘problematic’ aspect of this discourse lies in the fact that it hampers efforts of climate change mitigation by perpetuating “inaction” in the form of doubt, specifically in the context of civil discourse, as well as public policy.⁹

Furthermore, it is noted in this approach how a dialectical relationship exists between discourse and society, whereby discourse directly constitutes society and culture, whilst also being shaped directly by them (Wodak & Fairclough, 1997). In line with these fundamental principles, it is also argued that discourse is not neutral in terms of its positioning, in that it is inherently tied to or bound by ideology (keeping in mind Thompson’s (1988) definition of ideology, as outlined in the previous chapter). Crucially, discourse must also be viewed as being historically situated. As argued by Wodak and Fairclough (1997: 276), “discourse is not produced without context and cannot be understood without taking the context into consideration”. In the beginning of the analysis in Chapter 4, the context in which Heartland’s texts are produced and circulated will be analysed in order to account for this consideration. Furthermore, this contextual framing (see 4.1) will be continuously examined throughout the analysis, since it plays a pivotal role in informing the interdiscursive linkages between the various texts of Heartland that will be analysed.

In further making sense of discourse, CDA posits that the link between text and society is mediated, enabling connections to be made between “social and cultural processes on the one hand, and properties of text on the other” (Fairclough & Wodak, 1997: 277). Practically, this principle manifests throughout the analysis in this thesis in the form of highlighting intertextual and interdiscursive linkages between different texts and actors within Heartland’s sphere of influence and network of practices.

⁹ As put forward in Chapter 1, this is based on the position of being politically neutral while working from the assumption that climate change is real. In other words, I accept climate change as a scientific fact, established independently of political considerations.

Finally, a fundamental principle underlying CDA is the notion that power relations are inherently discursive, in that such relations are constructed and played out by means of interaction in the form of discourse (Wodak & Fairclough, 1997). This is fundamentally tied to the notion that language (and discourse) are both inherently tied to ideology, and that ideology has a direct relation to power (Thompson, 1988). In Chapter 5 of this thesis (Findings and Discussion), a more detailed analysis of the relevant power dynamics around climate change denial will take place, with a particular emphasis on the power relations between Heartland and the IPCC.

In summary, the research in this thesis can therefore be understood as being primarily concerned with the analysis of “opaque as well as transparent structural relationships of dominance, discrimination, power and control as manifested in language” (Wodak & Meyer, 2008). Crucially, this ought to be understood against the backdrop of Habermas’s (1967: 259) claim that language also constitutes a medium of domination and social force, in that it enables the perpetuation and legitimization of organized power relations. In Chapter 5 of this thesis (Findings and Discussion), in light of the analysis conducted in Chapter 4, it will be argued that Heartland’s discourse represents a struggle to preserve the dominant core social values of a capitalist society.

3.3 Domain of Analysis

In presenting one of the central arguments of this thesis, namely that particular linguistic and rhetorical strategies are employed to promote climate change scepticism at a public scale for the sake of upholding a particular ideology and worldview, Heartland will be used as a primary case study. Specifically, a critical discourse analysis (CDA) of several of Heartland’s seminal texts will be conducted at various *horizontal and vertical levels* (Verschueren, 2011). Horizontal variation in this regard refers to *genre differences*, in terms of which Heartland’s texts will be selected based on

genre differences at journalistic, political, educational, written and oral tiers, and in line with their mainstream character and prominence within the public sphere. The broadening of the genre-scope serves the purpose of avoiding generalised conclusions and relating the analysis to wider society, whereas restricting the investigation to one specific genre may lead to encountering genre-specific idiosyncrasies (Verschueren, 2011).

Furthermore, the discourse analysis will occur in line with *vertical variation*, whereby different structural levels of analysis will be distinguished.

Specifically, Heartland's discursive practices will be analysed in line with different tiers of structural depth: patterns of word choice, presupposition- and implication-carrying constructions, and argumentative patterns (framing, articulation etc.).

To answer the research questions posed in this thesis, the critical discourse analysis will be conducted on various seminal texts by The Heartland Institute. This will firstly entail an overview of Heartland's general discourse, its history as a think tank, as well as its other spheres of influence; such as tobacco regulation, education, and healthcare. Thereafter, a text by Heartland titled 'The Global Warming Crisis is Over' (2015) will be analysed, as well as a Fox News (media) appearance by Heartland's former CEO, Joseph Bast (2013). Finally, one of Heartland's leading books, titled *Why Scientists Disagree about Global Warming* (Idso, Carter & Singer, 2015), will be analysed.

3.3.1 Why The Heartland Institute?

The Chicago-based think tank is arguably a forerunner in the domain of climate change denial and scepticism, and the extent of the organization's prominence has been illustrated in various studies (Dunlap & Elsasser, 2013; Dunlap & Jacques, 2013; Jacques *et al.*, 2008). Apart from its own agenda and project of circulating climate change scepticism, Heartland has a vast sphere of influence in the context of the climate change debate as a whole. It provides funding to certain institutions and organizations in the US and in

other parts of the world, such as the ‘New Zealand Climate Science Coalition’ to also engage in policy discussions around climate change and adopt similar political positions in relation thereto (Roper *et al.*, 2014). Furthermore, the Institute organizes, funds and partakes in a climate science conference each year, whereby active leaders within the realm of the ‘denialist machine’ are invited to speak at the event (Klein, 2014; The Heartland Institute, 2018).

Crucially, The Heartland Institute is also a pivotal project leader and funding source for organizations such as the *Nongovernmental International Panel on Climate Change (NIPCC)*, a “panel of nongovernment scientists and scholars” that directly challenge the IPCC. Apart from this and the books, reports and articles published by The Heartland Institute on a regular basis, in terms of which a broader range of political and economic topics are dealt with, the organization also runs a campaign and website titled *Climate Change Reconsidered*, on which NIPCC reports are released, and in terms of which educational campaigns are promoted within the schooling system and for the sake of the media circulation (The Heartland Institute, 2009). Heartland can therefore be perceived as an ‘umbrella organization’ within the context of climate change denial in the US, and to an extent within the global sphere of climate change denial discourse. Nevertheless, it is important to note that Heartland does not represent the entire agenda of climate change scepticism or denial, and that this analysis does not seek to make such a generalisation or extrapolation. Rather, it can be argued that Heartland, as a political force in its own right, can be studied as a catalyst of climate change denial, whereby it plays a pivotal role in the circulation of this denial. Thus, even in light of the acknowledgment that the rhetorical and linguistic strategies employed by Heartland do not necessarily represent other denialist think tanks or the greater movement of climate change denialism, it is argued that the Institute’s activity and significant sphere of influence within the climate change debate warrants that they are the primary case study for the purpose of this research.

Therefore, in line with this conception of Heartland as an umbrella organization within the “denialist machine”, it has been selected as the focal

case study for the purposes of this CDA in line with the following criteria for selection:

3.3.2 Prominence

On its own website, Heartland boldly displays a quote by *The Economist* that reads “The Heartland Institute [is] the world’s most prominent think tank supporting scepticism about man-made climate change” (The Heartland Institute, 2018). Furthermore, a range of statistics that shed light on the organization’s reach and footprint are displayed on Heartland’s website. According to this, Heartland’s podcasts were downloaded 2.4 million times in 2017, whilst 184 weekly e-newsletter were sent to subscribers across the US. Furthermore, it is emphasised how in total, the organization has hosted, attended, or spoken at 91 events, with a guest reach of 14.771 people (The Heartland Institute, 2018). In 2017, Heartland’s spokespersons appeared in print and on television or radio 4.700 times, with a combined print circulation of 103 million readers (The Heartland Institute, 2018). Online, Heartland hosts a total of 15 websites, cumulatively generating (on average) more than 1.4 million page views per year (The Heartland Institute, 2018). Lastly, and in the context of the same online/digital sphere, The Heartland Institute has a fan-reach on Facebook of over 100 000 fans, with a posting and reposting rate of over 1 million a week (The Heartland Institute, 2018).

These statistics detailing the range of Heartland’s public discourse clearly illustrate its use of digital and social media to spread climate change denial, as well as its “non-direct” engagement with its adversaries (e.g. the IPCC) in doing so.

In further assessing the Institute’s prominence, it is worth highlighting that in the literature surrounding the notion of climate change denial, the extent of Heartland’s prominence as a political and social force within the context of the debate becomes evident. In 2010, Oreskes and Conway (2010) refer specifically to Heartland in their book *Merchants of Doubt: How a handful of scientists obscured the truth on issues from tobacco smoke to global*

warming. In this book, the authors note that Heartland is known for “its persistent questioning of climate science, for its promotion of ‘experts’ who have done little, if any, peer-reviewed climate research, and for its sponsorship of a conference in New York City in 2009 alleging that the scientific community’s work on global warming is fake” (Oreskes & Conway, 2010: 233). Similarly, in her book *This Changes Everything*, Naomi Klein (2014) also devotes a significant portion thereof to discuss her experience at Heartland’s annual conference. Furthermore, Heartland is identified in *The Oxford Handbook of Climate Change and Society* as a conservative think tank that shows strong interest in issues relating to climate change and the environment (Dryzek *et al.*, 2012: 149). Finally, in their analysis of climate change denialist books and think tanks, Dunlap and Jacques (2013) note how Heartland has surfaced as a leading force in climate change denial, specifically since 2003.

3.3.3 Intended Audience

As put forward by Koopmans (2004), social movements and political authorities no longer confront each other in a direct manner. Rather, he points out, such encounters occur within “the arena of the mass media public sphere” (Koopmans, 2004: 3). In selecting a body of analysis for the sake of a CDA, it is thus important that the selected discourse has a far-reaching scope of relevance within the public sphere, specifically within the context of the media, policy- and decision-making, and civil discourse.

According to Joseph L. Bast, Heartland’s President, the primary audiences of the Institute consist of the US’s “8300 state and national elected officials and approximately 8400 local government officials” (The Heartland Institute, 2009). In line herewith, Bast notes how, based on a nation-wide survey of state elected officials, 85% of them have read at least one Heartland publication, whilst “nearly half of state elected officials say a Heartland publication influenced their opinions that led to a change in public policy” (The Heartland Institute, 2009). Finally, Bast posits that Heartland’s website is the

“clearinghouse” for the work of 350 other think tanks and advocacy groups (The Heartland Institute, 2009). Whether these claims are entirely accurate or not, it is evident that Heartland’s agenda is to engage directly with and influence public policy makers. In the context of climate change, then, whereby policy makers have a significant degree of influence in the mitigation (or lack thereof) of greenhouse gas emissions, the ‘intended audience’ of Heartland is critical within the context of the debate.

...

Against the backdrop of these methodological considerations, then, we can proceed in Chapter 4 with the critical discourse analysis of a number of Heartland’s seminal texts, taking into account the different tiers, or levels of depth, on which this analysis can be conducted.

Chapter 4: Critical Discourse Analysis

So far, this thesis has consisted of an introduction to the issue of climate change denialism, as well as a summary and overview of the existing literature surrounding this topic. Furthermore, the methodology of the ensuing discourse analysis has been delineated, with specific attention to the applicable theoretical framework and domain of analysis. The following chapter will consist of the CDA itself, whereby various texts by Heartland that exemplify their denial of climate change will be analysed (see 3.3). Following the textual analysis in this chapter, the chapter following, namely Chapter 5 ('Findings and Discussion') will consist of a summary of the CDA, as well as a more in-depth exploration of various questions that arise in light of the CDA, such as how key phenomena (truth, meaning, ideology and power) are affected in light of the CDA's outcome.

The analysis of Heartland's texts will be conducted as follows:

After a contextual framing and broad analysis of Heartland's history and political stances in relation to questions of healthcare, education and tobacco regulation, the first text to be analysed (regarding the Institute's climate change denial) is a two-page summary for policy makers called "The Global Warming Crisis is over". The decision to analyse this text in particular, apart from the fact that it is a recent and concise introduction to Heartland's stance on climate change, is also based on its audience, as outlined above, as well as its widespread (online) accessibility.

Thereafter, a media appearance (in video format) of Joseph Bast, Heartland's former CEO and director, will be analysed in line with the methodological principle that a degree of genre variability ought to exist in relation to a body of texts subject to an analysis (Fairclough, 1995). This is against the backdrop of a domain of analysis that incorporates Heartland's texts from different horizontal genres, including written text and oral speech.

Lastly, Heartland's book *Why Scientists Disagree about Global Warming* will be analysed. In illustrating the basis for choosing this text, the other texts

analysed in this chapter so far ought to be kept in mind, whereby a central thread is emergent in Heartland's rhetoric of climate change denial, specifically attacking the notion of scientific consensus within the context of the debate. Based on the title of this text, namely *Why Scientists Disagree about Global Warming*, as well as its central mandate of disrupting the notion that scientific consensus exists in relation to anthropogenic climate change, it is a suitable text for the purposes of this analysis.

This text has also been chosen for this analysis in that it provides insight into the arguments employed by Heartland (and the NIPCC) at a deeper, purportedly 'scientific' level, whereby the authors attempt to empirically illustrate the lack of consensus relating to anthropogenic climate change. Thus, in terms of the CDA being executed, the analysis of this text attempts to take the study beyond only analysing Heartland's discourse at an interactional level (such as the analysis of Heartland's media appearance on Fox News, or their rhetoric employed in the two-page summary "The Global Warming Crisis is Over"). For the sake of brevity, and because *Why Scientists Disagree about Global Warming* is over 100 pages long, specifically its chapter focusing on the question of scientific consensus will be analysed, in that this arguably forms the crux of the book, as well as being one of Heartland's most important discursive messages.

In terms of the structure of analysis, each text will be approached with the following steps, keeping in mind Fairclough's (1995) three-tiered framework for discourse analysis (see Chapter 3.2):

- Broad overview of the text's context and intended audience;
- Analysis of the text's structure and content;
- Analysis of employed rhetorical strategies and their effects.
- Assessment of inter-discursive links between texts and how they reinforce a discursive order.

Regarding this structure, it ought to be kept in mind that the process of analysis will be an iterative and cross-sectional one, meaning that the above-

outlined steps will be repeated for each text, whilst the precise order of steps may vary, intersect, and overlap.

4.1 Framing the context: A social problem in its semiotic aspect

In line with Fairclough's (1995) analytical framework for conducting a CDA, as outlined in the previous chapter, a social problem ought first to be taken as a starting point for conducting such research. Crucially, the methodology dictates that this social problem ought to be identified from the researcher's critical point of view. In this case, therefore, the social problem consists of particular discursive strategies that Heartland employs in order to circulate the denial of climate change at a public scale. The "problematic" aspect of this discourse lies in the fact that it hampers efforts of climate change mitigation by perpetuating "inaction" in the form of doubt, specifically in the context of civil discourse, as well as public policy.¹⁰ In other words, denialist discourse surrounding climate change plays a large role in influencing people's opinions in relation thereto, specifically regarding whether they believe it is anthropogenic or not, and whether they believe it is worth addressing in an actionable form.¹¹

The political notion of public policy is of crucial importance in this context, in that action relating to policy change is arguably the crux of the climate change debate as a whole, often acting as a key motivational factor in determining a person or organization's alliance either to the 'denialist' camp or to the 'realist' camp (Dunlap *et al.*, 2016). Within the framework of political philosophy, this therefore relates to a more fundamental, underlying question; namely, to what degree environment protection ought to be regulated. Conversely, the question can be framed as, "to what degree ought economic markets be

¹⁰ In this regard, an indirect effort to perpetuate climate change and environmental degradation can be understood as a social problem in that from a scientific point of view, such phenomena pose detrimental and significant threats to the greater wellbeing and longevity of our global society (IPCC, 2014a)

¹¹ Action hereby translates to changes in public policy that aim to mitigate environmental degradation, as well as to a change in consumer practices that are more environmentally sustainable.

interfered with for the sake of regulating and preserving the environment?”. In light of this fundamental question and the social problem of climate change denial, as described above, it is crucial to better understand the historic and political positioning of Heartland.

In line with Fairclough’s (1995) conception thereof, an intertextual analysis will hereby be employed while analysing Heartland’s discursive approaches at a socio-historical level (Thompson, 1988), and in line with several of its other fields of interest (not necessarily relating to climate change). By means of this intertextual analysis, in conjunction with a general outlining of Heartland’s history and political positioning, the context will be framed for a more in-depth analysis of Heartland’s discourse relating to climate change in particular.

4.1.1 Heartland’s Role as a Think Tank

When discussing the notion of context within a CDA approach, it can be understood as a reference to what is “with” a text (Wood & Kroger, 2000). Specifically, context in this regard can be defined as “what occurs before and after a specified word or passage or the situational background or environment relevant to something happening” (Wood & Kroger, 2000: 135). With this in mind, and when framing the context within which Heartland circulates denialist discourse relating to climate change, it is important to firstly understand the Institute’s role as a think tank, and what this may mean in light of the Institute’s sphere of influence. In a study titled ‘Measuring the Influence of Think Tanks’, Weidenbaum (2010: 134) notes how the impact of think tanks cannot precisely be measured in quantitative terms, but that within the US context specifically, major think tanks (including Heartland) have “earned an important presence in the Washington policy community”. Despite lacking a more concise conclusion in this regard, Weidenbaum (2010) notes how think tanks are important sources of information to “the media, the government, and to a host of private interest groups, all of whom are involved in the public policy process” (Weidenbaum, 2010: 135). The study furthermore concluded that, as a result of the active think tank sphere that exists within the context of Washington-based policymaking in the US, there is a “very lively

competition of ideas and methodology in the public policy arena” (Weidenbaum, 2010: 135). This is evident in the case of the climate change debate.

4.1.2 History of The Heartland Institute

Heartland was founded in April 1984 by Dave Padden, Jim Johnston and Scott Hodge (Bast, 2016). According to its first publication, the organization’s mission statement was to “solicit, edit, and promote free-market research and commentary on public policy issues specific to Illinois and Chicago” (Bast, 2016). Before founding Heartland, Padden had worked as a director for the Cato Institute, another think tank that plays a prominent role in promoting libertarian principles. In its founding year, Joseph Bast was appointed as a director for the Institute, and acted as the CEO and president up until January 2018 (The Heartland Institute, 2018). With initial outputs consisting of policy studies, op-eds, small events and occasional book publications, Bast (2016: 2) notes in “History of The Heartland Institute” how one of their first successes included the “partial deregulation of taxicabs in Chicago”. In describing the organization’s early growth trajectory, Bast (2016: 2) highlights how things could have been done differently “to be a more effective state-based think tank given the environment in which [they] found [them]selves”. For example, he states that they could have “moderated” their libertarian principles and moved to Springfield “where the legislative action was” (Bast, 2016: 2).

Crucially, however, he professes that:

Heartland’s leadership had little interest in being a moderate conservative Illinois think tank. The founders and directors were devout libertarians who didn’t want to compromise principles for effectiveness. They wanted to see their ideas actually change the world and not just appear on the op-ed pages of newspapers (Bast, 2016: 2).

In light of this positioning, it is evident that Heartland’s initial focus was not related to the environment. The notion of anthropogenic global warming or climate change had not been a particularly important or even well-known topic during the 1980s. Rather, Heartland’s initial concern was to preserve, uphold and spread the fundamental principles of libertarianism, which Bast (2016)

strongly advocates for in his writing. This positioning is also portrayed in the scope of Heartland's other fields of interest and activity, as outlined below.

4.1.3 Tobacco regulation

Since Heartland's birth, the organization has been critical of the widely researched connections between lung cancer, cigarette smoke, secondhand smoke and the social costs of smoking (Tesler & Malone, 2010). During the 1990s, a partnership was formed between Heartland and Philip Morris Cigarettes, in terms of which the links between smoking and health risks were strongly questioned within the public sphere (Tesler & Malone, 2010). The nature of the partnership entailed that Heartland was commissioned to write, publish and distribute reports, as well as meet with legislators, produce op-eds and appear in radio interviews and off-the-record briefings (Roberts, 2012). In 1996, Heartland's president, Bast, published an essay titled "Joe Camel is Innocent", whereby he defended the tobacco industry in line with his argument that "smoking in moderation has few, if any, adverse health effects", an idea he promoted several years later in another paper titled "Five Lies about Tobacco" (Bast, 1996). In briefly analysing the discourse applied by Bast (1996) in his defence of "Joe Camel" (see Appendix A), it is interesting to note the highly politicised nature of Bast's argument. In framing tobacco in relation to political viewpoints, Bast (1996) for example notes:

Wills and Jennings also claim that FDA regulation of cigarettes is opposed by Republicans because they receive campaign contributions from the tobacco industry. But it is more likely that the campaign contributions go to Republicans because they have been leading the fight against the use of "junk science" by the FDA and its evil twin, the Environmental Protection Agency (EPA) (Bast, 1996: 1).

And

After all, what is more believable: That these pols are born-again neo-Puritans, or that they are cynically using a public health controversy to score political points? (Bast, 1996: 2).

Immediately evident from this discourse is the antagonistic framing of "us" vs "them", whereby the overall strategy of positive self-representation and

negative “other-presentation” is employed (Van Dijk, 2006). This is portrayed in Bast’s reference to his opposition as “they”, particularly in the context of his accusation that a public health care controversy is being used “cynically” by democrats. Also evident is his strong demonization of the Environmental Protection Agency, which he deems to be the FDA’s “evil twin”, thereby framing the environmental and health regulatory bodies as being necessarily evil. Most importantly, it is worth noting how, in 1996 already, and in relation to scientific research attempting to portray the harmful consequences of tobacco smoke, Bast (1996) uses the phrase “junk science”, a term which later prominently appears in climate change debate.

4.1.4 Healthcare

Within the context of healthcare, a primary focal field of Heartland since its inception, free-market reforms are strongly advocated for. At the same time, federal control over the US’s healthcare system and industry is strongly opposed (The Heartland Institute, 2018). In 2010, for example, a 66 page book written by Peter Ferrara titled *The Obamacare Disaster*, which strongly criticised the Democrat-implemented public healthcare system, was published by Heartland. On Heartland’s website, to which a specific portion is dedicated to the topic of healthcare, the following argument is made in favour of healthcare reform:

The nation’s system of private competitive health care finance and delivery is under attack by activist elected officials, advocacy groups, over-zealous regulators, and some of the biggest foundations in the United States. No plan to regulate or subsidize health care seems to be too radical or extreme not to be taken seriously by reporters and policymakers. Many of these same activists are targeting food and beverage manufacturers, restaurants, and our food supply with lawsuits, regulation, and punitive taxation. (The Heartland Institute, 2018).

From a CDA perspective, it is clear how “the nation” is firstly personified in this discourse, in conjunction with the hyperbolized reference to it being “under attack”, implying the existence of a “war” in which Heartland’s envisioned

private healthcare system is a victim of attack. As a consequence of this metaphor, a highly complex relationship between the state and its citizens is simplified to a considerable degree, whilst certain categories and relationships which legitimize a certain kind of politics are constructed (Fairclough, 1995). In this case, the use of polarizing and militant language legitimises the further manifestation of polarizing and militant political practices and discursive dynamics, both at the level of political debate and civic discourse. Furthermore, it is interesting to note how Heartland's opposition within the context of this debate, namely those in favour of a public healthcare system, are radicalised in their portrayal as "activists". The analogy of war is again utilised when it is noted how a process of "targeting" takes place on behalf of the "activists", whereby they are figuratively portrayed as hunting down "beverage manufacturers, restaurants, and our food supply". (The Heartland Institute, 2018).

Lastly, in this example, it is worth noting how reference is made to "our" food supply, thereby resulting in the discursive polarization between "us" and "them" on the one hand, and the tacit invitation for American readers (the Website's target audience) to feel patriotically aligned as co-owners of "our" (their) food supply. In other words, the audience of readers is being called upon as "soldiers" to take up arms in the "fight" against the "enemy" that threatens their particular worldview, lifestyle or political ideology.

4.1.5 Education

As a think tank on various types of policy-related issues, Heartland is also prominent within the domain of education. For example, Heartland strongly advocates for increased availability of education tax credits for private school attendance, as well as more (public) "charter" schools. These are government-funded schools that run independently of the state's school system in which they are located (The Heartland Institute, 2018). In terms of their activities within the education space, Heartland publishes monthly issues of a newspaper titled 'School Reform News', which analyses policy issues

relating to schooling and education from a ‘reformist’ perspective, encouraging the privatization of certain schooling aspects. In the ‘education’ sub-section of their website, Heartland has a large title reading “The Need to Transform Schools” (see Appendix A), below which the following is stated:

Education has been a high priority for Americans since the first settlers arrived here. The Founding Fathers thought a free society would be impossible without an educated population. Thomas Jefferson, our third president, said: “If a nation expects to be ignorant and free, in a state of civilization, it expects what never was and never will be.

Today about nine of every 10 students attend schools that are owned, operated, and staffed by government employees. About 70 percent of the teachers in those schools belong to unions, working under workplace rules that frustrate the best and brightest while protecting incompetent and even dangerous teachers. (The Heartland Institute, 2018)

Within the framework of CDA, it is important to note how Heartland introduces the notion of education in light of fundamental American values, as constructed by “The Founding Fathers”. Similarly, a quote by Thomas Jefferson, a figurative, symbolic and historical bearer of American patriotism, is utilised in providing context to the question of education. Discursively, this can be interpreted as an appeal to America’s foundational values, thus intentionally inciting a feeling of both patriotic and ideological affiliation. Thereafter, in framing the need for transformation, reference is made to “incompetent and even dangerous teachers” within the context of the current school system.

Underneath a sub-heading within this text, titled “How to Transform K-12 Education”, Heartland states the following:

The Heartland Institute focuses on reform ideas that can transform rather than merely reform K-12 schools. Three specific reforms we support are repealing and replacing Common Core State Standards, expanding education choice, and repealing bigoted Blaine Amendments” (The Heartland Institute, 2018).

In light of this discourse, it is evident that Heartland desired a distinct degree of independence within the context of the American schooling system.

‘Common Core State Standards’, which the Institute seeks to have repealed or replaced, relate to the educational details that should be known by students by the end of an academic year within the context of certain subjects (Mathis, 2010). Similarly, Blaine Amendments, which Heartland deems as being “bigoted”, relate to the constitutional enactment in 38 of America’s 50 states that restrict or ban government funding to schools that have a religious affiliation (Green, 1992).

4.1.6 In Summary: Heartland’s Political Positioning

Apart from the political stances mentioned above, Heartland also dedicates “topics” on its website and within its domain of activity to questions of criminal justice, employment, immigration and constitutional reform (The Heartland Institute, 2018). However, in light of the three fields of interest outlined above, namely, tobacco regulation, healthcare and education, the scope of Heartland’s political positioning has sufficiently been demonstrated for the purpose of providing a contextual framing in leading up to the analysis of Heartland’s climate change discourse in particular. Crucially, this contextual framing informs the argument made in this thesis, namely that Heartland’s climate change denial is driven by political ideology as opposed to scientific understanding. Simultaneously, it illustrates, even in advance, the function that intertextuality serves in light of the overall argument (Wodak & Fairclough, 1997). In other words, intertextuality illustrates the consistency in ideological underpinnings across the different texts and genres

Based on Heartland’s stances on questions such as tobacco regulation, healthcare and education reform, it is evident that a relatively consistent thread runs through this discourse, namely that of conservative, right-wing political and economic libertarianism. In terms hereof, a free-market approach is advocated for, whilst individual property rights form the foundation of this ideological stance (Schmidtz & Freeman, 2012). Other core values that are embodied by this worldview include:

(1) commitment to limited government, (2) support for free enterprise, (3) devotion to private property rights, (4) emphasis upon individualism, (5) fear of planning and support for the status quo, (6) faith in the efficacy of science and technology, (7) support for economic growth, and (8) faith in future abundance. (Dunlap, 1984)

This is evident in Heartland's strong advocacy for reform both in the healthcare and education sectors, whereby greater free-market influence is sought, in conjunction with the privatization of these sectors to a larger degree, affording actors greater individuality and capacity for self-governance. In looking at the homepage of their website, namely www.heartland.org, this stance is evident in Heartland's slogan underneath their name and logo, which reads "Freedom Rising" (The Heartland Institute, 2018). The relatively "extreme" degree to which Heartland leans in this libertarian direction is evident in the Institute's discursive framing of oppositional actors as purveyors of "junk science" (in the context of tobacco regulations), "activists" (in the context of healthcare) and "dangerous" (in the context of education). Similarly, the Institute's mission statement is boldly displayed at the top of their homepage, which reads that their mission is "to discover, develop, and promote free-market solutions to social and economic problems" (The Heartland Institute, 2018).

In moving towards the critical analysis of Heartland's discourse surrounding anthropogenic climate change and their overt denial thereof, their underlying political and ideological positioning, as outlined above, ought to be kept in mind. In light of Heartland's role as a think tank that aims to preserve and uphold fundamental, ideological principles of free-market libertarianism, as plainly expressed (Bast, 1996; Bast, 2016), their contribution to the climate change debate, including their critique of climate science as whole, must crucially be understood and interpreted in light of this contextual, socio-historical framing and political positioning.

4.1.7 The Post-truth discourse sphere

Before proceeding with the analysis, and in finalising the contextual frame within which the analysis will be conducted, a reference must be made to the discursive domain in which the analysed texts exist. In that Heartland's texts are circulated both online and within the discourse space of American politics, they ought to be framed against the backdrop of "post-truth politics".¹² Varying definitions exist for what exactly constitute post-truth dynamics, however, for the sake of this thesis, "post-truth" will be defined as a discourse space and culture in which objective facts are no longer definitive in determining the public opinion on a specific matter (Fuller, 2018). In terms of understanding how this phenomenon arose, its emergence can be attributed to various recent "mega-trends" in society (Lewandowsky, Ecker & Cook, 2017). Specifically, the emergence of post-truth social and political dynamics has been attributed to factors such as "a decline in social capital, growing economic inequality, increased [political] polarization, declining trust in science and an increasingly fractionated media landscape." (Lewandowsky *et al.*, 2017: abstract). The notion of post-truth is also particularly relevant in the context of social media platforms which have significantly stimulated the notion of *fake news* in the last decade. Fake news, understood within the context of post-truth politics, relates to the authenticity of information in both printed and digital media (Figueira & Oliveira, 2017). Specifically, based on the nature of social networks, information spreads at a rate that is fundamentally uncontrollable, often resulting in its distortion and inaccuracy, as well as the circulation of false information (Figueira & Oliveira, 2017).

¹² Although the role of post-truth dynamics will only be explored later in this thesis (see Chapter 5), it is worth tentatively highlighting that Heartland's discourse will be analysed in light of an epistemological backdrop that accounts for such dynamics.

4.2 Obstacles to the social problem being tackled

As outlined above, CDA research firstly entails outlining a social problem within its semiotic context, from the critical perspective of the researcher (Wodak & Fairclough, 1997; Wood & Kroger, 2000). In this case, the issue of climate change denial at a public scale persists, driven by institutions such as Heartland. As a result, climate change mitigation efforts are hampered to a significant degree (Dunlap & Jacques, 2013; McCright & Dunlap, 2000). In light of this social problem being defined and framed in terms of its political context, CDA methodology determines that it ought to be analysed in terms of the network of practices within which it located (Wodak & Fairclough, 1997).

Regarding Heartland's denial of climate change (viewed as a "social problem" through a CDA lens), it is argued that this network of practices consists of the public policy sphere within the US specifically, whereby Heartland attempts to influence policy-makers as well as voters by means of its publications, books, media appearances and campaigns. Specifically, Heartland attempts to advocate certain political positions and policy stances based on a fundamental, ideological positioning rooted in libertarianism and free-market principles. In light of this the "obstacle to the social problem" (Fairclough, 1995) can be understood as the persuasive element of Heartland's discourse, whereby the Institute has gained significant traction in circulating and fostering a culture of climate change denial within social, political and cultural contexts. This discourse (the semiosis itself) ought therefore to be analysed in greater detail at structural, interactional, interdiscursive and linguistic levels, as will be done below.

4.2.1 Heartland's Rhetoric of Climate Change Denial

Despite Heartland having a relatively large sphere of interest and influence in relation to public policy questions, ranging from education and healthcare, to tobacco use and constitutional reform, as outlined in the section above, the Institute's stance in relation to climate change has played a significant role in boosting its national and international prominence (Dryzek *et al.*, 2012).

Arguably, in light of climate change itself becoming an increasingly discussed phenomenon not only within the domain of global environmental discourse, but within the mainstream media and within scientific discourse as a whole, Heartland's agenda of refuting climate change "alarmism" has grown significantly, making it a key component of the Institute's work (The Heartland Institute, 2018).

4.2.2 Formation of the NIPCC

A suitable starting point for analysing Heartland's discourse around climate change is with its founding of the Nongovernmental International Panel on Climate Change (NIPCC). In light of the IPCC's historical positioning (see 1.2.2) and name, which stands for the Intergovernmental Panel on Climate Change, the NIPCC was formed as a direct opposition thereto, with the objective of "replacing the IPCC" (Climate Change Reconsidered, 2018).

Managed by Heartland and with its own separate web page (affiliated to Heartland's internet domain), titled Climatechangereconsidered.org, the NIPCC was formed in 2013 as a collaborative project between the Science and Environmental Policy Project (SEPP), the Centre for the Study of Carbon Dioxide and the Heartland Institute. In the "About" section of the NIPCC's website, the following is stated:

The NIPCC seeks to objectively analyse and interpret data and facts without conforming to any specific agenda. This organizational structure and purpose stand in contrast to those of the United Nations' Intergovernmental Panel on Climate Change (IPCC), which is government-sponsored, politically motivated, and predisposed to believing that climate change is a problem in need of a U.N. solution.

And

Because we are not predisposed to believe climate change is caused by human greenhouse gas emissions, we are able to look at evidence the Intergovernmental Panel on Climate Change (IPCC) ignores. Because we do not work for any governments, we are not biased toward the assumption that

greater government activity is necessary. (Climate Change Reconsidered, 2018).

From a CDA perspective, it is interesting to note how the NIPCC has framed its existence, predicated entirely on opposing the IPCC. Despite the claim of not conforming to any specific agenda, in light of this positioning it can be argued that the NIPCC's agenda is specifically to oppose the IPCC within a public discourse and policy framework. Worth noting in this regard is the use of words such as "predisposed", whereby the IPCC is presented as basing its scientific findings on pre-existing beliefs relating to the causes of climate change. Similarly, the NIPCC declares that, due to their independence from governments, the "biased" assumption that government activity is necessary falls away. In analysing this claim at a deeper level, it links to the assessment of Heartland's political positioning in the previous section of this thesis, where their underlying motives of preserving regulation-free markets are portrayed. Specifically, the ideological underpinnings of Heartland are hereby again revealed, where it can be argued that their primary concern relates not to the question of whether climate change is caused by human activity or not, but rather to the question of whether the state ought to intervene and regulate such activity.

At a structural and interactional level (which assesses institutions within their societal contexts and in terms of their activities, as opposed to just their discourses), the formation and existence of the NIPCC can itself be viewed as an obstacle to overcoming the "social problem" that is climate change denial perpetuated at a public scale (Wodak & Fairclough, 1997). The intentionally antagonistic title of the NIPCC, in conjunction with its objective of presenting evidence that the IPCC "ignores", discursively represents an "us" versus "them" or "David" versus "Goliath" rhetorical framing (Roper *et al.*, 2016). Specifically, the NIPCC positions itself as the IPCC's primary adversary within the scientific community and thereby as a legitimately established scientific organization that exists within the same "playing field" as the IPCC. In relation to scientific standards, peer review processes and the number of supporting

scientists and researchers, the NIPCC therefore frames itself as being equal (if not superior) to the IPCC. The difference in scale between the two organizations, where the IPCC consists of 831 researchers and the NIPCC of 50, clearly illustrates that this is not the case (IPCC, 2014). As a result of this framing, however, uncertainty in the public and policy-maker discourse spheres is stimulated, resulting in the more widely adopted uncertainty regarding the scientific consensus on climate change, as will later be explored.

To date, the NIPCC has published thirteen reports, ranging from its first “Climate Change Reconsidered” report in 2009, to a book titled “Why Scientists Disagree about Global Warming” (2015), amongst other publications (Climate Change Reconsidered, 2018). In positing the argument that the NIPCC positions itself as a direct and primary contender of the IPCC within a public sphere and within the scientific community, it is worth highlighting how in 2013, the NIPCC’s “Climate Change Reconsidered” report was published by Heartland in the two weeks leading up to the publication of the first sections of the fifth assessment report of the United Nations’ IPCC (IPCC, 2014a). This facilitated both a media scandal and general controversy relating to the IPCC’s report, prematurely denouncing it as illegitimate and filled with errors (Special Report with Bret Baier, 2013; Fox News, 2013).

Thus, when analysing Heartland’s denial strategies at a structural and interactional level (Wodak & Fairclough, 1997), in line with the primary research question of this thesis, it is argued that already at a surface level (in the context of names and titles and organizational positioning), a strong effort is made to frame climate change sceptics (NIPCC) in direct opposition to the climate change “alarmists” (IPCC).

Discursively, a strategy of polarization is thus utilised whereby the ideological rift between the IPCC and NIPCC is widened by means of the IPCC being vilified and denounced for its UN-affiliation and “bias” toward state regulation. Apart from the “Us vs. Them” framing mechanism that is utilised in this regard (Van Dijk, 2006: 378), it is also worth noting the degree to which the NIPCC

attempts to prove and bolster its own credibility in its 2013 report, in that this paradoxically shows a degree of illegitimacy inherent to the NIPCC. More specifically, the NIPCC shows attempts to validate its credibility not through the appraisal or acknowledgment of other research institutions or governing bodies, but through the discursive mechanism of vilifying its primary adversary, the IPCC, as will later be explored.

Overall, the formation of the NIPCC as the IPCC's counter-body illustrates the degree to which Heartland's strategies are grounded not merely in discourse and language, but also in actions and framing efforts at structural and interactional levels, in line with Wodak & Fairclough's (1997) conception.

4.3 “The Global Warming Crisis is Over”

In light of the way in which Heartland (and its NIPCC project) frames itself in relation to “alarmists” and the IPCC, an interdiscursive analysis of an online-circulated document by the NIPCC titled “The Global Warming Crisis Is Over” will be conducted,(see Appendix C) (The Heartland Institute, 2015). According to Heartland’s website, where this document is publically available, it serves as a one-page summary of the NIPCC’s 2013 and 2014 reports. In contextually framing the audience of this text, which consists of policy-makers, educators, and the general public, Heartland affords them a “quick” summary of the NIPCC’s findings (The Heartland Institute, 2015).

Underneath the stark title of the text, definitively stated as “The Global Warming Crisis is Over”, the following sentence is provided as an introduction:

Two major multi-volume reports on global warming were released in 2013 and so far in 2014, one by the United Nations’ Intergovernmental Panel on Climate Change (IPCC) and one by the Nongovernmental International Panel on Climate Change (NIPCC).

In applying an interdiscursive lens and interpreting this sentence in light of the interactional analysis provided above, it is evident how the NIPCC is framed by Heartland as the IPCC’s primary opponent within the public domain and

the scientific community (see 2.2.1). Specifically, in positing that “two major multi-volume reports on global warming exist”, with reference to the IPCC’s Fifth Assessment report (2014a) and the NIPCC’s “Climate Change Reconsidered” report (2014), the two texts are framed as being equivalent in kind, but in direct opposition to one another in terms of content. Thus, they are framed as existing within the same sphere of scientific credibility, scale and general relevance to the climate change debate. In assessing this implied claim and positioning, it is worth noting that despite the NIPCC’s persistent reference to the IPCC as its opposition, no reference is made in IPCC publications to the NIPCC or to any particular opposition body (IPCC, 2014a, 2018; NIPCC, 2014).

Following this introduction, the “Global Warming Crisis is Over” text continues with a foreword to the summary of scientific findings that are to be “exposed”, highlighting the NIPCC’s “international network of some 50 independent scientists from 15 countries”, who have constructed the “Climate Change Reconsidered” report (2014). In offering a summary of the NIPCC’s (2014) report, the following conclusions are presented in list format:

- There is no scientific consensus on the human role in climate change.
- Future warming due to human greenhouse gases will likely be much less than IPCC forecasts.
- Carbon dioxide has not caused weather to become more extreme, polar ice and sea ice to melt, or sea level rise to accelerate. These were all *false alarms*.
- The likely *benefits* of man-made global warming exceed the likely *costs*.
(The Heartland Institute, 2015).

In critically analysing this summary and the discourse it employs, its most striking feature ought to be highlighted first; namely the absolute and truth-claiming nature of the first sentence and bullet point. In plainly stating that “there is no scientific consensus on the human role in climate change”, the sentence becomes “closed” in nature. In analysing this sentence, it is absolute: presented as a factually sound and dominant truth. In line with this normative, truth-claiming nature, the sentence is not presented as an

argument, but rather as a matter of fact. Apart from the fact that this provides insight into the question of how truth-claims are made within the context of climate change denial, it is worth noting that this also has several epistemological implications which will be addressed in the following chapter, ‘Findings and Discussion’.

In looking at the third claim within the above list, namely that “Carbon dioxide has not caused weather to become more extreme...” and that “These were all *false alarms*” (The Heartland Institute, 2015), it is worth noting Heartland’s repetitive use of the same discursive strategy highlighted in the above example. Specifically, the sentence is formulated in such a way that the claim in question is absolute in nature, whereby it presents the sentence not as an argument but as a fact. As a result, it can be argued, the claim itself is perceived as irrefutable. Furthermore, this sentence is accusatory in nature, labelling “all” claims of the IPCC as “false alarms” (The Heartland Institute, 2015). Apart from denouncing a vast body of research and scientific understanding as mere “false alarms” and thereby blaming the IPCC for the public concern that arose relating to these claims, the sentence embraces a reconciliatory tone, whereby it posits the NIPCC and its counter-report as a bearer of good news. The image is thereby portrayed that scientific phenomena such as sea-level rise, melting ice caps and extreme weather fluctuations all fall within this “false alarm” category, and that there ought to be no worry or concern for both the public and policy-makers.

In further analysing “The Global Warming Crisis Is Over” text, another list-summary of the “Climate Change Reconsidered” report is provided, titled “Here is what this means for public policy”:

- Global warming is not a crisis. The threat was exaggerated.
- There is no need to reduce carbon dioxide emissions and no point in attempting to do so.
- It’s time to repeal unnecessary and expensive policies.
- Future policies should aim at fostering economic growth to adapt to natural climate change. (The Heartland Institute, 2015)

Regarding this discourse, it is again evident how Heartland frames itself as a conciliatory bearer of good news and allayer of fears: “Global warming is not a crisis. The threat was exaggerated”. From a CDA perspective, it must be highlighted how this claim is marked by traits of definitiveness, conclusiveness and absoluteness; implying an unquestionable finality on the question of climate change and global warming. Within the context of the climate change debate, this arguably has the effect of widening the rift between the two sides due to Heartland’s finality in making this claim and its polarizing consequences.

Crucially, this section of the text offers insight into a discursive pattern that has been alluded to within section 4.1 of this thesis, where Heartland’s political discourse was analysed in relation to the Institute’s other spheres of interests. Specifically, as highlighted in the title “Here is what this means for public policy”, Heartland’s discourse relating to the scientific aspect of the climate change debate (relating to future warming forecasts, the role of carbon dioxide etc.), can be interpreted as a precursor to the ultimately ideological arguments relating to the role of policy and regulation. In positing that “there is no need to reduce carbon dioxide emissions and no point in attempting to do so”, the implied argument is made that no regulation should exist in relation to the reduction of carbon dioxide emissions. This implication is made explicit in the next sentence, which argues that that “unnecessary and expensive policies” relating to global warming and climate change ought to be repealed, and that *all* such policies are by extension unnecessary and expensive (The Heartland Institute, 2015). Regarding Heartland’s final sentence about “future policies”, it further elucidates the pervasive role of economic and political ideology, in terms of which the Institute strongly advocates for free-market, libertarian principles. Specifically, the prescriptive suggestion is normatively laid out that future policies ought to foster “economic growth to adapt to natural climate change” (The Heartland Institute, 2015). Discursively, this sentence illustrates Heartland’s economic objectives (“growth” within a neo-liberal, free-market framework), whilst further presenting the notion of “natural climate change”. A common argument within the context of the climate change debate, the “natural climate change” notion

presents climate change as a purely natural phenomenon, thereby implicitly excluding the possibility of anthropogenic, human-induced climate change. This again represents the discursive strategies of absolute truth-claiming and antagonistic framing within the context of the debate.

Lastly, the final section of the “Global Warming Crisis is Over” text ought to be analysed, which asks “What about those who still say global warming is a crisis?”. In answering this, Heartland (2015) provides the following statements:

- The UN’s new report walks back nearly a dozen earlier claims, contains more than a dozen errors, and tries to cover up new discoveries that contradict its earlier claims.
- The Environmental Protection Agency (EPA) relies heavily on the UN’s reports for its finding that carbon dioxide is a pollutant. That finding is now falsified.
- Environmental groups refuse to admit they were wrong. It was never about the science for them.

In analysing this text, my objective is not to defend the “UN’s new report” (the 2014 IPCC report) based on questions of scientific merit. However, regarding Heartland’s first statement in this section, it is worth noting that the IPCC has addressed its changes in the “degree of certainty” to which they attribute climate change to anthropogenic factors within earlier and later reports (IPCC, 2014b). Specifically, in relation to the criticism that inconsistencies exist between the earlier and later discoveries made by the IPCC, such inconsistencies do not result in “contradictions” per se, but rather in developments within the science and research itself, in line with the standard scientific practice of building on and adapting research in line with new discoveries (Lahsen, 2013). Furthermore, on the question of the “errors” pointed out by Heartland (2015) in this text, it is worth taking into account that this reference links to relatively minor grammatical and/or linguistic errors, not necessarily relating to substance or factuality, and that the IPCC has strict protocols in place for dealing with such errors (IPCC, 2013).

In continuing the analysis of “The Global Warming Crisis is Over” text and its final section, the second bullet point relates to the Environmental Protection Agency’s (EPA’s) “finding” that carbon dioxide is a pollutant. In normatively declaring that this “finding is now falsified”, the NIPCC discursively elevates itself into a position of scientific authority, framing itself as a decisive body in declaring whether or not findings by the EPA are valid or in fact “falsified”. Apart from the truth-claiming nature of this declaration, as is evident in the rest of the text (highlighted above), this approach of denouncing the EPA’s finding as “falsified” has significant epistemological consequences, whereby issues relating to factuality, truth and knowledge hierarchies arise. These issues will be discussed at a later stage.

In analysing the text’s final answer to the question of “What about those who still say global warming is a crisis”¹³, it is worth noting that the discursive tone takes on a distinctly more accusatory character. Specifically, “Environmental groups” are called out for refusing to admit that “they were wrong”, whilst the final point is made that “It was never about the science for them” (The Heartland Institute, 2015). Worth noting in this regard is how “Environmental groups” are discursively collectivized, as if the term distinctly represents the IPCC as well as anybody in opposition to the text’s proposition that the “crisis” of global warming is over. Arguably, the framing of Heartland’s opposition as “Environmental groups” in the context of this accusation proves to be vague to the point of obfuscation. With reference to the claim that it was “never about science for them”, it is assumed that “them” refers to “Environmental groups”. Apart from the subject of this accusation being unclear (although it can be assumed that the IPCC is implied, in conjunction with other advocates of environmental regulation), this statement is also *ad hominem* in nature, whereby the character and motives of “Environmental groups” are attacked. Argumentatively, this can be expressed as “because it was never about the science for them, the Environmentalist case for climate change is wrong”.

¹³ Interestingly, the nature of this title, phrased as a question, is itself loaded with implicit assumptions and opinions. This is evident in the use of “still”, implying that global warming is no longer a crisis. The use of “those” also adds to the discursive framing of “Us” vs “Them” within the context of the climate change debate.

In lastly assessing the rhetorical and discursive strategies employed by Heartland and the NIPCC in this text, it is evident that traits such as absoluteness, decisiveness and finality are utilised within their communications. As a result, the message is discursively purveyed that 1) the crisis of global warming is no more, whilst 2) the NIPCC and Heartland are the bearers of this good news, metaphorically providing readers with a sense of relief in knowing that all of the “alarmist” communication around climate change was simply a “false alarm” (The Heartland Institute, 2015). Crucially, it must be emphasised in relation to this text, that despite its objective of allaying fears relating to climate change, strong elements of free-market ideological objectives are evident. This is particularly clear in Heartland’s advocating for the repealing of “unnecessary and expensive policies” relating to climate change mitigation, as well as in the call for future policies that ought to “foster economic growth to adapt to natural climate change”. This point is critical in line with a central argument of this thesis, namely that Heartland’s rhetoric is driven not by scientific reasoning and argumentative persuasion but rather by ideology (free-market, neo-liberal economics).

4.4 Heartland in the Media

With these findings in mind, the CDA of Heartland’s rhetoric will be examined in relation to a different “semiotic practice” that contributes to the issue of climate change denial. Specifically, a video appearance of Joseph Bast, Heartland’s former CEO and director, will be analysed next.

Before providing an analysis of the video in question (see appendix D), a brief contextual framing ought to occur. The video in question entails a guest appearance by Joseph Bast on the Fox News program “Special Report with Bret Baier” (Baier, 2013). In a segment dedicated to the “climate change controversy”, and aired a few weeks before the IPCC’s Fifth Assessment

report (2014a) was to be published, journalist Bret Baier hosted Bast (Heartland) and astrophysicist Willie Soon¹⁴ on his program.

In applying a CDA lens to the contextual frame and network of practices in which this text appears, it is important to highlight that Bast's media appearance occurred on Fox News. The cable network's conservative political positioning is widely known, self-asserted and significantly impactful (Feldman, Maibach, Roser-Renouf & Leiserowitz, 2012). A study conducted in 2007, titled "The Fox News Effect: Media Bias and Voting" illustrates the degree to which Fox News coverage had an effect on the election outcome (DellaVigna & Kaplan, 2007). It was found that, after the introduction of Fox News into the cable television market, voter turnout as well as the share of Republican votes in the Senate was affected to a considerable degree (DellaVigna & Kaplan, 2007). Specifically, the research illustrates that, depending on the audience measure, Fox News successfully convinced 3 to 28 percent of its viewers to vote in favour of the Republican Party (DellaVigna & Kaplan, 2007). According to DellaVigna and Kaplan (2007), the "Fox News effect" can therefore be understood as a "temporary learning effect for rational voters", whereby their conservative political views become enhanced or bolstered (DellaVigna & Kaplan, 2007). On the other hand, the Fox News effect can entail a more "permanent effect for non-rational voters subject to persuasion" (DellaVigna & Kaplan, 2007: 1187). For the sake of adequate contextual framing, this conception of the "Fox News effect" ought to be understood in line with arguments relating to the role of the media made in this paper's literature review (see chapter 2), as well as with the cognitive-linguistic theory that media persuasion affects voter behaviour (Lakoff, 1987). With this as a fundamental backdrop, it can be argued that Heartland's appearance and representation on Baier's (2013) Fox News program is an important event in the context of Heartland's greater strategy and campaign of circulating climate change denial within both the public and policy spheres.

¹⁴ Willie Soon is an astrophysicist that denies the anthropogenic nature of climate change. An investigation into his work found that between 2002 and 2010, 100 percent of his new research grants came from "fossil fuel interests" (Klein, 2014: 33).

In extending the Fox News effect from impacting voting outcome to having a definitive impact on opinions regarding anthropogenic climate change, a study was conducted in 2012, titled “Climate on Cable: The Nature and Impact of Global Warming Coverage on Fox News, CNN, and MSNBC” (Feldman *et al.*, 2012). In analysing the relationship between the viewership of Fox News, CNN and MSNBC and beliefs relating to anthropogenic climate change, the authors firstly determined (by means of a content analysis) that Fox News “takes a more dismissive tone toward climate change than CNN and MSNBC”, whilst also interviewing a higher number of climate denialists in relation to “believers” (Feldman *et al.*, 2012: 3). In conjunction with the analysis of national survey data, a negative association was also shown to exist between Fox’s viewership and the public acceptance of anthropogenic climate change (Feldman *et al.*, 2012). Ultimately, in assessing the political implications of the relationship between the acceptance of anthropogenic climate change and the cable news viewership, it was found that “views of Republicans are strongly linked with the news outlet they watch”, thereby reinforcing the “Fox News effect” argument outlined above (Feldman *et al.*, 2012: 3).

It should, however, be pointed out that it is not possible to factually determine the exact number of viewers which Heartland’s television appearance reached. In estimating this figure, however, it is worth noting that Bret Baier’s “Special Report” anchor news program had an average daily viewership of 2 million viewers in 2013 (Masella, 2014; Steinberg, 2013). On YouTube, the video had approximately 9000 views by October 14, 2018.

In analysing the YouTube excerpt of the Fox News clip itself, which is only 2 and a half minutes long and which was published on Heartland’s official YouTube channel, it begins with Bret Baier reporting that:

House Republicans asked the Obama administration to send its best climate change people to a hearing today up on Capitol Hill. Only two of thirteen agency chiefs showed. What they heard goes very much against conventional wisdom around the causes and effects of climate change. (Baier, 2013)

As an introductory build-up to the revelation of Heartland’s NIPCC “Climate Change Reconsidered” report (which was also the topic of discussion at the Capitol Hill hearing in question), it is evident through Fairclough’s (2001) lens of discourse as a social practice, that Baier (representing Fox News) is (consciously or unconsciously) adopting the practice of *recontextualisation*. From a semiotic and discursive perspective, this can be understood as a social reconstruction of other practices, whereby in this case, Baier subtly invokes and replicates the discourse of climate change denial and its affiliated ideology, even when merely introducing the topic at hand. This is evident in his referring to Obama’s environmental policy advisors as “climate change people”, thereby detaching them of their professional credibility (in dismissively calling them “people” as opposed to “advisors”, “experts”, or “representatives”).¹⁵

Following this introduction, the video proceeds with Baier’s Fox News correspondent, Doug McKelway, introducing the NIPCC’s “Climate Change Reconsidered” report (Baier, 2013):

A peer-reviewed climate change study released today finds the threat of man-made global warming to be greatly exaggerated, and that it, quote, is not dangerous (Baier, 2013)

Hereafter, Joseph Bast (representing Heartland) enters the video, stating:

The big issue in the global warming debate is, how large is the human impact on climate? This report shows that it’s very small. The natural variability, the

¹⁵ Despite its subtlety, this adversarially framed introduction to pro-environmentalists within the climate change debate ought also to be understood in light of the greater “order” of denialist discourse, as a “particular social ordering of relationships amongst different ways of making meaning, i.e. different discourses and genres and styles” (Fairclough, 2001b: 2; Foucault, 1984b).¹⁵ In arguing that a particular conservative, right-wing ideology underlies Heartland’s discourse relating to climate change, and that this discourse forms part of a greater “order of discourse” (Foucault, 1984b; Fairclough & Wodak, 1997), namely that surrounding conservative, free-market ideology, it is evident that Baier’s coverage of climate change falls within the same order of discourse.

variability that's caused by natural cycles of the sun and other factors, way outweigh anything that the human impact could have.

Argumentatively, Bast employs the “attribution” argument towards climate change, whereby a rise in atmospheric CO₂ is attributed not to anthropogenic factors, but entirely to “natural cycles of the sun and other factors” (Baier, 2013). Discursively, it is worth noting how Bast refers to the (Heartland-published) NIPCC report, noting how “this report shows that [human impact on climate change] is very small”. By disassociating himself and his organization (Heartland) from the report and delineating it as “this” report rather than “our” report or even “The NIPCC” report, Heartland’s direct affiliation to the NIPCC report is concealed, arguably in an attempt to grant the report a higher level of scientific credibility by not explicitly acknowledging its political affiliation. When applying an interdiscursive lens to this discourse, a link can be made between it and Heartland’s text “The Global Warming Crisis is Over”, as analysed above, where a similar attempt was made at framing the NIPCC as the IPCC’s equally-credible and equally-established scientific contender (see 4.2.2).

After this initial appearance by Bast in the video, Fox News correspondent Doug McKelway’s voice comes to the fore again. He contributes to the framing of the NIPCC as the scientific adversary of the IPCC:

The (NIPCC) report precedes the expected release later this month of the United Nations (IPCC) report on climate change. Leaked drafts show surface temperature increases have been statistically insignificant for the last 15 years, and that sea ice is increasing, not decreasing. Armed with these new findings, House Energy Committee Republicans today grilled administration officials about the economic consequences of the President’s climate action plan (Baier, 2013).

In framing the NIPCC’s report in direct relation to and as “preceding” the IPCC’s Climate Change Fifth Assessment Report (2014a), the two reports are levelled as existing in direct opposition to one another. In terms of his speech and tone, Fox News correspondent (McKelway) significantly dramatizes the

notion of “leaked drafts” that supposedly show an increase as opposed to a decrease in sea ice over the last 15 years. This “leak” is in reference to an event that occurred in 2012, where Alex Rawls, a US-based climate sceptic, posted a portion of the IPCC’s draft report on the internet (Hickman, 2012). Specifically, the claim that the report showed an increase rather than a decrease in sea ice relates to a particular sentence in the IPCC’s (2014) draft report, which assessed the warming influence of cosmic rays on the planet in an attempt to gauge their effect in relation to man-made influence (Hickman, 2012). The reference to cosmic rays and their role in influencing global temperatures was interpreted as a “game-changing” revelation by sceptics (as is evident in Fox News’s scandalizing efforts), who argued it to be a “killing admission” that cosmic rays could have a greater warming influence on the planet than mankind’s emissions (Hickman, 2012).

Although my intention is not to analyse these arguments with the goal of defending the IPCC, but rather to emphasise the rhetoric and discourse employed in “exposing” this “scandal”, as illustrated in the Fox News example, it is worth mentioning the perspective of the author of this particular chapter in the IPCC report, Prof Steve Sherwood:

You could go and read those paragraphs yourself and the summary of it and see that we conclude exactly the opposite; that this cosmic ray effect that the paragraph is discussing appears to be negligible. It’s a pretty severe case of [cherry-picking] because even the sentence doesn’t say what [climate sceptics] say and certainly if you look at the context, we’re really saying the opposite (Colvin, 2012).

In further analysing Fox News’ coverage of the issue, it is also worth highlighting their commentary on how administration officials were “grilled” by “House Energy Committee Republicans” on the “economic consequences of the president’s (Obama’s) climate action plan” (Baier, 2013). This narrative relating to the economic consequences of climate change action and policy again illustrates a central component of Heartland’s rhetoric, namely the strong portrayal of “threats” to economic growth posed by climate change action and policy. In portraying a large degree of interdiscursive similarity

between the types of narratives employed by both Fox News and Heartland, this also shows a large degree of congruence in terms of the “order of discourse” (Fairclough, 2001) in which Fox’s stance on climate change finds itself.

Bringing the focus of the analysis back to Heartland and its denialist discourse as represented in the media, Bast’s appearance on Baier’s (2013) program ends with the following comment from Bast:

No increase in violent weather. No increase in hurricanes. All of this, and somehow we’re still supposed to believe the models. Models that they picked because they supported their political interests, not because they represented good science (Baier, 2013).

With Fox News effectively ending the coverage of climate change on this note, Bast is afforded “the last word” on the matter. In discursively analysing how he utilises this opportunity, it is evident that Bast makes strong empirical claims relating to the natural phenomena of violent weather and hurricanes, succinctly and conclusively declaring that there has been “no increase” in either of them. As has become clear from Heartland’s other texts that have so far been analysed, this rhetoric is truth-claiming in terms of its nature, as well as laden with finality and conclusiveness.

Following these two claims, Bast’s discourse becomes hyperbolic in form, exaggeratedly implying that despite his claims relating to a supposedly non-existent increase of violent weather and hurricanes, “we’re still supposed to believe the models?”. From a CDA perspective, the divisive undertone of this statement must be emphasised, whereby Bast delineates “we” (himself and Fox News’s audience) from “them”: the ones who chose climate models that “supported their political interests”. In appealing to the polarising narrative that “they”, the implicitly-ostracised environmentalists, have acted corruptly in choosing particular climate models and that “we” ought therefore to discredit them, Bast strongly employs the rhetorical strategies of division and identification: encouraging the audience to side with him based on the opposition’s supposed corruption (Roper *et al.*, 2016). Conversely, this

rhetoric also promotes an image of purity, reason and resistance to “alarmists” for Heartland’s “side” of the debate: portraying them as having dramatically and remarkably exposed the IPCC’s findings as false.

In building on the conclusions made in the previous analyses conducted in this chapter, Bast’s final reference to policy ought to be highlighted, where he accuses the IPCC of choosing particular climate models only because of their “political interests”. The ideological nature of Bast’s discourse hereby becomes more explicit, and “political interests” arguably form the crux of the debate for Heartland. Specifically in this excerpt, the implied argument is made that supposedly incorrect climate models were selected by the IPCC, in that such models would align with the IPCC’s political interests. By “political interests”, Bast implies the IPCC’s support for pro-environmental policies that attempt to mitigate further environmental degradation. Interdiscursively, this aligns with the other texts analysed so far, such as the “Global Warming Crisis is Over” text, in which Heartland’s arguments revolve around reducing “unnecessary and expensive” policies that inhibit carbon dioxide reduction (The Heartland Institute, 2015).

Concerning Heartland’s media appearance on Fox News, it ought to be emphasised that apart from the discourse that was verbalised in this text, the media appearance can in and of itself be interpreted as a discursive event. From the perspective of a structural and interactional analysis, where the text’s surrounding “network of practices” and “order of discourse” ought to be analysed, it can be argued that Heartland’s appearance on Fox News is discursively as relevant as the arguments and rhetoric employed in its written texts (Wodak & Fairclough, 1997). In terms of Fairclough’s (2001: 4) “Dialectics of Discourse” perspective, Heartland’s “ways of (inter)acting and ways of being (including the discourse aspects, genres and styles) are represented in discourses, which may contribute to the production of new imaginaries (sets of values and institutions), which may in turn be enacted and inculcated”. In keeping the discourse’s audience in mind, which in this case constitutes Bret Baier’s (and thus Fox News’s) viewership, this point is of critical importance in that Heartland’s discursive practices (such as language

used and ideological attitudes embodied) are conveyed to this large audience. In turn, this results in consequences for the ways in which both the public (and policy makers) perceive and react (vote) on the issue of anthropogenic climate change. Specifically, Heartland's discourse might result in the reinforcing of existing conservative and sceptical views in relation to climate change, and the subsequent voting for anti-environmental policies and/or politicians.

4.5 Why Scientists Disagree about Global Warming

In continuing the analysis of Heartland's discursive strategies for circulating doubt about anthropogenic climate change, the final text to be analysed is *Why Scientists Disagree about Global Warming: The NIPCC Report on Scientific Consensus*. Produced by the NIPCC and published by Heartland in 2015, this book is intended to serve as a "comprehensive, authoritative, and realistic assessment of the science and economics of global warming" (The Heartland Institute, 2018). In framing the interdiscursive context of this book, it is worth highlighting that its original edition was released on the 30th of November 2015. Crucially, this date also signified the opening day of the United Nations' twenty-first Conference of the Parties (COP-21), which took place in Paris and eventually led to the Paris Agreement on Climate Change.¹⁶ This strategically and intentionally-timed publication, highlighted by Heartland as a triumphant and defiant act on their own website, represents a discursive event in and of itself, whereby an effort is once again made by Heartland and the NIPCC to directly counter the United Nations' IPCC as an authoritative body on climate science (The Heartland Institute, 2018). On Heartland's website, where the entire book is available as a free PDF download, it is introduced with the following summary:

Whereas the reports of the United Nations' Intergovernmental Panel on Climate Change (IPCC) warn of a dangerous human effect on climate, NIPCC concludes the human effect is likely to be small relative to natural variability,

¹⁶ The Paris Agreement of December 2015 is a framework, agreed upon by 196 participating countries, that entails a commitment to keep global average temperature to below 2°C, and preferably below 1.5°C, thereby reducing the risks and consequences of climate change.

and whatever small warming is likely to occur will produce benefits as well as costs. (The Heartland Institute, 2018).

Furthermore, the website's introduction to the book emphasises how the particular volume forms part of "a much larger examination of the climate change debate titled *Climate Change Reconsidered II: Benefits and Costs of Fossil Fuels* (Bezdek, Idso, Legates & Singer, 2018).

In continuing to elucidate the contextual framework in which this text emerges, it is important to highlight that its selection as a unit of analysis is related in part to its prominence and centrality within Heartland's campaign of circulating denial. Specifically, the text is presented as Heartland's primary and "go-to" book on the topic of climate change for both the general public and policy-makers. Furthermore, in terms of the text's audience and sphere of circulation, it is worth highlighting that the book formed part of a Heartland campaign between 2016 and 2017 to have copies of the text circulated to over 200 000 school teachers across the United States. The book was packaged with an accompanying classroom-friendly DVD and a cover letter asking school teachers to reconsider the way that they present climate change (The Heartland Institute, 2018).

The authors of the text are Craig Idso, Robert Carter, and Fred Singer. All three authors are affiliated with the Heartland Institute as authors of the "Climate Change Reconsidered" series, to which reference was made in previous sections of this thesis (see Chapter 3.2).

Before the report's attack on scientific consensus relating to climate change is analysed, it is worth briefly assessing the report's 'Foreword', since it plays an important role in setting the tone for the rest of the text. The book's foreword was written by Marita Noon, who is the executive director for 'Energy Makes America Great Inc.', as well as its companion educational organization, the 'Citizens' Alliance for Responsible Energy' (CARE). In describing these organizations, it is stated that they "work to educate the public and influence

policymakers regarding energy, its role in freedom, and the American way of life" (Idso *et al.*, 2015).

Noon begins the foreword with the following (see appendix E):

President Barack Obama and his followers have repeatedly declared that climate change is "the greatest threat facing mankind". This, while ISIS is beheading innocent people, displacing millions from their homeland, and engaging in global acts of mass murder. If it weren't so scary, it would be laughable. (Idso, Carter & Singer, 2015).

In applying a CDA lens to this text, whilst keeping in mind that it constitutes the first interaction with readers of *Why Scientists Disagree About Global Warming*, it is worth noting the immediate, arguably vehement attack on Obama's presidential campaign. In delineating Obama and "his followers", the implicit message is purveyed that the book's authors and readers are separate from Obama and "his followers". Consequently, the text becomes politicised very early, whilst the divisive "us vs. them" narrative is employed.

Perhaps more importantly, Noon's second sentence attempts to illustrate that Obama and "his followers" are preoccupied with something which she deems to be trivial (climate change), in comparison to ISIS and their beheading of innocent people and their "engaging in global acts of mass murder". Rhetorically, Noon is strongly appealing to the emotional and ideological values of conservative and nationalistic American readers, portraying ISIS and their injustices as a yardstick of what readers ought to truly be worried about (as opposed to climate change).

In terms of Fairclough's (1995) framework for CDA, this strongly represents the strategy of articulation, whereby "actors produce cultural meanings of phenomena by connecting them to other, established discourses" (Roper *et al.*, 2016: 783). In this case, the discourse surrounding terrorism ("ISIS, beheadings, mass murder") is connected to the discourse surrounding climate change, although these two phenomena exist within two entirely different contexts and social paradigms. Arguably, this discourse was chosen due to its

effect of constructing a new “common sense” for readers, whereby, with terrorism in the foreground of their field of concern, the issue of climate change becomes more trivial from the onset, regardless of the facts surrounding it or whether its causes are anthropogenic (Fairclough, 1992; Roper *et al.*, 2016).

In then declaring that “if it weren’t so scary, it would be laughable”, Noon is further attempting to discredit “Obama and his followers”, facilitating the notion that those who advocate climate change mitigation are believers in something nonsensical or ridiculous. She continues with the following:

The global warming movement is the most extensive and most expensive public relations campaign in the history of the world. Nearly every government agency in the United States and many more around the world are promoting the manmade-climate-change-scare scenario. An entire generation has been brought up hearing and reading about it. Yet public concern about it peaked in 2000 and today, people are no more worried about it than they were 26 years ago when Gallup began polling this issue (Idso, Carter & Singer, 2015).

Critically, it is evident here how Noon vilifies the “global warming movement”, dismissing it as nothing more than a “public relations campaign”. In terms of how this claim is formulated, it is worth noting that it is inherently truth-claiming in terms of its nature, declaring definitively that “in the history of the world”, the global warming movement is not only a public relations campaign, but also the “most expensive” one of all time. Laden with absolute certainty, this form of rhetoric is fundamentally divisive and exclusive in nature, presenting not an argument in favour of climate deniers, but rather claims about the opposition that the audience ought to internalise at face value. This characteristic of the book’s foreword is further evident in the declaration that “public concern about [climate change] peaked in 2000 and today, people are no more worried about it than they were 26 years ago”. Again, it is presented as a fact that public concern about climate change has been dwindling since 2000, after its “peak”, reinforcing the notion that climate change is more trivial than what it is made out to be by the “alarmist” opposition.

Preceding the Foreword's conclusion, the author turns to the question of scientific consensus. Here, she argues that:

The fact of the matter is, despite the oft-stated claim that "97 percent of scientists agree", scientists actually disagree, profoundly and on many points. Their disagreements are on display in almost countless articles in scientific journals and books. Before public policy is set in cement, irreversibly charting our course for decades, the voices of real scientists need to be heard. (Idso, Carter & Singer, 2015)

In this excerpt, it is evident in analysing the first five words ("the fact of the matter is") that the author adopts a truth claiming tone in reference to her arguments to follow. This action of truth-claiming is especially evident in light of her use of the word 'fact', whereby she attempts to present a supposedly certain reality, as opposed to a possible reality in an argumentative or hypothetical form. Following her claim that disagreement relating to anthropogenic climate change is rife within the scientific community and that it is displayed in "countless" articles, Noon's discourse turns to the question of policy. With reference to policy that aims to mitigate climate change, such as the Clean Power Plan, it is argued that "the voices of real scientists need to be heard" before a decision is made to implement such policy. It is important to note how Noon makes reference to "real scientists", whereby she attempts to reinforce the legitimacy of the book's authors, namely Idso, Carter and Singer (2015). This sentence is furthermore laden with the claim that scientists who believe climate change to have an anthropogenic component are in fact not "real scientists". From a CDA perspective, it is argued that her reference to "real scientists" is fundamentally ideological, whereby any scientists that advocate climate change mitigation would be deemed as "fake" scientists, whilst scientists that promote Heartland's free-market agenda would be classified as "real scientists".

With this ideological foundation in mind, the reference to policy and its central positioning in Noon's rhetoric illustrates a similar ideological underpinning to that employed in Heartland's other discourses, as have been analysed above in this chapter. Specifically, in advocating that environmental regulatory policy

ought to be avoided, as is evident in Noon's claim that environmentalists "support the Clean Power Plan because it will give them more power, more control, and more profit". A congruence exists in relation to the greater "order of discourse" in which this discourse finds itself (Fairclough, 2001). Thus, at an interdiscursive and interactional level (Wodak & Fairclough, 1997), it can be argued that Noon's adopted stance in the book fits into the same "order of discourse" in which Heartland's (and Fox News') general discourse relating to climate change fits into. Specifically, Noon's position fits into discourse that aims to uphold and preserve conservative, free-market ideological principles that form the core of Heartland's foundational value system, as discussed in the beginning of this chapter (see 4.1).

4.6 The book's attempt to discredit scientific consensus

The IPCC's *Fifth Assessment Report* (AR5) declares that "It is extremely likely (95%+ certainty) that more than half of the observed increase in global average surface temperature from 1951 to 2010 was caused by anthropogenic increase in greenhouse gas concentrations and other anthropogenic forcings together" (IPCC, 2014a). This, in conjunction with various studies and books such as *Merchants of Doubt*, credibly and in line with the standard requirements of peer reviewed scientific publishing, illustrate that a scientific consensus surrounding climate change exists at an approximation of 97% (Cook *et al.*, 2016a; Oreskes, 2004; Roberts, 2012). On their website, the National Aeronautics and Space Administration (NASA) declares that "Multiple studies published in peer-reviewed scientific journals show that 97 percent or more of actively publishing climate scientists agree: Climate-warming trends over the past century are extremely likely due to human activities" (NASA, 2015).

In the leading chapter of *Why Scientists Disagree about Global Warming*, titled 'No Consensus', the authors attempt to discredit these claims of scientific consensus (Idso *et al.*, 2015). Under the sub-heading of 'Flawed Surveys', an attempt is made to systematically discredit the various studies

that have led to the notion of ‘scientific consensus’ around anthropogenic climate change. Beginning with the study by Oreskes (2004), the authors note how:

The most frequently cited source for a “consensus of scientists” is a 2004 essay for the journal *Science* written by a socialist historian named Naomi Oreskes (Oreskes, 2004). Oreskes reported examining abstracts from 928 papers reported by the Institute for Scientific Information database published in scientific journals from 1993 and 2003, using the keywords NO CONSENSUS “global climate change.” Although not a scientist, she concluded 75 percent of the abstracts either implicitly or explicitly supported IPCC’s view that human activities were responsible for most of the observed warming over the previous 50 years while none directly dissented. Oreskes’ essay appeared in a “peer-reviewed scientific journal”, as NASA reported, but the essay itself was not peer-reviewed. It was an opinion essay and the editors hadn’t bothered asking to see her database (Idso *et al.*, 2015: 10).

From a CDA perspective, it is critical to note that in their efforts to discredit this study, the book’s authors begin by vilifying Oreskes as a “socialist historian”. In attempting to discredit Oreskes’ study in this way, the authors’ criticisms becomes both politically and ideologically charged from the onset, negatively implying that Oreskes is untrustworthy as a “socialist”. Discursively, this accusation leads to a process of identification for the book’s intended audience of readers, in that the notion of “socialism” has a negative connotation within this particular conservative, free-market “order of discourse” and dominant social paradigm¹⁷ (Fairclough, 1992; Jacques, 2006). Arguably, this can also be interpreted as an attack on Oreskes’ personal character before reference is even made to her study. In terms of the authors’ arguments, it is also worth noting how they call her study an “essay” (as opposed to a journal article or study). At the end of the excerpt, the claim is made that her study is in fact an “opinion essay” which was published only because “the editors hadn’t bothered asking to see her database” (Idso *et al.*,

¹⁷ The dominant social paradigm can be understood as the “constellation of common values, beliefs, and shared wisdom about the physical and social environments” (Dunlap, 1984).

2015: 11). Crucially, this illustrates a strong degree of epistemic scepticism, which targets “how knowledge is represented and produced, with a focus on research practices and the construction of objective realities” (Skoglund & Stripple, 2018: 5). This scepticism is arguably not authentic, but rather cynically employed as a delegitimising strategy whilst not necessarily being sceptical about the information itself.

This strong degree of perceived epistemic scepticism is evident in the book’s next target of critique, namely a research article titled ‘Examining the Scientific Consensus on Climate Change’ (Doran & Zimmerman, 2009). In describing the study, Idso *et al.* (2015: 13) note how:

They claimed “97 percent of climate scientists agree” that mean global temperatures have risen since before the 1800s and that humans are a significant contributing factor (Doran and Zimmerman, 2009). This study, too, has been debunked.

In plainly stating that Doran and Zimmerman’s (2009) study “has been debunked” (without citing any references), a strong degree of “frank speech”, portrayed as truth-claiming, is employed by Heartland’s authors. After then questioning the study’s sample size of 10,257 participants¹⁸, the survey’s questions themselves are scrutinised, and the authors remark:

At issue is not whether the climate warmed since the Little Ice Age or whether there is a human impact on climate, but whether the warming is unusual in rate or magnitude; whether that part of it attributable to human causes is likely to be beneficial or harmful on net and by how much; and whether the benefits of reducing human carbon dioxide emissions – i.e., reducing the use of fossil fuels – would outweigh the costs, so as to justify public policies aimed at

¹⁸ Of the 10,257 participants, 3146 completed the entire survey. This response rate of 30.7% is in line with the average response rate for Web-based surveys (Cook, Heath & Thompson, 2000). The survey targeted Earth scientists at U.S federal research facilities, of which more than 90% had Ph.D.’s., with the most common areas of expertise being geochemistry, geophysics and oceanography (Doran & Zimmerman, 2009).

reducing those emissions. The survey is silent on these questions (Idso *et al.*, 2015).¹⁹

Apart from the questionable argumentative stance employed in this excerpt, where it could be said that the authors have engaged in a process of ‘shifting the goalpost’ by formulating new questions to discredit the validity of the ones used in the survey, the arguments relating to public policy illustrate a strong degree of congruence with Heartland’s rhetoric employed in the other texts analysed in this chapter. Specifically, when applying an interdiscursive analytical lens, it is evident, as argued in relation to Heartland’s other texts that their central focus lies with upholding libertarian, free-market principles in the context of public policy discussions. In other words, libertarian, free-market principles are promoted by pointing to the economic benefits of global warming, which outweigh the cost of mitigating climate change, thereby tying Heartland’s textual claims to their ideological viewpoints, as explored above (see 4.1).

In ending their analysis of Doran and Zimmerman’s (2007) study, the authors further declare that:

The survey by Doran and Zimmerman fails to produce evidence that would back up claims of a “scientific consensus” about the causes or consequences of climate change. They simply asked the wrong people the wrong questions (Idso *et al.*, 2015: 14).

In again analysing this excerpt through the lens of CDA’s interdiscursive component (Fairclough, 1995), we should note the tonal similarity to “The Global Warming Crisis is Over” text by Heartland, as analysed in the beginning of this chapter. In the same way that the ‘Global Warming Crisis is Over’ text employs an absolute, truth-claiming finality in relation to its claims

¹⁹ The two questions that were asked in Doran and Zimmerman’s (2009) survey were: “Q1. When compared with pre-1800s levels, do you think that mean global temperatures have generally risen, fallen, or remained relatively constant? Q2. Do you think human activity is a significant contributing factor in changing mean global temperatures?”

that the IPCC reports “were all false alarms”, this excerpt claims with the same sense of finality, that Doran and Zimmerman’s (2007) study “fails to produce evidence”. This is further illustrated in Heartland’s conclusion that Doran and Zimmerman (2007) “simply” made a mistake, and that with this in mind, the question ought to be settled. In line with the discursive strategies employed in both of these texts, Heartland frames itself as “having the last word” in relation to the argument’s outcome. This further illustrates a strong element of polarisation, thereby eliminating the potential for an argumentative middle ground, as will be discussed in Chapter 5.

In continuing their efforts to disprove the notion of scientific consensus around climate change, Heartland’s authors proceed to scrutinise another source that has illustrated this consensus, namely a journal article titled “Expert Credibility in Climate Change” (Anderegg *et al.*, 2010).²⁰ In their analysis of this study, Idso *et al.* (2015: 16) demonstrate a strong degree of epistemic scepticism, and challenge the scientific methodology employed to reach the conclusion of consensus:

Looking past the flashy “97-98%” claim, Anderegg *et al.* found the average sceptic has been published about half as frequently as the average alarmist (60 versus 119 articles). Most of this difference was driven by the hyper-productivity of a handful of alarmist climate scientists: The 50 most prolific alarmists were published an average of 408 times, versus only 89 times for the sceptics. The extraordinary publication rate of alarmists should raise a red flag. It is unlikely these scientists actually participated in most of the experiments or research contained in articles bearing their names.

Immediately evident from this excerpt is the charged reference to climate researchers convinced by the evidence of anthropogenic climate change as being “alarmists”. This, in conjunction with the fuelled dichotomization between “alarmists” and “sceptics”, illustrates further politicisation of the

²⁰ In this study, the authors “reviewed a dataset of 1,372 climate researchers and their publication and citation data to show that 97-98% of the climate researchers most actively publishing in the field surveyed here support the tenets of anthropogenic climate change outlined by the IPCC” (Anderegg *et al.*, 2010: abstract).

debate. In concluding their analysis of Anderegg *et al.*'s (2010) study, Heartland's authors ask and answer the question of:

So what, exactly, did Anderegg *et al.* discover? That a small clique of climate alarmists had their names added to hundreds of articles published in academic journals, something that probably would have been impossible or judged unethical just a decade or two ago (Idso *et al.*, 2015: 16).

By inferring that a “small clique” of scientists, discredited as “alarmists”, tampered with the scientific publishing process to the extent that their work was published by “hundreds” of scientific journals, Heartland’s authors are going beyond an analysis of Anderegg *et al.*'s (2010) journal article. Rather, in providing such a broad claim, whilst incorporating the same degree of truth-claiming as in Heartland’s other texts, Idso *et al.* (2015) can be interpreted as utilising a strong degree of adversarial framing that goes so far as to simulate conspiracy theory (Knight & Greenberg, 2011).

In ending their assessment of scientific studies that illustrate consensus around anthropogenic climate change within the scientific community, Idso *et al.* (2015) analyse Cook *et al.*'s (2013) study, titled “Quantifying the Consensus on Anthropogenic Global Warming in the Scientific Literature”.²¹ In scrutinising this study, Heartland’s authors begin by vilifying the study’s lead author, attacking his moral character in a manner that starkly reminds one of their criticism of Naomi Oreskes as “socialist historian”. Specifically, they note that “NASA’s fourth source proving a ‘scientific consensus’ is an abstract-counting exercise by a wacky Australian blogger named John Cook” (Idso *et al.*, 2015: 17). Discursively, it is evident that Heartland’s authors attempt to discredit Cook’s study not on the basis of merit or scientific argument, but rather on the basis of personal character, vilifying him as a “wacky Australian

²¹ In this study, the authors examined 11 944 climate abstracts focusing on ‘global climate change’ or ‘global warming’. Of the papers that express a position on anthropogenic climate change, 97.1% were in favor of the consensus position that humans are causing climate change. (Cook, Nuccitelli, Green, Richardson, Winkler, Painting, Way, Jacobs & Skuce, 2013).

blogger". This strong degree of adversarial framing is further evident in the Heartland book's claim that:

In 2013, Cook and some of his friends persuaded *Environmental Research Letters* to publish their claim that a review of the abstracts of peer-reviewed papers from 1991 to 2011 found 97 percent of those that stated a position explicitly or implicitly suggested human activity is responsible for some warming (Idso *et al.*, 2015: 18).

In referring to the study's authors as "Cook and some of his friends", Idso *et al.* (2015) discursively strip Cook *et al.* (2015) of from their academic legitimacy. This is done to an even greater extent when the claim is made that Cook *et al.* (2015) "persuaded" an academic journal, namely *Environmental Research Letters*, to "publish their claim". In framing their consensus study in such a way, Heartland's authors again appeal to the strategy of adversarial framing, illustrating a strong attempt to discredit and undermine the authors of the consensus study, portraying them as having been published due to their moral and character-based capacity for "persuasion", rather than scientific or academic merit. Similarly, this illustrates a strong degree of epistemic scepticism, whereby the process of being published in a scientific journal is itself brought into question. This is evident in that Heartland implies journals such as *Environmental Research Letters* ought not to be trusted, based on their propensity to be "persuaded" by people such as "Cook and his friends" (Idso *et al.*, 2015).

....

Overall, the analysed chapter of *Why Scientists Disagree about Global Warming* illustrates various discursive practices by Idso *et al.* (2015) that strongly fit into the greater order of discourse within which Heartland and the NIPCC find themselves. Specifically, the discursive strategies of truth-claiming, adversarial framing and negative other-representation are evident to a strong degree. Further alignment between this chapter and the other texts analysed is evident when we consider that the consensus-illustrating research of authors such as Oreskes (2004), Anderegg *et al.* (2010) and Cook *et al.* (2016) is discredited largely on the basis of ideology and opinion, presented

by Heartland as scientific argumentation. Also worth highlighting is the extent to which, paradoxically, traditional scientific standards are appealed to in the attempts to discredit the various consensus reports. This is particularly evident in the example of the analysis of the Oreskes (2004) study, where the authors discredit the research on the basis that her study was “not peer-reviewed”. In appealing to traditional standards of scientific validity in this way, the authors raise certain fundamental contradictions that will be explored in greater depth in the following chapter.

Chapter 5: Findings and Discussion

In the previous chapter, a critical discourse analysis (CDA) in relation to Heartland's discourse at structural, interactional, interdiscursive and linguistic levels (Fairclough, 1995) was undertaken. Various texts by Heartland are analysed in an effort to elucidate the rhetorical and linguistic strategies utilised in circulating the outright denial of climate change.

In light thereof, the aim of this chapter is to highlight the threads of consistency that run through this discourse, whilst simultaneously attempting to answer the research questions posed by this thesis, namely:

- What are Heartland's discursive and ideological strategies in circulating climate change denial?
- How does The Heartland Institute use language to establish, justify and perpetuate claims that denialists have the final truth, and what is the role of ideology in this regard?
- What are the effects of this denialism in relation to the concepts of meaning, power, truth and epistemology?

The first section of this chapter will consist of a summary of the CDA, highlighting the main rhetorical strategies identified in the analysed texts. With these findings in mind, it will be argued that Heartland's discourse is ideological in nature, in that it stems from a particular ideological and political underpinning. Furthermore, it will be argued that Heartland's truth-claims serve the purpose of upholding a particular position of power within the current economic and social paradigm, whilst attempting to frame itself as a primary validator of climate science. Finally, in this chapter I will attempt to

show how Heartland leverages “post-truth politics” in order to facilitate confusion and doubt about climate science.

5.1 Summary of findings

In providing a summary of Heartland’s discursive strategies for circulating climate change denial, a strong degree of adversarial framing can first of all be identified. In line with the discursive strategy of framing themselves as the IPCC’s equal, the discourse analysis shows that Heartland and the NIPCC employ a strong degree of negative other-representation in their depiction of environmentalists, specifically in their depiction of the IPCC. Examples from the analysis in chapter four include the framing of environmentalists as “activists” and “alarmists” that intentionally circulate “false alarms” relating to climate change. More subtle examples would include Bast’s assertion in his Fox News appearance that the IPCC chose weather and climate models “because they supported their political interests, not because they represented good science” (Baier, 2013). Conversely, more extreme examples are evident in *Why Scientists Disagree about Global Warming*, where IPCC scientists are portrayed as “fake scientists”, whilst consensus-researchers are labelled as “wacky socialists” for their alignment with the IPCC (Idso *et al.*, 2015). Ultimately, the rhetoric and discourse employed in this text is polarizing and divisive in relation to the climate change debate, bolstering Heartland’s attempts to politicise the climate change debate as a whole – thereby delaying action and further circulating doubt. Crucially, in distancing the NIPCC from the IPCC with a strong “Us” vs “Them” narrative, as is evident in the text, the debate itself becomes compromised to a significant degree, as will be argued below (Knight & Greenberg, 2011).

Another discursive strategy that consistently emerges throughout Heartland’s discourse is that of absolute truth-claiming.²² At a linguistic level, this is

²² In engaging with the question of truth, I acknowledge the danger that exists for discourse researchers to themselves claim an absolutist epistemological position. Having said that, and in employing a critical stance, I adopt the position of Angermuller (2018). In his study of “truth after post-truth”, he argues that “While discourse researchers cannot claim a privileged

evident in Heartland's formulation of sentences such as "There is no scientific consensus on the human role in climate change" (The Heartland Institute, 2015). By normatively stating "facts" such as "Global warming is not a crisis", in conjunction with the strong degree of adversarial framing employed within their narrative, Heartland negates the potential to effectively engage in dialogue over the matter. Specifically, in claiming a 'final' truth by means of absolutist language, the epistemological middle ground between the two sides of the debate is widened, arguably resulting in further polarisation. As a result of this polarisation and politicisation,²³ the figurative rift between the two "sides" of the debate is widened, resulting in an increasingly smaller epistemological middle ground in which sound argumentation could occur (Powell, 2011). In other words, the polarising nature of Heartland's discourse results in the "shattering" of civil dialogue relating to climate change, as opposed to the "informing" of civil dialogue, furthering Heartland's objective of delayed policy-driven climate change mitigation as a result of the issue being further politicised, and more controversial (Jacques, 2006).

Interdiscursively, this is also evident in Heartland's Fox News appearance, where Heartland is afforded the "last word" on the topic of climate change. For example, the Institute's TV appearance ends on the claim that the IPCC supported models "not because they represented good science", but solely for political gain. Linguistically, Heartland's discourse can therefore be understood as laden with strong elements of absolutism, finality and conclusiveness, of which the effects will be explored later in this chapter.

position that allows them to reveal a Truth that is hidden to others, there is no reason why they should not defend the ideas that they think are true, valuable and coherent against those ideas that are of lesser value to them". (Angermuller, 2018:15)

²³ "The term "politicization" is hereby laden with two meanings. On the one hand, it signifies the traditional notion of something being dichotomized in terms of its ideological alignment and representation to the liberal "left" or conservative "right". At a deeper level, "politicization" can be interpreted in line with Foucault's (1984) genealogical interrogation of the "politicization of knowledge". In terms hereof, it is argued that knowledge itself is mediated by its direct affiliation with the production of power relations. (Foucault, 1984)

With the phenomenon of truth-claiming in mind, and in further highlighting the threads of consistency that run through Heartland's discourse, as analysed in Chapter 4, it is clear that the Institute strongly attempts to disrupt the notion of scientific consensus surrounding anthropogenic climate change. This is evident at a structural discourse level, in terms of which discourse practice is analysed (Fairclough, 1995). Specifically, in analysing Heartland's "processes of text production, distribution and consumption" (Fairclough, 1995), it is evident in light of the NIPCC's formation itself that Heartland aims to discredit the IPCC-promoted notion that consensus exists at a level of around 97% (IPCC, 2014). Similarly, this can be seen in Heartland's production of *Why Scientists Disagree about Global Warming*, as well as the book's distribution to over 200 000 schools throughout the US. The book itself is centred on the notion that no consensus exists surrounding anthropogenic climate change, with several attempts at discrediting authors who support the claim of 97% consensus (See 4.6).

Another observable outcome of the CDA that was conducted is that Heartland's arguments relating to climate change largely centre on questions of economic policy, specifically relating to environmental regulation. This is evident in the argumentative flow that runs through the Heartland texts that were analysed, namely 1) because there is no consensus surrounding anthropogenic climate change, 2) there ought not to be policy in place that regulates the environment. This can be seen in the foreword of *Why Scientists Disagree about Global Warming*, in which the argument is laid out as follows:

The fact of the matter is, despite the oft-stated claim that "97 percent of scientists agree," scientists actually disagree, profoundly and on many points. Their disagreements are on display in almost countless articles in scientific journals and books. Before public policy is set in cement, irreversibly charting our course for decades, the voices of real scientists need to be heard. (Idso, Carter & Singer, 2015)

In light of the preliminary contextual analysis conducted in Chapter 4 (see 4.1), these arguments prove the fundamental point that Heartland's primary objective is to promote free-market, libertarian principles at any cost, which in

this case includes the cost of undermining the very institution of science itself. This is because, in line with free-market and libertarian principles, there ought to be as little regulation as possible surrounding fossil fuel practices and the resultant production of greenhouse gases.

Further discursive strategies that can be delineated in light of the CDA conducted in Chapter 4, are the socio-linguistic phenomena of recontextualisation and articulation (Fairclough, 2001). Recontextualisation, defined as the “social reconstruction of other practices”, is evident especially in Heartland’s portrayal of the climate change debate being not only a “war”, but also a matter of severe economic consequence. This is, for example, evident in Fox News’ adoption of the “war” metaphor when discussing the climate change debate, saying that House Energy Committee Republicans have become “armed” with “new findings” presented by Heartland’s NIPCC report on climate change. The discursive strategy of recontextualisation is also evident in both Fox News and Heartland’s references to the economic consequences of climate change action, where they claim that “Obama’s climate action plan” would lead to detrimental “economic consequences” (Baier, 2013).

Similarly, the discursive practice of articulation is evident at various points throughout the CDA. This practice, understood as the connecting of certain phenomena to certain other established discourses (resulting in the subsequent emergence of new meaning), is evident in Noon’s foreword to *Why Scientists Disagree About Global Warming*, for example. Here, she connects the discourse surrounding terrorism to that of climate change (Fairclough, 1992). Specifically, in setting out to determine what the “greatest threat facing mankind” is, and then comparing “global acts of mass murder” to climate change, a new “common sense” of cultural meaning is produced in relation to climate change. In this case, it is portrayed as being comparatively trivial from the onset to be concerned about climate change while people die of global acts of mass murder (Idso, Carter & Singer, 2015; Roper *et al.*, 2015).

The implications of the above-outlined discursive strategies will be highlighted below.

5.2 Meaning in the service of ideology

In light of this summary of the discursive strategies employed by Heartland, the analysed texts show Heartland's language to be ideology-laden. This can be explicated by considering the Institute's language from a paradigmatic and syntagmatic perspective. (Bakhtin, 1986; Fairclough, 1995). In this regard, the paradigmatic component of language, building on the regular grammatical notion of 'paradigm', consists of the "range of alternative possibilities available, and the choices that are made amongst them in a particular text" (Yates, Taylor & Wetherell, 2001: 240). Furthermore, the syntagmatic component of language entails the "organization or chaining of words together in structures" (Yates *et al.*, 2001: 240). Considering this, it is argued that Heartland's texts, as analysed in the previous chapter, involve particular choices in relation to their employed discourse. Specifically, the texts represent in the first place certain choices relating to orders of discourse, particular genres and discourses, as well as choices relating to specific linguistic and semiotic forms (Fairclough, 1995). In the second place, Heartland's texts "chain" particular social, linguistic and ideological components together (Fairclough, 1995). In other words, it can be said that paradigmatically and syntagmatically, Heartland *textures* certain ideological "words, images, genres or discourses" together in particular ways (Fairclough, 2001a; Yates *et al.*, 2001: 240).

For example, in applying this theory to the CDA that was conducted, Heartland can be interpreted as constructing a consistent discursive linkage between "dangerous alarmists" on the one hand, and threats of economic disaster on the other. Specifically, the Institute portrays and promotes the notion of joblessness and hardship as a result of "unnecessary and expensive policies" promoted by "environmental groups". Through the texturing of certain words and phrases in this particular way (i.e. by choice and combination),

local structures of semiosis are formed, whereby certain discourses and genres (as well as their linguistic features) are grouped together, to the extent that novel ways of representing, relating to and identifying meaning are produced (Bakhtin, 1986; Fairclough, 1995). In this case, the phrasing around “unnecessary and expensive policies” is causally tied to the notion of joblessness and hardship. In terms of this semiotic structure, “environmental groups” and their implied efforts of climate change mitigation form the underlying root cause of the “unnecessary and expensive policies”, thereby framing them as the guilty culprit within the equation. The “explication of meaning” (Thompson, 1988) hereby becomes more evident, where as a result of this texturing within Heartland’s discourse, various other factors, such as worldview representation, social identities, cultural values, and ideology emerge and intersect (Fairclough, 1995). In the example above, meaning is framed in relation to the worldview of Heartland’s conservative, American audience, who’s values and social identities are directly or indirectly linked to notions of job security and economic stability.

A further example relates to Heartland’s contrasting of “climate change” with “terrorism”, in terms of which a new “common sense” that portrays the phenomenon of climate change as inconsequential and trivial when compared to the threat of terrorism is formed (Idso *et al.*, 2015).

Against this backdrop, it can be argued that one of Heartland’s rhetorical strategies for establishing and circulating climate change denial is to discursively appeal to a particular worldview and ideology in the sense of a political doctrine, encapsulating certain social and economic interests – thereby broadening their scope of influence and political reach.²⁴ This is particularly clear in Heartland’s advocating for the repealing of “unnecessary and expensive policies” that endorse climate change mitigation, as well as in the call for future policies that ought to “foster economic growth to adapt to

²⁴ In light of this point, I am aware that a vast body of literature has been devoted to the concept of ideology. While an overview hereof was given within the literature review of this thesis (see Chapter 2.2), a critical review of this literature here falls outside of the ambit of this study.

natural climate change" (The Heartland Institute, 2015). In prescriptively providing insight into their envisioned and desired economic policy framework, Heartland's discourse also strongly advocates for policies that "foster economic growth to adapt to natural climate change". This is in line with the argument that "there is no need to reduce carbon dioxide emissions and no point in attempting to do so" (The Heartland Institute, 2015).

Such politically charged statements and accusations are evident throughout the texts analysed in Chapter 4, such as when Bast accuses the IPCC of choosing climate models "because they supported their political interests" (Baier, 2013). A more extreme example would be the reference to ISIS and "global acts of mass murder" in the foreword of *Why Scientists Disagree About Global Warming*. In line with the sensationalised, post-9/11 notion of terrorism that has permeated the USA's political and civil sphere of discourse in the past two decades, I believe that such a reference, within the context of the climate change debate, attempts to resonate with a particular audience and adjacent worldview – namely that of right-leaning Americans whose political views include the objective of fighting terrorism through policy-driven initiatives, and who view terrorism as a looming, ever-imminent threat and necessary evil.

5.3 The ideological underpinnings of Heartland's discourse

Whilst remaining within the context of ideology, Heartland's persistent emphasis on libertarian, free-market environmental policy opens up the question of which core beliefs underpin their political positioning. In elucidating the roots of Heartland's climate change denial, I believe that it represents a deep, fundamental struggle over "society's dominant core social values that institutionalise obligation and power between citizens, the state, and the environment" (Jacques, 2006: abstract). In other words, it can be argued that Heartland's denial of climate science attempts to defend the following:

the structure of dominant social values in world politics such as the state system, expansive resource exploitation under world capitalism, and a hegemonic and consumptive North (and US in particular from where most sceptics hail) to flourish unmolested by the gadflies of the environmental movement. (Jacques, 2006: 95)

In light of this point, it is argued that what is at stake for Heartland is more than the prospect of free-market legislation and short-term profits by means of industry-funding and political endorsement. Rather, it is the “legitimacy of the status quo of world politics nestled in our dominant core civil paradigm of Enlightenment liberalism” (Jacques, 2006: 79). In terms of this, Heartland’s struggle to uphold the dominant social paradigm includes defending this paradigm’s accompanying economic system, with specific regard to the formation of the state system, as well as the institution of world capitalism (Jacques, 2006). Heartland’s stake in this paradigm, above possible economic benefit, relates directly to their political and social position of power, as well as the security of their already-entrenched worldviews and ideological positioning.

The notion that climate change denial stems from a deeply-rooted struggle to preserve the capitalist framework of our society in order to uphold their historical and political position of power is similarly put forward by Klein (2014: 23), who argues that:

Conservatives have come to understand that as soon as they admit that climate change is real, they will lose the central ideological battle of our time, whether we need to plan and manage our societies to reflect our goals and values, or whether that task can be left to the magic of the market.

At a practical level, this manifests in contrarian knowledge claims being made by Heartland for the sake of generating political conflict, as is evident in the divisive rhetoric employed and dubious truth-claims made in texts such as “The Global Warming Crisis is Over” (The Heartland Institute, 2015).

Finally, if we explicate Heartland's ideological positioning, namely the upholding of conservative, libertarian values, and analyse it with a particular focus on its relation to the environment, I believe that it represents a defence of "deep anthropocentrism" as a foundational, guiding belief system (Jacques, 2006). Deep anthropocentrism entails the disassociating of humans and society from non-human nature (Jacques, 2006). As a result, a "severed nature-human relationship" strongly challenges the notion that humans have an institutionalised obligation to prevent environmental changes, or that an obligation exists towards the people who are affected by such changes (Jacques, 2006: 95). In light of Heartland's discourse in relation to climate change (and by extension the project of environmental protection), it is evident at several points throughout the analysis that Heartland attempts to defend the stance of deep anthropocentrism. This can for example be seen in Heartland's conflating of the discourse surrounding ISIS and terrorism and comparing it to the notion of environmental concern (Idso, Carter & Singer, 2015). Similarly, this is evident in Heartland's dismissive tone toward the very notion of "environmental"²⁵, or the generalised clustering of all "environmental groups" into a singular bracket, in conjunction with the accusation that all "environmental groups refuse to admit they were wrong". (The Heartland Institute, 2015)

5.4 Attempts to uphold and preserve power

In assessing the power dynamics at play in the analysed texts, it can be seen that Heartland attempts to discursively position itself as "speaking truth to power" within the context of the climate change debate.²⁶ Specifically, in

²⁵ For example, when discussing "environmental groups", Heartland states that "it was never about the science for them" (The Heartland Institute, 2015).

²⁶ In relation to the idea of "speaking truth to power", a reference must be made to Foucault's (1983) conception of *parrhesia*. Derived from classical Greek literature, the term denotes the phenomenon of "speaking freely" or "speaking boldly" for the sake of the common good, regardless of personal risk or consequence (Foucault, 1983). According to Foucault's (1983) conception thereof, using *parrhesia* entails the conditions of being truthful, not using the strategies of rhetoric or manipulation, and speaking from a position of lower social positioning and power. Although Heartland does not match this criteria, it seems, in light of their truth-

framing the NIPCC as the IPCC's scientific competitor, whilst further positioning the NIPCC as bravely standing up against the IPCC, Heartland positions itself as a contender in mainstream climate science and a figurative 'preacher of truth'. For example, in making claims such as "global warming is not a crisis" and "the threat was exaggerated", Heartland presents itself as countering (and conquering) the "hegemony" of mainstream climate science, specifically due to its role in "debunking" the "junk science" put forward by environmentalists and consensus-researchers. Worth noting in this regard is that despite Heartland's positioning within the counter-movement and contrarian political space, the image produced of them "speaking truth to power" is both untrue and ironic. This is because Heartland in fact speaks *from* the foundational "base of the dominant modes of power", as opposed to speaking against them, in that Heartland's work generally represents and is funded by large corporations, industry-lobbyists and conservative politicians, as well as citizens in a position of economic power that benefit from the perpetuation of this current economic framework. (Jacques, 2006; Wildavsky, 1979)

In order to illustrate this point, we need to refer back to Fairclough's (1993) insights about critical discourse analysis, specifically to the manner in which the discourse of a particular social order (it could be that of a certain stakeholder group, for example) is shaped by, and relates to a "social problem" that it tries to address. Fairclough (1993) would argue that there is a problem in the discourse under analysis if it turns out that a particular social or stakeholder group has no real interest in the problem being solved, but rather has a specific interest in the problem *not* being solved. This is clearly the case in Heartland's discourse, in that they see policy intervention and scientific study in relation to climate change as an obstacle to maintaining their social, political and economic status quo. In line with this, beneficiaries of Heartland's work, namely those who benefit from environmental policies that uphold the

claiming efforts within the public sphere, that they can be interpreted as attempting to act out such a role within the context of the climate change debate, whereby they consider themselves as truth-bearers in opposition to the accepted claims of scientific consensus around anthropogenic climate change.

principles of free-market liberal trade, libertarian property rights, and deregulation, have an interest in the problem of climate change not being addressed, especially not with the proposed measures of stricter regulation and policy changes (that may disrupt the status quo).

Thus, Heartland can be interpreted not as “speaking truth to power”, but rather as acting to confuse power, circulating doubt amongst political decision-makers, thereby (ironically) keeping the power of the status quo intact. Thus, Heartland, its proponents, and its beneficiaries can be understood as speaking from the foundation of the dominant social paradigm or mode of power, for the sake of defending and upholding such power.

5.5 The manipulation of truth

In analysing the consequences of the power relations outlined above, I believe that Heartland’s discursive attack on the IPCC’s credibility is aimed at the stripping away of the “IPCC’s right to speak the truth on climate change” (Foucault, 1984a; Skoglund & Stripple, 2018). Against the backdrop of Foucault’s (1984a) conception of ancient cynics in *The Courage of the Truth*,²⁷ it is argued that Heartland, parading as a modern day cynic, “disentitles” the IPCC’s attempts to speak the truth on climate change by portraying the IPCC as being a ‘hysteric’ that metaphorically follows a ‘new religion’ of environmentalism (Foucault, 1984a). As a result of these inflammatory claims, the IPCC is strongly portrayed by Heartland as a sort of “religious humbug”,

²⁷ In assessing Foucault’s (1984a) final lecture series on the genealogy of truth-telling, a strong focus lies not only on the notion of Parrhesia, as previously outlined, but also on the concept of provocative truth-telling in the form of cynicism. The ancient cynic, burdened with a “diacritical life”, was expected to “live unconcealed”, exposing all relevant political truths within a public domain (Foucault, 1984a: 174). By virtue of them reversing the power-dichotomy between those with and without power, the cynic truth-tellers were generally greeted with contempt by others (Foucault, 1984a). By accepting and embracing the risk of real physical harm, it would be possible for a cynic to be deemed a Parrhesiast, someone who “always spoke what he genuinely believed to be the truth, harmonizing his words and his actions” (Barratt, 2007; Foucault, 1983; Skoglund & Stripple, 2018).

rather than a bearer of scientific facts (Foucault, 1984a; Skoglund & Stripple, 2018). This is textually evident in Heartland's Fox News TV appearance, in which Joseph Bast exaggeratedly remarks "All of this, and somehow we're still supposed to believe the [IPCC] models", following his claims of "no increase in violent weather", and "no increase in hurricanes" (Baier, 2013).

In analysing the effects of this strategy, the portrayal of the IPCC as a "religious humbug", both by Heartland, the NIPCC, as well as other conservative think tanks and climate sceptics,²⁸ has significantly bolstered the widespread circulation of climate change denial within the sphere of civil discourse (Dunlap & Jacques, 2013). Moreover, this narrative has resulted in a distrust of the IPCC within the environmental policy space, whereby their intended position as "primary validator" (Gamson, 1999) or "agent of definition" (Carvalho, 2007) on climate change science has been significantly eroded in both public and policy-making circles, resulting in there no longer being a central, universally authoritative body for validating and circulating scientific research within the context of climate science. Although no research exists to directly attribute this erosion to Heartland in particular, various studies have illustrated the role of conservative think tanks in facilitating this outcome (Dunlap & Jacques, 2013; Stefancic & Delgado, 1996). Similarly, the statistics surrounding the belief in (or denial of) climate change by US citizens, as outlined in the introduction of this thesis,²⁹ illustrate the point that the IPCC is not trusted at a public and policy-making level.

In building on the notion that science is "validated" for the purpose of being authoritative, as outlined in the literature review of this thesis (see 2.4), it is

²⁸ Several prominent conservative think tanks have published a multitude of books and articles attempting to discredit the notion of anthropogenic climate change, with both direct and indirect references being made to the IPCC (Dunlap & Jacques, 2013). Such think tanks include the Cato Institute, the Marshall Institute, the Hoover Institute and the Hudson Institute.

²⁹ As cited in the introduction of this thesis (see Chapter 1.1), Dunlap, McCright and Yarosh (2016) illustrate in their study of climate change consensus that only 49% of Americans are convinced of anthropogenic climate change as a real scientific phenomenon.

argued in light of the conducted discourse analysis that Heartland (through the NIPCC as a representative body) attempts to frame and position itself as a “primary validator” or “agent of definition” of climate science. This is evident in the manner in which the Institute frames the NIPCC as being credible and on-par with the IPCC. At a linguistic level, this can be seen in publications such as “The Global Warming Crisis is Over”, of which the introduction highlights “two major multi-volume reports on global warming”, “one by the IPCC and one by the NIPCC” (The Heartland Institute, 2018). In terms of the other (written) texts that were analysed, efforts to reinforce the NIPCC’s credibility are also evident in “Why Scientists Disagree about Global Warming”. This is illustrated in the text’s strong politicisation of “Us vs Them” (NIPCC vs IPCC), as well as in the vilification of the IPCC reports as “fake science”, in contrast to referring to NIPCC scientists as “real scientists” (Idso *et al.*, 2015).

The notion that Heartland attempts to frame itself as a primary validator or “agent of definition” (Carvalho, 2007) of climate science is also evident when comparing the analysed texts in relation to each other (Fairclough, 1995). In applying Fairclough’s (1995) principle of interdiscursive analysis, it is argued that Heartland’s desired outcome of circulated denialism within a public policy and civil discourse sphere is better achieved through the repetition of their message within different genre contexts. For example, Bast’s (verbal) attempts to discredit the IPCC within a public media appearance on Fox News strongly resemble Heartland’s textual and even ‘scientific’ efforts to discredit the IPCC in texts such as “The Global Warming Crisis is Over” and *Why Scientists Disagree about Global Warming*.³⁰ Despite the differences in genre between these texts, the similarity in tone, message and audience illustrates that a strong degree of consistency is evident throughout the body of analysed texts. Similarly, Heartland’s references to the “political interests” of the IPCC reappear multiple times between the different texts, such as in

³⁰ Worth noting in this regard is that Fox News’ anchors Bret Baier and Doug Mc Kelway also conform to this particular “order of discourse”, adopting a distinctly sceptical tone in their coverage of the climate change “scandal”.

Bast's Fox News appearance, as well as in "The Global Warming Crisis is Over" (The Heartland Institute, 2015; Baier, 2013).

Keeping in mind that the analysed texts operate in different genres (online text, media appearance and book), it is argued that the connection between the texts, such as "The Global Warming Crisis is Over", and Bast's discourse at a social and interactional level, i.e. his Fox News appearance, is interdiscursively mediated (Fairclough, 1995). Put differently, this illustrates that discourse within Heartland's frame of social activity (Bast's Fox News appearance) strongly resembles what is occurring within Heartland's texts.

In terms of truth implications, I believe that Heartland's desired outcome of being perceived as a primary validator and "agent of definition" of climate science is hereby bolstered by the interdiscursive congruence between Heartland's texts.

5.6 Unpacking epistemology: The position of science

As a result of the effort by Heartland and the NIPCC to be framed as "primary validators" of science, as well as their strong degree of vilification toward the IPCC, various consequences arise both in terms of power dynamics, as well as within an epistemological domain. On the point of power, it has been illustrated above (see 5.3) how Heartland and the NIPCC "disentitle" the IPCC from their capacity to speak the truth about climate change. Regarding the notion of epistemology, the next section will explore how the analysed discursive strategies manifest within the domain of science and knowledge hierarchies.

In light of the primary theme explored within this thesis so far, namely the outright and absolutist denial of climate science, the question arises as to what hierarchies or value systems mediate particular truth-claims. If the IPCC warns of severe threats to the planet whilst claiming that a consensus of 97% exists among scientists in relation to climate change, whilst the NIPCC makes

claims that man-made influence on climate change is negligible (and potentially beneficial), then who are we to believe?

From the critical base from which this thesis approaches Heartland and the NIPCC's denial of anthropogenic climate change, I adopt the position that despite no one being able to claim "access to Truth", various truths can differ in order and quality (Angermuller, 2018: 6). Specifically, I believe that the knowledge produced by a "community of specialised researchers" by means of valid "scientific procedures" has a distinctly different epistemological quality from the truth developed by "political propagandists" with oil-industry support and promotion (Angermuller, 2018: 6). In line with this reasoning, the underlying assumption is that scientific truth claims emerge as a result of the work of specialists who engage in a particular discourse community, marked by procedures and institutions that engender trust in scientific expertise (Angermuller, 2018: 6). Furthermore, with valuation practices and quality standards in place, it is possible to differentiate between "more and less valued knowledges" (Angermuller, 2018: 6). Thus, in a hypothetically objective world of scientific discovery, truths constructed by specialists in "trusted expert communities" would hold more weight than truths of "non-specialists whose claims may be just personal whims". As a result, truth values would differ between knowledges (Angermuller, 2018: 6).

Despite this depiction of what the scientific knowledge or 'truth' *ought* to look like, particularly within the context of climate change and with the IPCC as a "primary validator" of science, various factors prevent this from being the case, as is evident in the case of climate science. Apart from the various social elements that come into play, such as the role of the media in reporting on science, psychological biases of those interpreting science, and ideological underpinnings of scientists and readers, a contributing obstacle to the adoption of the above-outlined stance is arguably the nature of science itself within the epistemological domain.

This will be further explored below.

5.7 Threats against scientific fact

Within the context of epistemology, the notion of ‘scientific fact’ is threatened at two levels by denialists who distort the epistemological peculiarities of science. On the one hand, the social science phenomena of social construction, deconstruction, and discourse analysis enable critique to be turned back upon itself, allowing scientific propositions to be challenged on the basis of partiality (Latour, 2004). On the other hand, the principle of scientific uncertainty is being used against itself by denialists in order to undermine the validity of scientific knowledge (Andrejevic, 2013). These phenomena, which I will call “the post-truth inversion of critique” and the “disjuncture of scientific reason” respectively, provide insight into the mechanisms that constitute Heartland’s denial of climate change, whilst opening up several key epistemological questions, as explored below.

5.7.1 The post-truth inversion of critique

Regarding the first ‘threat’ to scientific fact, it is worth beginning with Bruno Latour (2004: 228), who after years of demonstrating the social construction of scientific facts, and decade’s worth of critique in relation to the greater institution of science, asked himself in 2004:

Was I wrong to participate in the invention of this field known as science studies? Why does it burn my tongue to say that global warming is a fact whether you like it or not? Why can’t I simply say that the argument is closed for good?

What Latour (2004) is referring to, are the attempts throughout his work, research and publishing, to show the “lack of scientific certainty” inherent in the construction of facts (Latour, 2004: 227). In line with this argument, postmodern and constructivist theory has argued for decades that “there is no such thing as natural, unmediated, unbiased access to truth, that we are always prisoners of language, that we always speak from a particular standpoint” (Latour, 2004: 227). In line with this, Latour promoted the notion that we ought to be more critical and discerning of science, and not

necessarily accept it at face value due to its status as being merely “scientific”. This above-quoted concern and doubt of Latour’s, however, relates to how (in a contemporary context), “dangerous extremists are using the very same argument of social construction to destroy hard-won evidence that could save our lives” (Latour, 2004: 227). In other words, his concern relates to how “techniques of reflexive deconstruction” can be subverted to serve “regressive ends”, thereby serving as strategies of “manipulation, obfuscation, and the reproduction of power relations” (Andrejevic, 2013: 12).

In a broader sense, what this inversion of critique illustrates is how “the new spirit of capitalism has put to good use the artistic critique that was supposed to destroy it”, or how “that which was once challenged by the deconstructive arsenal now feeds upon it” (Andrejevic, 2013: 12; Boltanski & Chiapello, 2011).³¹ For the sake of this thesis, I will call this phenomenon the “post-truth inversion of critique”.

At the root of this “post-truth inversion of critique” is the subject/object dynamic that is applied in critical theory. Latour (2004: 241) notes how the “subject” is viewed either as being powerful to the extent that “everything” can be created out of its own labor, or it is viewed as “nothing but a mere receptacle for the forces of determinations known by natural and social sciences”. At the other end of this “critical trick”, Latour (2004: 241) notes how the object is “either nothing but a screen on which to project human free will”, or how it is “so powerful that it causally determines what humans think and do”. Essentially, the argument is made that a lack of “crossover” exists between “lists of objects in the fact position and the fairy position”, and that consequently, it is possible for the critic to be situated between and within these contradictions.³² In other words, critical techniques like social

³¹ Similarly, Latour (2004: 241) points out that “if the dense and moralist cigar-smoking reactionary bourgeois can transform him- or herself into a free-floating agnostic bohemian, moving opinions, capital, and networks from one end of the planet to the other without attachment, why would he or she not be able to absorb the most sophisticated tools of deconstruction, social construction, discourse analysis, postmodernism, postology?”

constructivism, positivism and realism can be independently applied to different arguments or topics in order to ensure the critic's correctness in each instance. At the same time, however, Latour (2004) notes that critics are able hold their own beliefs beyond reproach. As a result, Latour (2004) argues that the critical approach is reductionist in nature, and that paradoxically, by relativizing all knowledge, social constructionist critique has undermined the possibility of critique in the first place (Mussell, 2017).

Latour (2004:241) further notes that:

This is why you can be at once and without even sensing any contradiction (1) an anti-fetishist for everything you don't believe in - for the most part religion, popular culture, art, politics, and so on; (2) an unrepentant positivist for all the sciences you believe in - sociology, economics, conspiracy theory, genetics, evolutionary psychology, semiotics, just pick your preferred field of study; and (3) a perfectly healthy sturdy realist for what you really cherish - and of course it might be criticism itself, but also painting, bird-watching, Shakespeare, baboons, proteins, and so on.

The objective of highlighting this "flaw" in the critical landscape is not to undermine the methodology of this very thesis, which is by nature critical, but rather to begin outlining the epistemological grounds underlying the domain of "post-truth politics" in scientific and political discourse.

In applying this logic to the case in point, I believe that Heartland and the NIPCC's text *Why Scientists Disagree about Global Warming* can itself be interpreted as employing the method of "critique" in relation to the texts that attempt to prove consensus. In their analysis of Doran and Zimmerman's (2007) consensus study, for example, Idso *et al.* (2015: 14) critically analyze the methodology of the text, and question its core variables (sample size, quality of subjects), and conclude that the authors have "simply asked the wrong people the wrong question".

Thus, despite its efforts to be portrayed as “speaking truth to power”, the Institute plays on “post-truth politics”,³³ applying the power of critique in order to sustain its own dominant position within the political sphere. Specifically, by persistently debunking or dismantling truth claims that threaten Heartland’s (and by extension, denialists’) position of power, the Institute is able to effectively negate any attempt at challenging its position of political and economic dominance.³⁴ Put differently, in persistently dismantling emergent “new truths”, Heartland is able to uphold its “default truth” (in that it is already in a position of power), thus enabling the continuation of such power. As is clear from the conducted CDA, Heartland is able to frame climate change science in such a way that “all so-called experts are biased, any account partial, all conclusions the result of an arbitrary and premature closure of the debate” (Andrejevic, 2013: 14).³⁵

In assessing the implications of this strategy, we see that it contributes significantly to the denialist agenda of circulating doubt in relation to anthropogenic climate change. Specifically, by persistently dismantling the IPCC’s “truth”, whilst upholding and defending its own “dominant truth”, the denialist tactic of “fogging up the room” is reinforced (Wyatt & Brisman, 2017b) . In terms hereof, Heartland “wins with *inaction*”, postponing and preventing environmental laws from being enacted through spreading “seeds of doubt”, whilst not necessarily winning the debate on argumentative merit (McCright & Dunlap, 2000).

³³ James Fallows (2012: 9) describes “Post-truthism” as a “small-c conservative strategy in the sense that it tends to work in the interest of existing power relations”.

³⁴ Andrejevic (2013: 12) notes in this regard that “if you happen to be in power already, the thorough debunking of deliberation and the dismantling of truth claims is more threatening for one’s enemies than one’s allies”.

5.7.2 The disjuncture of scientific reason

In understanding the second “threat” to scientific fact, it can be argued that at a more general level, the perceived validity of scientific arguments have markedly dwindled (Eubanks, 2015; Lubchenco, 2017). This correlates with the emergent phenomenon of “normal scientific uncertainty” being used against science itself (Andrejevic, 2013: 9). Specifically, the use (and abuse) of traditional scientific uncertainty,³⁶ understood as scientific skepticism in the face of newly-produced knowledge, results in the undermining of the “status of actual scientific knowledge” (Andrejevic, 2013: 9).

Practically, this manifests in examples such as the case in point (Heartland’s denial of climate change), where “scientific organizations” such as the NIPCC are able to claim validity and truth in their arguments to the same degree that an institution such as the IPCC claims such validity. In other words, despite a large difference in organizational structure, scientific procedure, valuation practices and discursive dynamics between the IPCC and the NIPCC, both organizations appeal to the same standard of scientific certainty (or uncertainty) when attempting to prove or refute each other’s arguments. In linking this point back to the conducted CDA, it is evident in Heartland’s Fox News appearance that the NIPCC’s “peer-reviewed climate change study” is attributed such a large degree of scientific credibility that it is portrayed as “overriding” the IPCC’s previous reports and notions of consensus (Baier,

³⁶ Wyatt (2017) emphasises that denial and scepticism, within the context of this debate, must be understood separately from one another. The fundamental point is hereby raised that “methodological” scepticism, which practically manifests in the critical examining of assumptions and conclusions, is in fact one way of advancing science, and that it ought to be embraced. On the other hand, science denial can be understood as the “refusal to believe something no matter what the evidence” (Wyatt, 2017: 31). Ultimately, the distinction lies in the positive, beneficial practice of scepticism *in* science, as opposed to scepticism *of* science. The latter, as noted by Washington & Cook, (2011: 1) often occurs because “it is fashionable and agrees with current dogma”.

2013).³⁷ In this way, traditional scientific uncertainty is used to portray the NIPCC as a legitimate scientific organization.

Scientific uncertainty can therefore be viewed as being “used against itself”, contributing to “the decline of the scientific fact” (Eubanks, 2015: 44). This “decline”, which goes hand-in-hand with the “post-truth inversion of critique”, has further consequences, which manifests in the form of doubt within a civil discourse sphere and a public policy discourse sphere.

Furthermore, the “decline of the scientific fact” points to how science is becoming increasingly politicized. As put forward by Oreskes and Conway (2013: 63) “science, even mainstream science, is treated as just politics by other means”. In terms of this emergence, if one disagrees with a particular scientific phenomenon at a political level, it has become possible to disagree with it by dismissing such science as itself being political, as is evident in Heartland’s accusations that the IPCC’s climate change reports are geared toward political gain (Oreskes and Conway, 2013: 63).

In light of the above arguments, the “decline of the scientific fact” signifies the ironies and dilemmas of appealing to scientific reason in a post-truth world. Despite the IPCC promoting and undertaking real science and the NIPCC promoting pseudo-science, as explored in this and previous chapters, the epistemological framework of post-truth politics, in terms of which science can be disputed at a political level, results in difficulty for the IPCC to distinguish itself as being more credible and trustworthy than the NIPCC. Keeping in mind the urgent challenges posed by climate change, both at environmental and social levels, the question arises as to how climate scientists, with an

³⁷ In his coverage of the climate change controversy, Fox News correspondent Bret Baier (2013) notes how “a peer-reviewed climate change study released today finds the threat of man-made global warming to be greatly exaggerated”. In presenting the case that the NIPCC’s (2013) report directly challenges the validity of the IPCC’s (2013) report, Baier seemingly appeals to the notion of “peer-review”. In appealing to one of the fundamental pillars of today’s scientific methodology, namely the peer-review process, Baier (2013) is perceived as validating the credibility of the NIPCC’s report.

emphasis on organizations like the IPCC, are able to validate their research at both the levels of public policy and civil discourse. In opening up this question of epistemology within a post-truth context, however, we need to address the kernel of reason itself, which is a question that falls outside the ambit of this thesis.

While leaving this major topic open for in-depth discussion by others, I would like to conclude with the statement that the denialist rejection of (climate) science by institutions such as Heartland results in the fundamental *negation* of scientific reason. At the same time, the willingness of institutions such as Heartland to appeal to “normal scientific uncertainty” in order to argue for an alternative truth is both disingenuous and amounts to a fundamental contradiction (Andrejevic, 2013).³⁸

³⁸ Specifically, in exploring the consequences of the “decline of the scientific fact”, it can be argued that we are left with a “dialectically generated contradiction” (Kant, 1999) in terms of which the “thesis” of climate change science is challenged by the “antithesis” of scientific reason within a post-truth context. In terms of Hegelian logic, this represents a “dialectical” or “negatively rational” moment of instability, in terms of which a process of “self-sublation” occurs (Hegel, 1991: 79). In applying the notion of self-sublation to the case in point, the denialist rejection of (climate) science by institutions such as Heartland results in the fundamental *negation* of scientific reason (the *definition* of science), whilst the willingness of such institutions to appeal to “normal scientific uncertainty” (with examples such as Heartland’s claims of publishing peer-reviewed studies to discredit the IPCC), illustrate the *preservation* thereof, thereby resulting in a fundamental contradiction (Hegel, 1991; Latour, 2006; Andrejevic, 2013;).

5.8 Conclusion

This chapter starts with an overview and summary of the rhetorical and discursive strategies used by Heartland to generate skepticism about climate science and disseminate climate change denial. It ends with a discussion of the predicaments of science when confronted with a “post-truth” politics in which the peculiarities and limitations of scientific reason are inverted to facilitate untruth and unreasonability.

This calls for a further elaboration, on the one hand, of the material, social and political conditions leading to the emergence of the ideological institutions such as Heartland, but also, on the other hand, of the relationship between critical thinking and knowledge, and the relationship between questioning truth claims and establishing the truths upon which our survival and flourishing as human beings depends.

While this confronts us with arguably the deepest epistemological question of our time, I will bring the discussion of this thesis to an end in the next chapter with a short postscript on where this analysis leaves us, and what to do as first steps when confronted with the discourse of climate change denial as articulated by Heartland and like institutions.

Chapter 6: Conclusion

6.1 Summary and Conclusion

Overall, this thesis has attempted to show that Heartland's discourse and rhetoric surrounding climate change is driven by an underlying ideology that attempts to uphold a particular (dominant) social paradigm. Concurrently, this thesis has aimed to explore the impact of Heartland's discourse and rhetoric in relation to power relations, truth, and the epistemological foundations of science.

To achieve this, Heartland's discourse was broken down in terms of its semiotic features at various levels (linguistic, structural and interdiscursive), primarily in line with Fairclough's (1995) conception of critical discourse analysis, and against the backdrop of Thompson's (1988) "Depth Hermeneutics" approach.

In further summarising the methodological approach used, the conducted CDA shed light on the various discursive and rhetorical strategies utilised by Heartland for the sake of circulating climate change denial at a public scale. Specifically, Heartland's role as a right-wing, conservative think tank was firstly outlined in relation to their political and economic interests, both in relation to environmental policy issues such as climate change, as well as other public policy related issues. In light of this contextual frame, an analysis was conducted on three seminal texts by Heartland that specifically relate to climate change, and that all attempt to disprove the notion of scientific consensus in relation thereto. Throughout the analysis, there was an emphasis on highlighting the linguistic, structural and interdiscursive elements of Heartland's discourse, specifically in order to extrapolate the "symbolic constructions which facilitate the mobilization of meaning" (Thompson, 1988: 372). In other words, my analysis has attempted to unmask the many discursive and rhetorical strategies employed by Heartland, with a particular focus on how such strategies benefit Heartland's agenda of facilitating wide-

spread denial of (anthropogenic) climate change, especially within the context of civil discourse and public policy.

Throughout the analysis, I repeatedly conducted the exercise of interdiscursively linking certain phrases or words within the analysed texts, to a certain ideological position held by Heartland, based on the contextual framing that was undertaken at the beginning of Chapter 4. In line herewith, various threads of consistency between the different texts are identified, where Heartland is shown to portray a consistent message within its own order of discourse, across the range of analysed texts.

Apart from this, the exercise of making interdiscursive and intertextual linkages also brought to light the significant degree to which Heartland's arguments relating to economic policy are consistently repeated.³⁹ Specifically, multiple references are made throughout the analysed texts portraying Heartland's alignment to the ideological position that the environment should not be regulated by policy, but should rather be left to the free-market forces of the capitalist economic framework that defines our society. Thus, I have attempted to show the degree to which Heartland's rhetoric promotes the fundamental principles of free-market, libertarian economic principles within their arguments relating to climate change, and how this represents an underlying preservation of *deep anthropocentrism* as an entrenched worldview. In line with this worldview, progress is synonymous with the subordination of nature to human will.

With this in mind, I would like to highlight the first central conclusion of this thesis, namely that Heartland's scepticism and criticism of environmental knowledge and climate change science is not only superficial, but secondary

³⁹ As a policy-focused think tank, it is not *per se* problematic for Heartland to be making ideological arguments relating to questions of economic policy. The problematic aspect thereof, as highlighted in the critical discourse analysis (see Chapter 4), lies in Heartland's usage of ideological arguments to directly discredit climate change science and scientists, whilst having such arguments bolstered by seemingly effective rhetorical and discursive strategies that improve the reception of Heartland's message amongst its audience.

to its arguments relating to economic policy. Put differently, what primarily concerns Heartland is not the science of climate change itself, but rather the politics and ideological conflict surrounding it, insofar as it poses a threat to the dominant social paradigm to which Heartland's ideological affiliation is bound.

The second conclusion of this thesis relates to power. With the above arguments relating to ideology in mind, I have shown the degree to which Heartland speaks from and attempts to uphold the ideological position of right-wing, conservative political principles against the backdrop of a capitalist economic framework. In terms of these, I have argued that Heartland's objective is to preserve the dominant social paradigm, in that it fits into the upper tier of this paradigm's economic, political and ideological hierarchy (Jacques, 2006).

Simultaneously, I have attempted to show the strong degree to which Heartland positions itself as a figurative "underdog" that tries not only to conquer the "hegemony" of the IPCC's position within the domain of climate science, but to overthrow such a position entirely. I have hereby shown how Heartland positions itself as "speaking truth to power" in order to "debunk the myths of the environmental movement and environmental science" (Foucault, 1984a; Jacques, 2006: 94). With this paradoxical and ironic point in mind, the second conclusion of this thesis is that Heartland in fact speaks *from* the foundational "base of the dominant modes of power", as opposed to speaking against such power (Jacques, 2006).⁴⁰

⁴⁰ A sub-conclusion of the analysed power dynamic relates to truth. Through its persistent efforts to portray the NIPCC as being scientifically on-par with the IPCC, Heartland effectively manifests a perceived conflict between the two organizations. This, in conjunction with the constant vilification of the IPCC expressed in Heartland's discourse, results in the phenomenon of Heartland (and the NIPCC) stripping the IPCC of "its right to speak the truth on climate change" (Skoglund & Stripple, 2018).

The final conclusion of this thesis lies in the domain of epistemology and science. This thesis has explored the manner in which the role of science is affected by the above-outlined conclusions regarding ideology, power, and truth.

This firstly entails exploring the epistemological ground underlying the domain of “post truth politics”. In terms hereof, it is shown how Heartland employs the method of “critique” in order to persistently dismantle emerging “new truths” for the sake of upholding its own “default truth”. In this regard I have argued that Heartland’s emphasis on “Post-truthism” constitutes a strategy that promotes “the interest of existing power relations” (Andrejevic, 2013: 14; Fallows, 2012: 9). This dynamic plays out in Heartland’s persistent framing of climate change researchers (and the IPCC) as being politically-motivated and ideologically corrupt (Andrejevic, 2013: 14; Fallows, 2012: 9).

Lastly, I have opened up the question of scientific reason, exploring how its limitations are inverted to facilitate both untruth and unreasonability in the face of “post-truth” politics. In analysing the implications hereof, I believe that profound consequences emerge in relation to the endeavour of science as a whole, as well as in relation to the existential threat of climate change itself. With regards to this critical point, further reflection will follow below.

6.2 Postscript

In light of the themes explored in this thesis, we are left with the question of “where do we now stand?”

In attempting to answer this question with specific reference to Heartland’s discourse surrounding climate change, I believe that, through the institutional efforts of de-legitimizing scientific claims that climate change is occurring, of amplifying an image of severe disagreement in the scientific community, and of de-authorizing certain agents or institutions that call for citizen and political mobilization to address climate change, various consequences arise that

perhaps go beyond the intended scope or reach of organizations like Heartland. Firstly, it is worth highlighting how the challenging of and contempt for contemporary science, by institutions such as Heartland, has transformed the nature of science itself to now stand as “plural and open-ended”, as opposed to its intended nature of being contextual and contingent (Carvalho, 2007: 238; Wyatt & Brisman, 2017). In other words, by legitimizing the denialist perspective on climate change within the public sphere by means of the strategies analysed in this thesis, (climate) science itself becomes portrayed as a “dismissible endeavour”, one that is secondary to questions of politics and economics, and one that can be openly challenged on the basis of politics and economics (Wyatt & Brisman, 2017).

In turn, this portrayal of science as a “dismissible endeavour” puts science as a whole under threat.⁴¹ By changing the way that both civil society and policy makers interact, engage with, and talk about science, its position as a problem-solving, authoritative and trustworthy source of knowledge is both challenged and diluted in value.⁴²

More pressingly, the institutional efforts to discredit climate science by institutions such as Heartland pose the risk of derailing the very means by which climate change may be mitigated, namely through public policy action and changes in social practices (Wyatt & Brisman, 2017).

In relation to the Heartland Institute itself, I believe that despite their likely unawareness thereof, the discourse that they circulate in relation to climate change science is opening up truly fundamental epistemological questions, as explored above (see 5.6). In light of their motives for opening up such

⁴¹ The media construction of scientific knowledge plays a crucial role in this regard, as explored in the literature review of this thesis (see Boykoff & Boykoff, 2007; Carvalho, 2007).

⁴² I by no means believe science to be apolitical, nor do I consider it to be an ultimate source of truth. On the contrary, I believe science to be contextual; bound by personal, institutional, and political factors (Latour, 2004). Nevertheless, this does not warrant the portrayal of science as merely a “plural and open-ended” endeavor that can be disagreed with solely on ideological grounds.

questions, namely the upholding of the dominant social paradigm (that is deeply tied to the fossil fuel industry), and the preservation of a leading, power-holding ideology, I believe Heartland to be both irresponsible and dishonest about the epistemological questions that they themselves open up. In particular, I believe Heartland to be irresponsible in light of the material consequences of their discourse and rhetoric, namely the hampering of efforts to ameliorate climate change within the public policy domain – which contribute to the perpetuation of fossil practices and consequential environmental degradation. Secondly, I believe the Institute to be dishonest in their portrayal of science as something that it is not.

Furthermore, I believe that Heartland is (perhaps unknowingly) perpetuating a form of ideological “abuse”, leveraging the practice of traditional scientific uncertainty in order to undermine the status of actual scientific knowledge. This “abuse” therefore consists of Heartland playing on “post-truth” politics by applying the constructivist method of critique to persistently dismantle the IPCC’s truth claims in relation to climate science. In itself, this phenomenon constitutes an object of analysis that merits action and that further research could explore.

Despite the essence of this thesis being the elucidation of the discursive strategies posed by Heartland and the NIPCC in their denial of climate change science, as well as the consequences that such strategies have in terms of meaning, ideology, truth, and power, it is worth making a brief and tentative suggestion regarding a possible way forward. In light of the predicament in which climate science now finds itself, I believe that novel conceptual tools are required that can recognize the untruth and unreason of scientific reason on the one hand, and the truth of the extent to which post-truth politics facilitates untruth and unreasonability on the other. Despite seeming paradoxical, I base this statement on the foundational belief that scientific reason can entail “untruth” and “unreason” whilst leaving the legitimacy of scientific knowledge intact.

Therefore, I propose that, in light of the post-truth inversion of critique, as outlined above (see 5.5), the “relationship between critique and knowledge” ought to be finely traced, enabling us to “discern how an unreflective critique turns on itself, and to further consider how it might be extricated from this impasse” (Andrejvic, 2013: 10). Thus, with the acknowledgment and acceptance of this “impasse” as a fundamental starting point, in terms of which self-awareness is formed around the disjunction of scientific reason on the one hand, and the post-truth inversion of critique on the other, momentum can be gained in overcoming these challenges.

Worth adding in this regard is my awareness that, in light of the realities of climate change and the urgency with which humanity needs to address it collectively, sectorally, and individually, it is somewhat contradictory that we are first required to critically think through the contradictions within our conception of scientific reason on an epistemological level.

In closing, it is worth highlighting two open-ended questions that this thesis brings to light, namely; where does this leave policy-makers who are required to make decisions regarding climate change at national and international levels? Secondly, where does this leave ordinary citizens and civil society members who have the potential to influence governments and policy-makers? In providing direction as to the manner in which answers could potentially be formulated in response to these questions, I believe that further research should focus on modes of discourse that facilitate dialogue which is both constructive and normative in relation to climate change. Specifically, I believe such new modes of discourse should acknowledge the overwhelming degree of *politicisation* inherent in discourse around climate change, whilst simultaneously encouraging the *politicized* reading of science and media reports. In doing so, I believe that researchers, policy-makers, and media representatives could participate in a more active interpretation of knowledge-representation that incorporates a critical understanding of ideological backdrops, political motives, and economic agendas. This might lead to a better understanding of climate science, as well as policies that respond to

climate change and that uphold the principles of environmental preservation to a stronger degree.

References

- Abbott, T. 2013. *Battlelines*. Melbourne University Press. [Online], Available: <https://www.mup.com.au/books/9780522864243-battlelines> [2018, February 27].
- Adam, D. 2009. *ExxonMobil continuing to fund climate sceptic groups, records show*. [Online], Available: <https://www.theguardian.com/environment/2009/jul/01/exxon-mobil-climate-change-sceptics-funding> [2018, March 07].
- Allan, S. 2004. *News culture*. Open University Press. [Online], Available: https://books.google.de/books/about/News_Culture.html?id=dxpvVEGufyIC&redir_esc=y [2018, March 17].
- Anderegg, W.R.L., Prall, J.W., Harold, J. & Schneider, S.H. 2010. Expert credibility in climate change. *Proceedings of the National Academy of Sciences*. 107(27):12107–12109.
- Anderson, A. 1997. *Media, culture, and the environment*. UCL Press.
- Andrejevic, M. 2013. *Infoglut : how too much information is changing the way we think and know*. Routledge. [Online], Available: https://books.google.nl/books/about/Infoglut.html?id=b1MXhS71t40C&redir_esc=y [2018, June 28].
- Angermuller, J. 2018. Truth after post-truth: for a Strong Programme in Discourse Studies. *Palgrave Communications*. 4(1):30.
- Antilla, L. 2005. Climate of scepticism: US newspaper coverage of the science of climate change. *Global Environmental Change*. 15:338–352.
- Austin, A. 2002. Advancing Accumulation and managing its discontents: The U.S Antienvironmental countermovement. *Sociological Spectrum*. 22(1):71–105.
- Baier, B. 2013. [Online], Available: https://www.youtube.com/watch?time_continue=56&v=iR52Rm6i5nY.
- Bakhtin, M.M. 1986. The Problem of Speech Genres. *Speech Genres and Other Late Essays*. 60–102.
- Barratt, E. 2007. Culture and Organization Foucault and the politics of critical management studies Foucault and the Politics of Critical Management

- Studies. *Culture and Organization*. 10:37–41.
- Bast, J. 1996. Joe Camel is Innocent. *The Heartland Institute*. [Online], Available: <https://www.heartland.org/news-opinion/news/joe-camel-is-innocent%20> [2018, June 26].
- Bast, J. 2016. History of The Heartland Institute. *The Heartland Institute*. [Online].. Available: <https://www.heartland.org/about-us/index.html> [2018, June 15].
- Björnberg, K.E., Karlsson, M., Gilek, M. & Hansson, S.O. 2018. Climate and environmental science denial: A review of the scientific literature published in 1990–2015. *Journal of Cleaner Production*. 167:229–241.
- Boltanski, L. & Chiapello, E. 2011. *Le nouvel esprit du capitalisme postface inédite*. Gallimard. [Online], Available: <http://www.gallimard.fr/Catalogue/GALLIMARD/Tel/Le-nouvel-esprit-du-capitalisme> [2018, June 28].
- Boykoff, M.T. & Boykoff, J.M. 2004. Balance as bias: global warming and the US prestige press. *Global Environmental Change*. 14(2):125–136.
- Boykoff, M.T. & Boykoff, J.M. 2007. Climate change and journalistic norms: A case-study of US mass-media coverage. *Geoforum*. 38(6):1190–1204.
- Boykoff, M.T. & Rajan, S.R. 2007. Signals and noise. Mass-media coverage of climate change in the USA and the UK. *Embo Reports*. 8(3):207-211.
- Callendar, G.S. 1938. The Artificial Production of Carbon Dioxide and its influence on temperature. *Quarterly Journal of the Royal Meteorological Society*. 64(1909):223–240.
- Carson, R. 1962. Silent Spring. *Foreign Affairs*. 76(5):218–219.
- Carvalho, A. 2007. Ideological cultures and media discourses on scientific knowledge: re-reading news on climate change. *Public Understanding of Science*. 16:223–243.
- Cohen, S. 2001. *States of denial: knowing about atrocities and suffering*. Polity. [Online], Available: <https://www.wiley.com/en-za/States+of+Denial:+Knowing+about+Atrocities+and+Suffering-p-9780745623924> [2017, December 21].
- Colvin, M. 2012. *Draft IPCC report leaked*. [Online], Available: <http://www.abc.net.au/pm/content/2012/s3654926.htm> [2018, May 04].
- Cook, C., Heath, F. & Thompson, R.L. 2000. A Meta-Analysis of Response

- Rates in Web- or Internet-Based Surveys. *Educational and Psychological Measurement*. 60(6):821–836.
- Cook, J., Nuccitelli, D., Green, S.A., Richardson, M., Winkler, B., Painting, R., Way, R., Jacobs, P., et al. 2013. Quantifying the consensus on anthropogenic global warming in the scientific literature. *Environmental Research Letters*. 8(2):2-24.
- Cook, J., Oreskes, N., Doran, P.T., Anderegg, W.R.L., Verheggen, B., Maibach, E.W., Carlton, J.S., Lewandowsky, S., et al. 2016b. Consensus on consensus: A synthesis of consensus estimates on human-caused global warming. *Environmental Research Letters*. 11(4).
- Dagorn, G. 2016. *Les volte-face de Nicolas Sarkozy sur le changement climatique*. [Online], Available: http://www.lemonde.fr/les-decodeurs/article/2016/09/15/les-volte-face-de-nicolas-sarkozy-sur-le-changement-climatique_4998385_4355770.html [2018, February 27].
- DellaVigna, S. & Kaplan, E. 2007. The Fox News Effect: Media Bias and Voting. *The Quarterly Journal of Economics*. 3(122):1187–1234.
- Diethelm, P. & McKee, M. 2008. Denialism: what is it and how should scientists respond? *The European Journal of Public Health*. 19(1):2–4.
- Dijk, T.A. van. 1991. *Racism and the Press* - Vandijk, T.
- Doran, P.T. & Zimmerman, M.K. 2009. Examining the Scientific Consensus on Climate Change. *Eos, Transactions American Geophysical Union*. 90(3):22.
- Dryzek, J.S. & Lo, A.Y. 2015. Reason and rhetoric in climate communication. *Environmental Politics*. 24(1):1–16.
- Dryzek, J.S., Norgaard, R.B. & Schlosberg, D. 2011. *Oxford handbook of climate change and society*. Oxford University Press.
- Dunlap, R. 1984. *Commitment to the Dominant Social Paradigm and Concern for Environmental Quality*. Vol. 65.
- Dunlap, R. 1987. Polls, pollution, and politics revisited: Public opinion on the environment in the Reagan era. *Environment*. 29(6–11):32–37.
- Dunlap, R. & Elsasser, S.W. 2013. Leading Voices in the Denier Choir: Conservative Columnists' Dismissal of Global Warming and Denigration of Climate Science. *American Behavioral Scientist*. 57(6):754–776.
- Dunlap, R. & Jacques, P.J. 2013. Climate Change Denial Books and

- Conservative Think Tanks. *American Behavioral Scientist*. 57(6).
- Dunlap, R. & McCright, A.M. 2008. A Widening Gap: Republican and Democratic Views on Climate Change. *Environment: Science and Policy for Sustainable Development*. 50(5):26–35.
- Dunlap, R. & McCright, A.M. 2012. Organized Climate Change Denial. In Oxford University Press *The Oxford Handbook of Climate Change and Society*.
- Dunlap, R., McCright, A.M. & Yarosh, J.H. 2016. The Political Divide on Climate Change: Partisan Polarization Widens in the U.S. *Environment: Science and Policy for Sustainable Development*. 58(5):4–23.
- Eubanks, P. 2015. The Troubled Rhetoric and Communication of Climate Change: The Argumentative Situation. *Rhetoric Review*. 35(2):189–196.
- ExxonMobil. 2008. *Corporate Citizenship Report, 2008*. [Online], Available: phx.corporate-ir.net/External.File%3Fitem%3DUGFyZW50SUQ...%0A.
- Fairclough, N. 1992. *Discourse and social change*. Cambridge: Polity Press.
- Fairclough, N. 1995a. *Critical Discourse Analysis: the Critical Study of Language* Norman Fairclough. [electronic resource] - Version details - Trove. 1st ed. London: Longman. [Online], Available: https://trove.nla.gov.au/work/31052813?q&sort=holdings+desc&_=1539514208278&versionId=208016386.
- Fairclough, N. 1995b. *Critical Discourse Analysis: The Critical Study of Language*. Harlow: Pearson Education Limited.
- Fairclough, N. 2001a. The discourse of New Labour : critical discourse analysis. In M. Wetherell (ed.). London *Discourse as data: a guide for analysis*. 229–266.
- Fairclough, N. 2001b. The Dialectics of Discourse. *Textus*. 14(2):231–242.
- Fairclough, N. 2012. Critical Discourse Analysis. *International Advances in Engineering and Technology (IAET)*. 7(1):452–479.
- Fallows, J. 2012. *Bit by Bit It Takes Shape: Media Evolution for the “Post-Truth” Age - The Atlantic*. [Online], Available: <https://www.theatlantic.com/politics/archive/2012/08/bit-by-bit-it-takes-shape-media-evolution-for-the-post-truth-age/261741/> [2018, July 06].
- Farmer, G.T. & Cook, J. 2013. *Climate Change Science: A Modern Synthesis*. Dordrecht: Springer Netherlands.

- Feldman, L., Maibach, E.W., Roser-Renouf, C. & Leiserowitz, A. 2012. Climate on cable: The nature and impact of global warming coverage on Fox news, CNN, and MSNBC. *International Journal of Press/Politics*. 17(1):3–31.
- Figueira, Á. & Oliveira, L. 2017. The current state of fake news: challenges and opportunities. *Procedia Computer Science*. 121:817–825.
- Foucault, M. 1983. *The Meaning of the Word "Parrhesia "*. Lecture notes. Discourse and Truth: the Problematization of Parrhesia. University of California at Berkeley, delivered 24 October 1893.
- Foucault, M. 1984a. *The Courage of the Truth (The Government of Self and Others II) Lectures at the College de France 1983–1984*. Trans. by G. Burchell. Picador.
- Foucault, M. 1984b. The order of discourse. In S. (M.) (ed.). Blackwell: Oxford *The Politics of Language*.
- Foucault, M. 1984c. *The Foucault Reader*. Vol. 1. Pantheon Books.
- Foucault, M. & Sheridan, A. 1972. *The archaeology of knowledge*. Pantheon Books. [Online], Available: https://books.google.nl/books/about/The_Archaeology_of_Knowledge.html?id=R_okAQAAIAAJ&redir_esc=y [2018, March 28].
- Fuller, S. 2018. *Post-Truth Knowledge As A Power Game*. Anthem Press.
- Funk, C., Rainie, L. 2015. Climate Change and Energy Issues. In *Americans, Politics and Scientific Issues*. [Online], Available: <http://www.pewinternet.org/2015/07/01/chapter-2-climate-change-and-energy-issues/> [2018, June 18].
- Gamson, J. 1999. Taking the Talk Show Challenge: Television, Emotion, and Public Spheres. *Constellations*. 6(2):190–205.
- Gardiner, S.M. 2006. A perfect moral storm: Climate change, intergenerational ethics and the problem of moral corruption. *Environmental Values*. 15(3):397–413.
- Green, S.K. 1992. The Blaine Amendment Reconsidered. *The American Journal of Legal History*. 36(1):38.
- Greshko, M., Parker, L. & Howard, B.C. 2017. A running list of how President Trump is changing environmental policy. [Online], Available: <https://news.nationalgeographic.com/2017/03/how-trump-is-changing->

- science-environment/ [2018, July 05].
- Grossberg, L. 1986. On Postmodernism and Articulation: An Interview with Stuart Hall. *Journal of Communication Inquiry*. 10(2):45–60.
- Habermas, J. 1990. On the Logic of the Social Sciences. MIT Press: Massachusetts.
- Hajer, M.A. 1997. *The Politics of Environmental Discourse*. Oxford University Press.
- Hansen, J., Johnson, D., Lacis, A., Lebedeff, S., Lee, P., Rind, D. & Russell, G. 1981. Climate Impact of Increasing Atmospheric Carbon Dioxide. *Science*. 213(4511):957–966.
- Hansen, J., Fung, I., Lacis, A., Rind, D., Lebedeff, S., Ruedy, R., Russell, G. & Stone, P. 1988. Global climate changes as forecast by Goddard Institute for Space Studies three-dimensional model. *Journal of Geophysical Research*. 93(8):9341.
- Hegel, G.W.F. 1991. *The Encyclopaedia Logic, with the Zusätze: Part I of the Encyclopaedia of Philosophical Sciences with the Zusätze*. Hackett. [Online], Available: http://books.google.com/books?id=4BNUFZ_hQ1wC [2018, July 20].
- Hickman, L. 2012. *IPCC Climate Change 2013 Report Leaked - Business Insider*. [Online], Available: <http://www.businessinsider.com/ipcc-climate-change-2013-report-leaked-2012-12?international=true&r=US&IR=T> [2018, May 03].
- Hoffman, A.J. 2011. Talking Past Each Other? Cultural Framing of Skeptical and Convinced Logics in the Climate Change Debate. *Organization & Environment*. 24(1):3–33.
- Holliman, R. 2011. Advocacy in the tail: Exploring the implications of “climategate” for science journalism and public debate in the digital age. *Journalism*. 12(7):832–846.
- Idso, C. & Singer, F. 2009. Climate Change Reconsidered 2009. *Change*. 2009. [Online], Available: <http://climatechangereconsidered.org/> [2018, April 20].
- Idso, C.D., Carter, R.M. & Singer, S.F. 2015. *Why Scientists Disagree About Global Warming: The NIPCC Report on Scientific Consensus*.
- Imbrie, J. & Imbrie, K.P. 1979. *Ice ages: solving the mystery*. Enslow

- Publishers. [Online], Available:
https://books.google.co.za/books?id=aboTAQAAIAAJ&redir_esc=y [2018, May 26].
- IPCC. 2013. *IPCC Factsheet: How does the IPCC deal with alleged errors?* [Online], Available:
https://www.ipcc.ch/news_and_events/docs/factsheets/FS_ipcc_deals_errors.pdf [2018, April 26].
- IPCC. 2014a. *IPCC Fifth Assessment Report*. New York, NY: Cambridge University Press.
- IPCC. 2014b. Climate Change 2014 Synthesis Report Summary Chapter for Policymakers. *ipcc*. 31.
- IPCC. 2018. *IPCC organization*. [Online], Available:
<http://www.ipcc.ch/organization/organization.shtml>.
- IPCCC. 2014c. *IPCC - Intergovernmental Panel on Climate Change*. [Online], Available: <http://www.ipcc.ch/> [2018, April 20].
- Jacques, P.J. 2006. The Rearguard of Modernity: Environmental Skepticism as a Struggle of Citizenship. *Global Environmental Politics*. 6:76–101.
- Jacques, P.J., Dunlap, R. & Freeman, M. 2008. The organisation of denial: Conservative think tanks and environmental scepticism. *Environmental Politics*. 17(3):349–385.
- Jahedi, M., Abdullah, F.S. & Mukundan, J. 2014. An Overview of Focal Approaches of Critical Discourse Analysis. *International Journal of Education and Literacy Studies*. 2(4):28–35. [Online], Available:
<http://www.journals.aiac.org.au/index.php/IJELS/article/view/1299> [2018, April 10].
- Kim, S.H. & Hyun, S. 2004. Making the science of global warming: a social history of climate science in Britain. [Online], Available:
<https://www.era.lib.ed.ac.uk/handle/1842/24778> [2018, February 20].
- Klein, N. 2014. *This changes everything : capitalism vs. the climate*. Toronto: Alfred A. Knopf.
- Knight, G. & Greenberg, J. 2011. Talk of the Enemy: Adversarial Framing and Climate Change Discourse. *Social Movement Studies*. 10(4):323–340.
- Koopmans, R. 2004. Movements and media: Selection processes and evolutionary dynamics in the public sphere. *Theory and Society*.

- 33(3/4):367–391.
- Kress, G.R. 1989. *Linguistic processes in sociocultural practice*. Oxford University Press.
- Laclau, E. & Mouffe, C. 1985. *Hegemony and socialist strategy: towards a radical democratic politics*. Verso. [Online], Available: https://books.google.nl/books/about/Hegemony_and_Socialist_Strategy.html?id=j_PtAAAAMAAJ&redir_esc=y [2018, March 29].
- Lahsen, M. 2013. Anatomy of Dissent: A Cultural Analysis of Climate Skepticism. *American Behavioral Scientist*. 57(6):732–753.
- Lakoff, G. 1987. *Women, fire, and dangerous things: what categories reveal about the mind*. University of Chicago Press.
- Latour, B. 2004. Why Has Critique Run out of Steam? From Matters of Fact to Matters of Concern. *Critical Inquiry*. 30:93–1896.
- Lewandowsky, S., Ecker, U.K.H. & Cook, J. 2017. Beyond Misinformation: Understanding and Coping with the “Post-Truth” Era. *Journal of Applied Research in Memory and Cognition*.
- Lo, C.Y.H. 1982. Countermovements and Conservative Movements in the Contemporary U.S. *Annual Review of Sociology*. 8:107–134.
- Lubchenco, J. 2017. Environmental science in a post-truth world. *Frontiers in Ecology and the Environment*.
- Mannheim, K. 1991. *Ideology and utopia: an introduction to the sociology of knowledge*. London: Routledge.
- Masella, N. 2014. Monday’s ‘Special Report with Bret Baier’ Earns Second Highest Ratings for 2014 – Adweek. [Online], Available: <http://www.adweek.com/digital/mondays-special-report-with-bret-baier-earns-second-highest-ratings-for-2014/> [2018, May 02].
- Mathis, W. 2010. The “common core” standards initiative: An effective reform tool? [Online], Available: http://www.stopccssinnys.com/uploads/NAEP_The_Common_Core_Standard_Initiative_An_Effective_Reform_Tool___William_J._Mathis___Ph.D._University_of_Color.pdf%5Cnhttp://epicpolicy.org/publication/common-core.
- McCright, A.M. & Dunlap, R. 2000. Challenging Global Warming as a Social Problem: An Analysis of the Conservative Movement’s Counter-Claims.

- Social Problems.* 47(4):499–522.
- McCright, A.M. & Dunlap, R. 2011. Cool dudes: The denial of climate change among conservative white males in the United States. *Global Environmental Change.* 21(4):1163–1172.
- Mussell, S. 2017. *Critical theory and feeling : the affective politics of the early Frankfurt school.*
- NASA. 2015. NASA. [Online], Available: <https://www.nasa.gov/> [2018, May 26].
- Nicholls, N. 2007. Climate: Sawyer predicted rate of warming in 1972. *Nature,* 448:7157, 992.
- Oreskes, N. 2004. Beyond the ivory tower. The scientific consensus on climate change. *Science (New York, N.Y.).* 306(5702):1686.
- Osorio-Arce & Segura-Correa. 1988. *IPCC Factsheet: What is the IPCC ?* [Online], Available: http://www.ipcc.ch/news_and_events/docs/factsheets/FS_what_ipcc.pdf.
- Parker, I. 1989. Discourse and power. In (*Inquiries in social construction series, Vol. 2.*). Thousand Oaks: Sage Publications
- Pearce, W., Brown, B., Nerlich, B. & Koteyko, N. 2015. Communicating climate change: Conduits, content, and consensus. *Wiley Interdisciplinary Reviews: Climate Change.* 6(6):613–626.
- Powell, J.L. 2011. *The inquisition of climate science.* Columbia University Press.
- Pretty, J. 2013. The Consumption of a Finite Planet: Well-Being, Convergence, Divergence and the Nascent Green Economy. *Environmental and Resource Economics.* 55(4):475–499.
- Proctor, R. & Schiebinger, L.L. n.d. *Agnotology : the making and unmaking of ignorance.* [Online], Available: <http://www.sup.org/books/title/?id=11232> [2017, December 22].
- De Pryck, K. & Gemenne, F. 2017. The Denier-in-Chief: Climate Change, Science and the Election of Donald J. Trump. *Law and Critique.* 28(2):119–126.
- Roberts, P. 2012. Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming (review). *Technology and Culture.* 53(1):245–247.

- Roper, J., Ganesh, S. & Zorn, T.E. 2016. Doubt, Delay, and Discourse: Skeptics' Strategies to Politicize Climate Change. *Science Communication*. 38(6):776–799.
- Sample, I. 2007. *Scientists offered cash to dispute climate study*. [Online], Available:
<https://www.theguardian.com/environment/2007/feb/02/frontpagenews.climatechange> [2018, March 07].
- Sawyer, J.S. 1972. Man-made Carbon Dioxide and the “Greenhouse” Effect. *Nature*. 239(5366):23–26.
- Schmidtz, D., & Freiman, C. (2012). Nozick. In (Ed.), *The Oxford Handbook of Political Philosophy*: Oxford University Press,. [Online], Available: <http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780195376692.001.0001/oxfordhb-9780195376692-e-22> [2018, April 18].
- Schumaker, P., Kiel, D.C. & Heilke, T.W. 1997. *Ideological voices: an anthology in modern political ideas*. New York: McGraw-Hill.
- Sharman, A. 2014. Mapping the climate sceptical blogosphere. *Global Environmental Change*. 26(1).
- Sheehy, A. 2017. The Rise of the Far Right. *Harvard Political Review* (Harvard). [Online], Available: <http://harvardpolitics.com/world/rise-of-far-right/>.
- Skoglund, A. & Stripple, J. 2018. From climate skeptic to climate cynic. *Critical Policy Studies*. (January, 29):1–21.
- Slack, J.D. 1996. The Theory and Method of Articulation in Cultural Studies. In *Stuart Hall: Critical Dialogues in Cultural Studies*. 113–129.
- South, N. & Brisman, A. 2013. Critical green criminology, environmental rights and crimes of exploitation. In *New Directions in Crime and Deviancy*. 99–110.
- Stamm, K.R., Clark, F. & Eblacas, P.R. 2000. Mass communication and public understanding of environmental problems: The case of global warming. *Public Understanding of Science*. 9(3):219–237.
- Stefancic, J. & Delgado, R. 1996. *No mercy: how conservative think tanks and foundations changed America's social agenda*. Philadelphia: Temple University Press.

- Steinberg, B. 2013. *Fox News Taps New Social-Media Tool To Give Viewers Chance To Speak – Variety*. [Online], Available: <http://variety.com/2013/tv/news/fox-news-taps-new-social-media-tool-to-give-viewers-chance-to-speak-1200612883/> [2018, May 02].
- Tesler, L.E. & Malone, R.E. 2010. Our reach is wide by any corporate standard: how the tobacco industry helped defeat the Clinton health plan and why it matters now. *American journal of public health*. 100(7):1174–88.
- The Heartland Institute. 2009. Climate Change Reconsidered. *2009 Report of the Nongovernmental International Panel on Climate Change (NIPCC)*. 868. [Online], Available: <http://climatechangereconsidered.org/> [2018, April 10].
- The Heartland Institute. 2018. *Home | Heartland Institute*. [Online], Available: <https://www.heartland.org/> [2018, April 10].
- Thompson, J. 1988. Language and ideology: a framework for analysis. *The Sociological Review*. 35(3): 516-536.
- Thompson, J. 1991. *Ideology and Modern Culture: Critical Social Theory in the Era of Mass Communication*. Stanford University Press: Stanford.
- Treut, L., Somerville, R., Cubasch, U., Ding, Y., Mauritzen, C., Mokssit, a, Peterson, T., Prather, M., et al. 2007. Historical Overview of Climate Change Science. *Earth*. (1):93–127.
- Turner, R. 1957. *Collective behavior*. Englewood Cliffs N.J.: Prentice-Hall.
- Turnhout, E., Dewulf, A. & Hulme, M. 2016. What does policy-relevant global environmental knowledge do? The cases of climate and biodiversity. *Current Opinion in Environmental Sustainability*. 18:65–72.
- UNFCCC. 1998. Kyoto Protocol. *United Nations Framework Convention on Climate Change*. 2011(1), 795-811.
- Union of Concerned Scientists. 2018. *UCS: Independent Science, Practical Solutions | Union of Concerned Scientists*. [Online], Available: <https://www.ucsusa.org/> [2018, September 04].
- Uppenbrink, J. 1996. Arrhenius and Global Warming. *Science*. 272(5265):1122.
- Van der Linden, S.L., Leiserowitz, A.A., Feinberg, G.D. & Maibach, E.W. 2014. How to communicate the scientific consensus on climate change:

- plain facts, pie charts or metaphors? *Climatic Change*. 126(1–2):255–262.
- Verschueren, J. 2011. *Ideology in Language Use*. Cambridge: Cambridge University Press.
- Washington, H. & Cook, J. 2011. *Climate Change Denial: Heads in the Sand*. London: Earthscan.
- Weaver, R.K. 1989. The Changing World of Think Tanks. *PS: Political Science and Politics*. 22(3):563.
- Weidenbaum, M. 2010. Measuring the Influence of Think Tanks. *Society*. 47(2):134–137.
- Wildavsky, A. 1979. *Speaking truth to power: The art and craft of policy analysis*. Piscataway, NJ: Transaction Publishers.
- Wilson, K. 1995. Mass media as sources of global warming knowledge. *Mass Comm Review*. 22(1, 2):75–89.
- Wilson, K. 2000. Drought, debate, and uncertainty: measuring reporters' knowledge and ignorance about climate change. *Public Understanding of Science*. 9(1):1–13.
- Wodak, R. & Fairclough, N. 1997. Critical Discourse Analysis. In *Discourse as Social Interaction*. 258–284.
- Wodak, R. 2001. Critical discourse analysis: history, agenda, theory, and methodology. in R. Wodak & M. Meyer (eds), *Methods for Critical Discourse Analysis*. Sage (2nd revised edition), London, pp. 1-33.
- Wood, L.A. & Kroger, R.O. 2000. *Doing discourse analysis: methods for studying action in talk and text*. London: Sage Publications.
- Wyatt, T. & Brisman, A. 2017. The Role of Denial in the ‘Theft of Nature’: Comparing Biopiracy and Climate Change. *Critical Criminology*. 25(3):325–341.
- Yates, S., Taylor, S. & Wetherell, M. 2001. *Discourse as dat: a guide for analysis*. SAGE.
- Young, N. 2013. Working the fringes: The role of letters to the editor in advancing non-standard media narratives about climate change. *Public Understanding of Science*. 22(4):443–459.

Appendices

Appendix A: Joe Camel Is Innocent

Bast, J. 1996. Joe Camel is Innocent. *The Heartland Institute*.

Full text available here:

https://www.heartland.org/_template-assets/documents/publications/1532.pdf

Appendix B: The Need to Transform Schools

Full text available here: (note that the web page has been updated since time of writing)

<https://www.heartland.org/topics/education/>

Relevant excerpt:

THE NEED TO TRANSFORM SCHOOLS

Education has been a high priority for Americans since the first settlers arrived here. The Founding Fathers thought a free society would be impossible without an educated population. Thomas Jefferson, our third president, said: "If a nation expects to be ignorant and free, in a state of civilization, it expects what never was and never will be."

Today about nine of every 10 students attend schools that are owned, operated, and staffed by government employees. About 70 percent of the teachers in those schools belong to unions, working under workplace rules that frustrate the best and brightest while protecting incompetent and even dangerous teachers.

Curriculum has been debased by teachers, administrators, and politicians mandating one-size-fits-all standards in order to avoid being held responsible for falling student achievement. Alarming evidence is emerging that the problems affecting public schools are spreading to private schools as they increasingly adopt the curricula and tests used in the public sector.

There is widespread concern that public schools in the United States are delivering too few graduates with the reading, writing, knowledge, and workplace skills necessary to meet the challenges of a global economy in the twenty-first century.

Appendix C: The Global Warming Crisis is Over

Full text available here:

<https://www.heartland.org/publications-resources/publications/the-global-warming-crisis-is-over>

Appendix D: Special Report with Bret Baier (Fox News)

Youtube video available here:

<https://www.youtube.com/watch?v=iR52Rm6i5nY>

Appendix E: *Why Scientists Disagree About Global Warming*

Full text available here: <http://climatechangereconsidered.org/>