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A Climate for Metaphors

An Inquiry into the Cognitive and Discursive Power of
Climate Change Metaphors, supported by a Diachronic
Critical Metaphor Analysis of Opinion Articles Published in
Three US Newspapers

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Abstract

The news media remains as one of the most important sources of societal uptake of climate change information. Its potential to covertly shape public perception and attitudes regarding climate change is therefore considerable but difficult to assess. This thesis underscores the discursive and cognitive role of metaphor in this dynamic by using a framework that combines the theory of conceptual metaphor and the concept of generative metaphor, and by applying the method of critical metaphor analysis on a corpus of 300 opinion articles published in the *New York Times*, the *Washington Post*, and *USA Today* during 2007 and 2017.

The findings indicate a significant clustering of metaphors drawing on the conceptual domains of war and journeys to metaphorically portray efforts to address climate change. This clustering is however not constant between the years, thus implying the presence of an underlying shift in climate change discourse. Metaphoric compounds such as ‘carbon market’, and metaphors of cleanliness are also found to be salient and diachronically significant in the corpus.

This thesis furthermore provides evidence of how the use of metaphors in the articles tacitly structure and sustain a recurring narrative based on non-zero-sum storylines of climate change mitigation, indicating thus a discursive affinity with the ideas of sustainable development and ecological modernization.

Keywords: climate change, political ecology, media, cognition, metaphor, discourse, sustainable development, ecological modernization

We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds – and this means largely by the linguistic systems in our minds.

–Benjamin Lee Whorf

The metaphor of the earth as a nurturing mother was gradually to vanish as a dominant image as the Scientific Revolution proceeded to mechanize and rationalize the world view. The second image, nature as disorder, called forth an important modern idea, that of power over nature.

–Carolyn Merchant, *The Death of Nature*

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Abbreviations

CMA	Critical metaphor analysis
CMT	Conceptual metaphor theory
NYT	New York Times
UT	USA Today
WP	Washington Post

Introduction

Human-environmental relations reached a watershed moment about 250 years ago when British industrialists discovered coal's combustible promise, and they have never been the same since (Malm 2016). To be fair, things were already complicated. Ecological transformations and degradations have been common features of human societies prior to the industrial revolution (Hughes 2001; Diamond 2006). However, it all came to a head in the twentieth century when the ever running environmental tab¹ of the nascent global economy arrived in the form of great disruptions to the Earth system and the biosphere, including ozone depletion, widespread species extinction, massive deforestation, and global warming (McNeill 2001). By all accounts, those dismal symptoms of the previous "prodigal century" (ibid) do not show any signs of letting up as we plunge further into the current century and the epoch of the so-called Anthropocene.

No other hallmark of the "age of human" commands the same amount of attention, apprehension, and contention in public discourse as global climate change. Yet, despite decades of accumulated scientific and experiential evidence of a warming world, current international efforts to change course are depressingly slow and sorely lacking in scope and ambition. What are the roots of this apparent impasse, and how might it be mended?

In terms of the historical and current trajectory of anthropogenic environmental transformations, a number of scholars, researchers and authors (e.g. Klein 2014; Merchant 1990; Hornborg 2019) have underscored the intrinsic role of the worldviews and ontologies of people, individually and as collectively upheld in society—in other words, the human cognitive system as moulded and constrained by cultural and social conventions, norms and traditions. This general, yet ultimately profound and incisive assertion, situates destructive worldviews close to the heart of environmental problems. By the same token, shifting away from environmentally incompatible worldviews reproduced in society is arguably a precondition for a genuine transformation of the fossil-based economic and social structure.

This thesis proceeds from this basic assertion as it unearths the instrumental role of metaphor in the conceptualizations and discourses of climate change. Metaphor, as will be argued more extensively in chapter 1, plays a much larger part in how we think and act than is commonly

¹ Of which the greatest historical culpability by far lies in the systematic exploitation of nature and labour by imperial Europe (see for example Hornborg 2016).

assumed. A central proposition put forth in this thesis is thus that our worldviews and ontologies—as bound up by a framework of dominant discourses and nested ideologies concerning nature and society—are in no small measure contingent on the reproductive and cognitive force of *conceptual metaphors*. Such metaphors, to be brief, are believed to be central to human thinking and language, as they activate culturally coherent, “mappings” of two conceptual domains in the mind (Lakoff 1993, 203). For example, when one draws on a metaphorical expression such as, ‘we need to combat climate change’, one does not only speak about climate change mitigation in terms of the conceptual domain of war, but one *thinks* about climate change in terms of the conceptual domain of war. This metaphorically structured reasoning is sustained by the availability of several other metaphorical expressions underlying this conceptual metaphor—*battle* climate change, *fight* climate change, *war* on climate change, and so on. Metaphors, according to the theory first outlined in George Lakoff and Mark Johnson’s *Metaphors we live by* ([1980] 2003), thus tacitly structure how we make sense of reality and act upon it. By extension, it is proposed that by analysing linguistic metaphorical expressions one may open the door to reveal the systematicity by which a linguistic community discursively conceptualizes phenomena such as climate change.

In the hyperconnected and mediatized reality of present days, linguistic communities are arguably more global in nature than ever. This warrants careful attention to the linguistic practices by which climate change is represented by dominant actors in the sphere of climate change communication (see for example Carvalho 2005; 2007). Despite increasingly becoming a part of direct human experience, we are fundamentally under the sway of mass media for information on climate change (Boykoff 2009; Schmidt, Ivanova, Schäfer 2013, 1233). Whether mediated through images, sound or text, conveyed by environmental organizations, celebrities, politicians or news agencies—knowledge about climate change is frequently communicated through language in the broadest sense of the concept. This thesis embraces this notion but goes one step further by suggesting that ideologically and culturally ingrained ways of conceptualizing climate change are simultaneously carried over and sustained by that communication. Certainly, this claim is not completely original, as it is for instance central to the approach of critical discourse analysis (e.g. Fairclough 1995). What differs in the methodology of the present thesis is the focus on the innate power of conceptual metaphor, with which the cognitive and discursive substance of three highly influential American newspapers are explored and scrutinized.

Aim and Research Questions

This thesis aims to bring to light the incredible power by which metaphors structure our understanding of climate change along lines drawn by culture, ideology, and worldviews. It does so by demonstrating how three pillars of the American news media employ metaphoric language to frame climate change according to entrenched ideological values. Simultaneously, it provides evidence of the systematic way in which certain metaphors converge around prevalent themes, that is, as conceptual metaphors, showing thereby how culturally constrained uses of metaphors influence our thinking and behaviour in relation to climate change.

In practice, the thesis approaches this aim by unearthing such cognitive and discursive patterns as articulated by metaphor use in opinion articles about climate change, published in three major US newspapers at two points in time. This is done by identifying and gathering metaphor occurrences and then assessing their conceptual systematicity as well as their discursive and ideological contexts. Such an approach involves a threefold examination; of metaphor occurrences, of the discursive and cognitive bases of these metaphors, and what implications these metaphors and metaphorically structured discourses might have upon individual and societal efforts at understanding and mitigating climate change. The following research questions were formulated to support this aim:

RQ1: What conceptual metaphors were used in the opinion articles of three major US newspapers, published in 2007 and 2017?

RQ1.1: How do the use of these conceptual metaphors differ between the two years?

RQ2: How do these conceptual metaphors structure or reinforce particular ways of understanding climate change and how do they legitimise dominant discourses and ideologies of climate change?

RQ3: What are the possible implications of these metaphorically structured discourses and ideologies with regards to the mitigation of climate change?

Research question 1 and its sub-question are addressed by applying the method of critical metaphor analysis as defined by Jonathan Charteris-Black (2004) on a corpus of 300 editorials and op-eds published in three US newspapers: the *New York Times*, the *Washington Post*, and *USA Today*. Research questions 2 and 3 are addressed by qualitatively analysing the social,

cognitive and environmental implications of the results of research questions 1 and 1.1, and by drawing on the theoretical framework and the perspective of political ecology.

This thesis seeks to contribute to our critical awareness of the interconnected and concealed nature of knowledge production, metaphoric language and discursive practices, and not least the nature in which socio-political power structures such as the news media habitually (consciously or otherwise) employ metaphoric language in order to enforce or maintain hegemonic climate change discourses.

Although there is a substantial body of research concerning media discourse and climate change and a somewhat smaller body that investigates the role of metaphors in that dynamic (some of which have proved invaluable to this study), to the best of my knowledge, there is none that interweaves the cognitive emphasis in conceptual metaphor theory with the socio-ecological, critical approach of political ecology in an interdisciplinary inquiry of climate change discourse. This thesis seeks to fill this gap and provide a springboard for researchers who likewise wishes to increase our understanding of the links between language, cognition, media, and the environment.

Structure

This thesis is divided into five chapters. Chapter 1 establishes the theoretical and conceptual framework and introduces the theory of conceptual metaphor and the concept of generative metaphor, then moves on to a discussion informed by previous research concerning salient discourses and metaphors of climate change, before ending with a description of the approach of political ecology. Chapter 2 explains the empirical approach and delineates the procedure in which articles were selected. Chapter 3 presents the methodology and the method of critical metaphor analysis. In chapter 4, the findings of the analysis are provided and examined. Aided by the theoretical and conceptual framework, chapter 5 concludes the thesis by situating and problematizing the identified discursive and metaphorical patterns in the articles and submits answers to the research questions.

Chapter 1

Theoretical and Conceptual Framework

The composition of the theoretical and conceptual framework is informed by the exploratory, inductive approach of this study, and is orientated towards an integrative and dynamic strategy. It is structured into three distinct but related parts of which the first, “The Role of Metaphor in Climate Change Ontology and Policy”, establishes the theoretical and conceptual foundation informing the interpretation of metaphors. The purpose of the second part, “Environmental Discourses in the Twenty-First Century”, is to situate the findings of the analysis by tracing some salient features of mainstream environmental discourses, whose metaphorical entailments are further investigated. This discussion is complemented by findings from previous research on the interface of metaphor, climate change and discourse. Finally, the third part, “Political Ecology Approach”, describes how this research is placed within the critical perspective of political ecology. Less a theory than an interdisciplinary critical approach to environmental issues, political ecology directs attention to the “production of socio-environments and their co-constitution by many kinds of human and non-human actors” (Robbins 2012, 5). My endeavour is to place this study within the broad tradition of political ecology by laying bare the interconnected nature of environmental change, language, power, and politics. As such, political ecology constitutes an essential part of the theoretical and conceptual framework, as it represents the overarching perspective from which I interpret climate change and other environmental issues.

First out then is an outline of the theory of conceptual metaphor and its roots in cognitive linguistics, highlighting the strong relationship between language and the human conceptual system, and the significance of figurative language such as metaphor in that relationship. From these theoretical points of departure, I move on to a concise discussion of the role of metaphor in policy and problem-setting. Drawing here from Schön’s (1993) concept of generative metaphor, I consider the potential role that metaphors have in the discursive framing of climate change and policy. The application of these theories is especially relevant in answering research questions 2 and 3.

The Role of Metaphor in Climate Change Ontology and Policy

Conceptual Metaphor Theory

First detailed in Lakoff and Johnson's seminal work *Metaphors We Live By* ([1980] 2003), conceptual metaphor theory (CMT) is a subdiscipline of cognitive linguistics that breaks with the traditional notion of metaphor as merely a feature of rhetoric and poetic style, and instead elevates it to a fundamental role in human cognition. Seen in this light, the main force of metaphors resides not in language but in the mind (Lakoff 1993, 203), as essential "cognitive instruments" (Black 1993, 37) that affect the way we think and act in the world. That we use metaphors as part of our ordinary language is precisely because our conceptual system is itself metaphorically structured (Lakoff and Johnson [1980] 2003, 6). In this sense then, our language and cognition are intimately linked by metaphor. A crucial corollary of this is that by studying metaphors as they are expressed linguistically, one is presented with an inroad to understanding the conceptual nature of our mind and behaviour (ibid., 3).

In general terms, CMT describes the basic mechanism of metaphor according to the process of a cross-domain mapping of concepts occurring in the mind (Lakoff 1993, 203). It is in this subconscious and habitual action that we experience an effortless and natural coupling of seemingly incongruent concepts, like money and time. Thus, everyday linguistic expressions such as '*wasting* someone's time', '*spending* time', and '*running out* of time', are instances of the conceptual metaphor TIME IS MONEY² (Lakoff and Johnson [1980] 2003, chap. 2). This cross-domain mapping takes place as a transfer within the human conceptual system, of a concrete or familiar source domain: *money* in the example—to an abstract or complex target domain, that which is denoted: *time* (Semino and Masci 1996, 244). Importantly, since these metaphorically structured conceptualizations are embedded in culture and language, they thereby shape and delimitate our thinking accordingly (Cameron and Deignan 2006, 671-672). For example, the TIME IS MONEY conceptual metaphor represents not only a certain (culturally defined) way of linguistically expressing an idea of time being valuable or scarce,

² Following the style conventions of cognitive linguistic literature, conceptual metaphors are in this thesis represented in upper case. Single quotation marks are used throughout to differentiate examples for discussion. Words or phrases that are classified as metaphors in these examples are shown in italics.

but a way of *thinking* about time according to the characteristics of money, i.e. being valuable, limited, saveable, buyable and so on³ (Lakoff and Johnson [1980] 2003, chap. 2).

A conceptual metaphor is the central unifying idea, collectively upheld within a language community (Boréus and Bergström 2017, 148), from which a diverse set of conceptually related and conventionalized metaphorical expressions spring (Charteris-Black 2004, 9). For example, the metaphorical expressions, ‘I *won* the argument’, ‘She *demolished* his argument’, and ‘they *attacked every weak point* in his argument’ (There are many more, see Lakoff and Johnson [1980] 2003, 4), share a systematic way of conceptualizing an argument in terms of war—a shared idiosyncrasy motivated, or explained, by the overarching conceptual metaphor ARGUMENT IS WAR (as we shall see, war and related themes are frequently employed as source domains in many different contexts, climate change being one of them).

Although this study considers novel or creative metaphorical expressions, it pays special attention to metaphors that seem to exist “at some point between literal and metaphorical uses” (Charteris-Black 2004, 17). These so-called *conventional metaphors* are usually readily available in the linguistic and conceptual repertoire of language-users and well-established in the speech community (Lakoff & Turner 1989, 55). These are metaphorical expressions that have become so entrenched in everyday language that they give the illusion of being literal (Charteris-Black 2004, 17).

Lakoff and Turner (1989) reject the idea put forward in some quarters in linguistics—that conventional metaphors are essentially “dead” since their conventionality has basically scrubbed away any original metaphorical meaning. This, they mean, is a fallacy. In their own words,

The mistake derives from a basic confusion: it assumes that those things in our cognition that are most alive and most active are those that are conscious. On the contrary, those that are most alive and most deeply entrenched, efficient, and powerful are those that are so automatic as to be unconscious and effortless” (Lakoff & Turner 1989, 129).

As was noted in passing above, the very premises that underlie metaphors have profound consequences for how we relate to a certain phenomenon. Metaphors invariably brings some aspect of the thing it describes to the fore while obscuring others (O’Malley, Patterson and

³ The TIME IS MONEY conceptual metaphor figures in other languages as well (Boréus and Bergström 2017, 149). While I cannot attest to the extent of this claim, time is frequently talked about in terms of money or as a valuable commodity in Swedish, my native language.

Kelly-Holmes 2008, 169). For instance, the ARGUMENT IS WAR precludes the cooperative and reciprocal aspects of an argument (Lakoff and Johnson [1980] 2003, 10). On a sinister side-note, the WAR IS SPORTS conceptual metaphor, sometimes employed in war reporting, deletes the ugly reality of human suffering and environmental devastation that wars invariably bring (Charteris-Black 2004, 114). Yet another example, this one drawn from the analysed material, depicts climate change as a monster, an act of personification which elicits and highlights the destructive, uncontrollable and malignant characteristics that supposedly unites monsters and climate change⁴. With a simple and ostensibly innocent neologism, agency is swiftly diverted onto an otherworldly, self-governing entity, hiding thereby the fact that climate change is the creation of human activity, or to be a bit closer to the truth, a bicentennial love affair between fossil fuels and the organization of capital in core economies (see Malm 2016; Mann and Wainwright 2018, 99). In other words, metaphors are never truly neutral (O'Malley, Patterson and Kelly-Holmes 2008, 169). As we have seen, metaphors articulate ingrained social values and practices, and they systematically hide and highlight certain aspects of their referents. Hence, if political ecologist Paul Robbins is correct in claiming that our ideas about the natural environment are “delimited and directed through political and economic process” (Robbins 2012, 20)—a claim I support—then it follows that metaphors represent a prime vehicle of that delimitation. This implication of metaphor is especially evident with regards to complex and abstract phenomena such as climate change and will be discussed in greater detail as we now shift from the general to the more specific in the section on generative metaphor.

Generative Metaphor

To recapitulate, the central thesis proposed by conceptual metaphor theory suggests that metaphors pervade not only multiple facets of communication, but structure and delimitate human thinking and behaviour. This general claim unlocks a broad intellectual vista from which it is possible to evaluate the importance of metaphor in the development, maintenance, and communication of extant or novel discourses in various domains of society (Charteris-Black 2004, 22). In this vein, Russill and Nyssa (2009), in a study of the climate change discourse of news media and science literature, traced and problematized the popular

⁴ Though the metaphor of a climate monster does occur in the corpus, this example is purely illustrative. Indeed, the highlighting and hiding effects of construing different aspects of climate change as an entity is entirely context dependent. Accordingly, a climate monster might be a euphemism for capitalism, perhaps with symbolic allusions to Frankenstein's monster, in which case agency is cloaked, though not completely removed from the context.

emergence of the term “tipping point”. In this particular use of metaphor, they discerned an “effort to solve a policy problem by re-structuring public perception in a new and substantive way” (Russill and Nyssa 2009, 341). In other words, the metaphor bespoke a tacit attempt to reshape our conceptual understanding of climate change so as to better prompt action, presumably by evoking a sense of urgency and severity as bestowed by the metaphor. This, the authors note, makes the tipping point trend a possible case of *generative metaphor*.

The notion of generative metaphor, introduced by policy analyst and philosopher Donald Schön, directs special attention to the ways in which the emergence of certain kinds of metaphors brings about original ways of seeing issues and concepts in our world (Schön 1993, 137). Schön developed the basic idea of generative metaphor in the context of social policy, emphasizing in particular the importance of metaphor in framing and setting the problems that social policy intends to correct (Charteris-Black 2004, 22).

Investigating the urban housing policies of North American cities in the mid-twentieth century, Schön found a clear divergence in the way so-called slums were “named and framed” in the 1950’s and in the 1960’s, illustrating the normative and conceptual power of metaphor. In the 1950’s, metaphors of disease were used to frame these areas as “blighted” and in need of a “cure”. By the 1960’s however, this dominant perspective had been replaced by one in which metaphors relating to nature were used to depict them instead as “natural communities” requiring protection and preservation. Not only did these generative metaphors generate radically different ways of seeing slums, but radically different policy recommendations. (Schön 1993, 144-146).

Generalizing from the above examples, we arrive at a basic anatomy of a metaphor that aside from ushering in a new way of conceptualizing a phenomenon, is also covertly evaluative and prescriptive as they directly tap into a communal pool of deeply held cultural ideals and normative values (ibid., 147-148).

I briefly noted earlier that metaphors play an important part in our conceptualizations of complex phenomena. While this is arguably true of conceptual metaphors, it appears to be a defining trait of generative metaphors. As Schön notes,

A situation may begin by seeming complex, uncertain, and indeterminate. If we can once see it, however, in terms of a normative dualism such as health/disease or nature/artifice, then we shall know in what direction to move. Indeed, the diagnosis and the prescription will seem obvious. This sense of the obviousness of what is wrong

and what needs fixing is the hallmark of generative metaphor in the field of social policy. (Schön 1993, 148)

Evidently, this description ascribes to generative metaphors a function of evaluation (though they not always engender a dualistic perspective). To this it should be added that the extent in which a given generative metaphor “makes sense” or seems intuitively correct is not anchored in, or a measure of, the actual, material conditions of that which it refers to. Whether its adoption leads to positive or negative consequences for the referent has nothing to do with the veracity by which the metaphor describes it (*ibid.*).

This calls for the critical awareness of generative metaphors in the subsequent analysis, seeing as part of the aim of this thesis is to apprehend how shifts in discourses and metaphors dynamically shape our perspective on climate change and produce tangible effects on policy.

Environmental Discourses in the Twenty-First Century

The significance of discourses and world-views seem to increase when the issue is complex and ensnared in equally complex human social systems—here, powerful actors in mass media, politics, business, science, and the civil society, all have a putative stake in the political contingencies of environmental discourses, especially so in relation to climate change. These discourses crucially depend on metaphors to get their “stories” across (Dryzek 1997, 8).

In this section, I map out the dominant discursive formations that have been identified elsewhere as important in mass media treatment of climate change (Carvalho 2005; Koteyko 2012), discourses which could be generally referred to as ecological modernization and sustainable development. Specifically, I lay bare their idiosyncratic array of “solutions”; the trust in the forces of market, technology, and human ingenuity, and their affinity with embryonic discourses, coalescing as responses to the concept of the Anthropocene. Finally, I discuss findings of previous research on metaphoric entailments of climate change discourses and nested worldviews, some of which pertain to ecological modernization and sustainable development.

It would however seem unwise to embark on a discussion of the environmental discourses of the twenty-first century without at least acknowledging first their inception during the “prodigal” twentieth century (McNeill 2001). This was an unparalleled moment in history which saw an explosive growth of the factors of human civilization, made possible through the

culmination of developments and events set in motion during previous centuries. This great expansion of technology, economy, human population and productivity was escorted by the emergence of ideological institutions that sustained the growth imperative (McNeill 2001, 17). Now, the paradigms of “green growth”, “green capitalism”, “green consumerism”, and indeed the discourse of sustainable development, are not only predicated on this economic imperative—they attenuate it as a *means* to solve the environmental crisis (Hornborg 2001, 24), another well-known side-consequence of the prodigal century.

The birth of sustainable development, generally dated to 1987 in the Brundtland Commission report (World Commission on Environment and Development, 1987), has since become the dominant, or hegemonic discourse in response to environmental issues (Dryzek 1997, 123; Hornborg 2019, 232). It ushered in a new wave of environmentalism that was pretty much the polar opposite of the “survivalist” (Dryzek 1997, chap. 2, 132) environmental discourse, as moulded in the zero-sum perspective of the Club of Rome’s *The Limits to Growth* (Meadows et al 1972). Now, as then, the integrative approach of sustainable development recasts environmental issues as part of a broader concern with human development. Improving environmental conditions is seen as contingent on improving human welfare across the globe, which, it is presumed, requires continued (albeit “sustainable”) economic growth—a win-win-win deal for the world (Dryzek 1997, 129, 132). Quite likely, part of the success of sustainable development is by dint of its clear connection to the notion of progress, a fundamental leitmotif that resonates strongly with the modern worldview (ibid., 132).

Ecological modernization can be seen as a sharper outgrowth of this reinterpretation of environmentalism. Like sustainable development, ecological modernization rejects the idea that environmental protection is intrinsically incompatible with continued capital accumulation; certainly, part of the persuasiveness of the discourse is the promise that there is money to be made in the protection of the environment (ibid., 142; Harvey 1997, 151). The financialization and technologization of environmental issues, arguably hallmarks of ecological modernization, underscores the neoliberal core of this discourse (see Hajer and Versteeg 2011, 88; Hajer 1997). Similar to sustainable development, ecological modernization by its very name bequeaths a sense of (unidirectional) progress (Dryzek 1997, 146), with a strong discursive emphasis on universal and cooperative values.

These general thrusts of technology, efficiency, and the confidence in capitalism is perpetuated and re-energized in the recent imaginaries of a “good Anthropocene” as promulgated for example in the techno-optimistic “An Ecomodernist Manifesto” (Asafu-Adjaye 2015), which

basically reimagines the climate change crisis as a moment of opportunity and self-realization for humankind.

Metaphors of the Anthropocene

As a minor rectification of the present oversight of a definition of discourse, I refer to David Harvey's interpretation, which sees discourses as structured ways of conceptualizing and representing the world *and* "institutionally based, materially constrained, experientially grounded manifestations of social and power relations" (Harvey 1997, 80). The evidence of the hegemony of the aforementioned discourses allows itself to be detected in the words, grammar and metaphors that are used to frame climate change, specifically by the dissemination of terms and metaphors originating not least from the natural sciences and economics. Anthropologist Alf Hornborg draws for example attention to the widespread extrapolation of financial metaphors onto human-environmental relations, such as "green taxes" and ecological "debt" (Hornborg 2001, 187). The ubiquitous concept of adaptation, argues Mann and Wainwright, is borrowed from the natural sciences and the nomenclature of evolutionary theory (Mann and Wainwright 2018, 68). Both examples describe pervasive linguistic practices which structure our conceptual understanding of climate change.

Indeed, the constancy and omnipresence of these discursively infused metaphors of finance and natural sciences may suggest that these coded expressions are akin to generative metaphors, since they covertly frame the problem in ways that fit the solution embedded in the metaphors themselves. For example, in a thematic and metaphor analysis of international science-policy reports published between 1992 and 2012, Shaw and Nerlich (2015) revealed how themes and metaphors jointly formed a dichotomous framing of the world as being in a state of either impacted or not impacted by climate change. This representation of climate change, which they held is reductionist and ultimately hostile to alternative interpretations, was underpinned in the material by economic metaphors, the dominant of which centred on the binary principle of cost-benefit analysis. These in turn reflect an overarching narrative in which climate change is regarded as an economic problem. More significant still, their findings suggested a continuation of a long historical lineage of dichotomous conceptual thinking:

The discourse of climate change as a threat to be fought in order to preserve the old order is the dominant narrative arc which populates popular culture and draws from the myths which have accompanied civilisation, perhaps even prior to the appearance

of the written word. In these stories, the goal is always to return to what we can broadly, or often explicitly recognise, as a business as usual scenario. (Shaw and Nerlich 2015, 39)

In another study, this one of UK newspapers between 1990 and 2009, Koteyko (2012) traced the career of so-called *carbon compounds*, creative metaphors that connect the word carbon with a variety of terms from the domain of finance. Such carbon compounds, it was found, were habitually employed to frame climate change mitigation in terms of corporate and financial discourse. This metaphoric practice, Koteyko argued, further legitimised the imaginary of neoliberalism and ecological modernization as the primary organization for the addressment of climate change, while simultaneously precluding alternative interpretations and strategies (Koteyko 2012, 33-34).

The realization of the discursive power of metaphor has also motivated important research into the metaphors of science and media representations of climate change (Atanasova and Koteyko 2015a; Deignan, Semino, and Paul 2019; van der Hel, Hellsten, and Steen 2018; Skinnemoen 2009); in terms of geoengineering (Nerlich and Jaspal 2012); as well as studies of specific metaphor domains (Flusberg, Matlock, and Thibodeau 2017; Mangat and Dalby 2018; Romaine 1996).

Political Ecology Approach

To my knowledge, this thesis represents the first cross-disciplinary attempt to integrate political ecology with contemporary metaphor theory. Considering how little this thesis engages explicitly with ecological factors per se, this proposition of academic affinity might be too much of a stretch even for the methodological pluralism and flexible intellectual boundary espoused by the field⁵ (for the latter description, see Bryant 2015, 20; Doolittle 2015). Nevertheless, my approach to political ecology is to adopt its commitment to improving understanding and advocating action (Gezon and Paulson 2005, 11). Thus, this research is motivated by, and seeks to spread, a greater awareness of the complex dynamics of power, culture and regimes of knowledge at the intersection of environmental issues and discourses. It seeks to make claims about the state of nature, *while also making claims about claims about*

⁵ Granted, discourse theory and analysis have been recurring features in political ecological studies, see for example Adger et al 2001; Peet and Watts 2004; Bryant 1998.

the state of nature (Robbins 2012, 97). However, it does not end after illustrating how the conjoined forces of discourse and metaphors may influence how people and society conceptualize climate change. Nor after apprehending eventual signatures of ideology and entrenched worldviews. Instead, it sets out to interpret and critique these metaphorically structured discourses in terms of their potential impact on society-nature relationships in general, and the sustainability and climate change movement in particular. In so doing, it presupposes that some ways of conceptualizing climate change are closer to the truth and more conducive to the goal of survival than others. This purpose finds common ground in political ecology's two-pronged mission of exposing dominant, deleterious systems of environmental practices and ideas while simultaneously pursuing and advocating alternative and progressive strategies towards sustainability (ibid., 98-100).

Chapter 2

Material

This chapter begins with a presentation of the empirical material and the central arguments on which I justify my empirical design, before covering the approaches and decisions made in developing the data collection strategy. Reflections on possible limitations and drawbacks of the empirical approach and article selection procedure concludes this chapter.

Empirical Approach and Justification

In contrast to studies that rely on methods such as in-depth interviews or surveys, where primary data commonly consists of original material “produced” by the researcher, the empirical resources in this study relied wholly on material produced by others, specifically the authors of newspaper opinion articles.

Editorial and op-ed articles about climate change published in three major North American newspapers (the *New York Times*, the *Washington Post*, *USA Today*) during the entirety of 2007 and of 2017 represent the empirical foundation of the analysis of this study. This spatiotemporal delimitation contributes to this thesis' overarching concern with the relationship of socio-political authority and discursive propagation. These newspapers reach millions of people around the world and are arguably influential in shaping public opinion in

matters of the environment and climate change⁶. Furthermore, the nature and extent in which the idiosyncrasies and contradictions of USA's relationship to climate change and the environment is reflected in the metaphorical and discursive content of the articles motivates this empirical choice. It is a country that has witnessed the emergence of global environmental movements and incredibly powerful fossil coalitions alike (Klein 2014). And it is a country whose self-identity and standing in terms of global efforts to address climate change is in turmoil following the political upheaval of the Trump administration. A speculation that further spurs this spatiotemporal approach is that this latter socio-political development may turn out to be a breeding ground for new discursive manifestations concerning climate change. The choice of the years 2007 and 2017 as the basis for examining possible diachronic shifts of metaphor and discourse patterns was in part motivated by longitudinal and cross-regional research on media attention to climate change (Boykoff et al 2019; Boykoff and Yulsman 2013; Boykoff 2009; Romps and Retzinger 2019; Schmidt, Ivanova and Schäfer 2013). These show a marked increase in US newspaper coverage of climate change during 2006-2007, partly as a response to the 2006 release of the Al Gore-led documentary *An Inconvenient Truth* and a series of record setting years in terms of global temperature (Boykoff and Yulsman 2013, 365-366).

Following 2007 there was a decline in the amount of coverage as media attention shifted to the global financial crisis, and as the economic woes of the newspaper industry intensified (ibid., 366). It was also around this time that the general discourse of climate change was increasingly being unfolded into discrete themes, such as carbon trading, energy policies, and issues of sustainability (Boykoff 2009, 438). From 2015 and onwards, the combined coverage of climate change of five major US newspapers began to rebound, soon rising well above the peak in 2006-2007, although most of this increase was provided by *New York Times* (Boykoff et al 2019).

The decision to use editorials and op-eds rather than standard news articles or a combination of different genres rested on the following two premises: the genre's characteristic allowance of linguistic creativity and personal rhetoric means that there is generally a richness of figurative and modal language. This is not to dismiss the importance of investigating metaphors in conventional newspaper items, since the apparent neutrality imparted by the more formal language of news articles is a strong reason for their critical analysis. The second

⁶ See for instance Mazur and Lee (1993) for an account of the *New York Times*' role in raising American awareness of environmental issues such as ozone layer depletion and global warming. See also Boykoff (2009).

premise is a recognition of the distinct textual styles and strategies typical of opinion articles, that not only contributes to them being habitually perceived as the “voice of the newspaper” but are also instrumental in their discursive and authoritative power (Fowler 1996, chap. 11).

The analysis was done exclusively on articles published in print (most of which were also published online, see appendices B through G for links). Presumably, these articles reached thus a larger group of people than articles only published online.

The Newspapers

From my reading of the articles, a number of climate change-related themes were found to be especially salient in each year: In 2007, questions of national energy policies, Washington politics, and climate science stand out. Though most articles acknowledge that climate change is real and must be addressed, there appears to be some diversity of opinions with regards to urgency. In contrast to the generally optimistic undercurrents found in the 2017 articles, there is a somewhat larger measure of pessimism and uncertainty concerning climate change.

In the articles from 2017, the climate denialist machinery and the dealings of President Trump and his decision to withdraw from the Paris agreement commands a lot of scathing attention. Several articles discuss the links between climate change and the severity by which the Atlantic hurricane season hit the Americas that year. That climate change is happening and is driven by greenhouse gas emissions is a given in the great majority of articles, for which a considerable number discusses and details national strategies of mitigation or adaptation. In this regard, various forms of cap-and-trade systems and carbon taxation plans stand out in popularity. In the 2017 articles, there is a pervasive dose of optimism drawing from the purported role of American cities, states and corporations in leading the efforts to mitigate climate change.

Based on story and word selection, all three newspapers are rated by the website Media Bias/Fact Check as having “left-center” or “slight to moderate liberal biases” and credit them as being factually consistent overall (Media Bias/Fact Check 2019).

The New York Times

Founded in 1851, the *New York Times* is the third largest newspaper in the country in terms of circulation, and the seventeenth largest in the world (WAN-IFRA 2016).

According to a 2014 study by the Pew Research Center, the paper maintains a much higher degree of trust among liberals than conservatives (Pew Research Center 2014).

Beside the editorial board, contributors to *New York Times* opinion articles in this study include politicians, authors, activists and scientists, as well as long-time writers Gail Collins, Thomas Friedman, Paul Krugman and Nicholas Kristof, among others.

In a 1993 study, Mazur and Lee posited that “The New York Times and a few other major national news organizations, along with their private and government sources of information, were effective in placing global environment on the American agenda of problems during the late 1980’s.” (Mazur and Lee 1993, 712).

New York Times houses a dedicated climate change news team since 2017 (Hiltner 2017).

The Washington Post

Washington Post was founded in 1877 and is since 2013 owned by tech entrepreneur Jeff Bezos. It was the seventh largest newspaper in the United States by circulation in 2013 (Media and Climate Change Observatory 2019) and has over one million digital subscribers as of 2017 (Stelter 2017).

Similar to *New York Times*, *Washington Post* appears to enjoy a much higher level of trust among liberals than conservatives (Pew Research Center 2014).

Studied opinion articles were written by politicians, environmental activists, businesspeople, journalists, as well as recurring contributors like Robert J. Samuelson and Eugene Robinson, along with the editorial board.

USA Today

Founded in 1982 and owned by the Gannett Company, *USA Today* is one of the most widely circulated newspapers in USA (Media and Climate Change Observatory 2019) and the third largest in the world (WAN-IFRA 2016). It is reasonable to assume that with such reach comes significant potential to influence opinion and climate change discourses, both within the United States and internationally (Boykoff 2009, 432).

The newspaper's opinion articles included in this study feature politicians, political commentators, representatives of the environmental organization Natural Resource Defence Council, the conservative climate change denialist think tank Competitive Enterprise Institute and ecomodernist advocacy group The Breakthrough Institute.

In keeping with its self-proclaimed editorial uniqueness in this area, *USA Today* gives more room to opposing sides or views in issues such as climate change than does *New York Times* and *Washington Post*. Despite its editorial policy against publishing pieces that disavow the reality of anthropogenic climate change (Sternberg 2018), *USA Today* has occasionally been under fire for running factually incorrect opinion articles by well-known climate deniers (Hymas 2018).

Article Selection Procedure

In a study of metaphors in editorials and op-eds, the difficulty lies not in collecting a sufficient amount of material—I discovered several hundred articles by running a simple search in the database. Rather, it is in developing a practical identification procedure that yields a reasonable number of relevant articles. This means establishing certain set criteria on which articles can be assessed. Since these steps are pivotal for the validity of the analysis, I will in this section give an as full account as possible of the procedure. I will point out however that in practice, the selection procedure was an iterative undertaking; occasional minor adjustments of the following outline were made in an ad-hoc fashion when deemed appropriate for the overall analysis.

I began by casting the net wide. Editorial and op-ed articles were downloaded through the platform Nexis Uni (formerly LexisNexis Academic) using the Boolean search string below, modified from Schmidt, Ivanova and Schäfer (2013):

```
((climat*) W/5 (chang* OR catastroph* OR disaster* OR transform* OR  
adjust* OR trend* OR warm* OR heat* OR variab*)) OR ((greenhouse*)  
W/5 (effect*)) OR (global*) W/5 (warming OR heat*))
```

This search string was devised to facilitate the identification of articles where climate change is a significant topic, in that only articles containing at least one of these terms were returned (W/5 is a type of connector that retrieves documents in which the surrounding expressions exist within five words of each other). This automatic sorting yielded a total of 773 articles, 332 for 2007 and 441 for 2017. A second selection round was required to further narrow down

these results and to ensure a representative corpus. Using NVivo 12, each article was searched for the following keywords:

climate OR global warming OR greenhouse OR crisis OR carbon OR co2 OR emissions OR fossil

Articles containing less than 4 instances of one or several of these words were initially removed from the final sample selection (closer inspection of a few omitted articles were later deemed relevant and therefore included in the final sample). I decided to use 3 instances of a keyword as the benchmark for the articles published in 2007 since their average word count is smaller than that of the 2017 articles (average 627 words compared to 728 words). All articles passing these criteria were then read cursively to determine their relevancy and to exclude those that discussed climate change only tangentially. As a rule of thumb, articles that devoted less than one fourth of space to the topic of climate change were considered for removal. However, this stage was guided mainly by my subjective evaluation of each article in terms of climate change as subject matter. The final sample thus constituting the general corpus of this study amounts to a total of 300 articles, 159 from 2007 (henceforth called the 2007 sub-corpus) and 141 from 2017 (henceforth called the 2017 sub-corpus). A closer look at the specifics of the final sample is offered in table 1. See appendices B through G for a complete list of these articles.

Table 1. Details of final corpus

<i>Newspaper</i>	2007 sub-corpus			2017 sub-corpus		
	<i>No. of articles</i>	<i>Word count</i>	<i>Avg. word count/article</i>	<i>No. of articles</i>	<i>Word count</i>	<i>Avg. word count/article</i>
The New York Times	88	54 122	615	66	57 281	867
The Washington Post	59	39 127	663	55	36 152	657
USA Today	12	6 472	539	20	9 244	462
<i>Total</i>	159	99 721	627	141	102 677	728

Chapter 3

Methodology

This chapter takes us through all the stages in methodology leading up to the analysis, covering the following main points: the epistemological position informing the research; the research methodology and interpretative strategy tailored for the study; explanations and discussions

of the research method and a step-by-step account of its implementation; methodological delimitations and limitations.

Critical Realism

A central argument running through this thesis is that our experiences of reality and the (social) world is to a greater or lesser degree influenced by the language we use. For example, research into the connection between language and thought have provided some persuasive evidence in support of the so-called linguistic relativity hypothesis⁷ (Boréus and Bergström 2017, 167), suggesting that users of different languages experience reality differently. Indeed, this proposition is fundamental to cognitive linguistics and conceptual metaphor theory as we saw in chapter 1. I propose that this view of language does not in any way preclude an ontology that simultaneously argues for the existence of a material, non-discursive reality.

In this thesis I eschew the radical constructivist versions of relativism and the inseparability of language and reality (Bergström and Boréus 2017, 9). Instead, I locate in the key features of critical realism a philosophical position that strikes a balance between the attention given to language in constructivism and the recognition of an objective reality, as favoured by empiricism (*ibid.*).

A defining trait of critical realism is its delineation of the intransitive and transitive dimensions of knowledge. The intransitive dimension denotes that which is the physical or social object we study or in any way claim or seek knowledge of, whereas the transitive dimension constitutes the range of socially produced theories or ideas of that object (Sayer 2000, 10). This distinction underpins the critical realist theory of the world being intrinsically independent from our thoughts and discourses about it; changing our worldviews does not prompt a corresponding transformation in the physical world (*ibid.*, 11). Following this line of thinking into the current context, the state of climate change and the biophysical environment is irreducible to our cognitive or linguistic interpretations of it. To the extent that interpretation and thought *do* have a role in the actuality of climate change, it is because it determines our behaviour and capacity to act. Thus, I propose that different ways of conceptualizing climate change lead to different actions being pursued—on an individual, cultural and political scale.

⁷ Also known as the Sapir-Whorf hypothesis.

Research Methodology

The methodology of this study is based on a case study research design on a longitudinal timeframe in order to investigate synchronic and possible diachronic metaphor shifts between the two sub-corpora (2007 and 2017). This is essentially a corpus-driven approach in that the complete corpus of 300 articles is analysed for metaphorical content, using systematic procedures of identification, interpretation and explanation. A central justification for such a comparatively data-heavy approach stems from the relative importance assigned to frequency in gaining insight into linguistic patterns. As linguist Elena Semino notes, “In principle, the understanding of any linguistic phenomenon can benefit from being systematically analysed in large quantities of naturally-occurring data, i.e. from the kind of analysis that corpus methods make possible” (Semino 2017, 463).

Although an exploratory inquiry first and foremost, with an emphasis on inductive reasoning, the study entailed the use of both deductive and inductive approaches for its admittedly eclectic assemblage of theories and methods of analysis.

Interpretative Strategy

The establishment and adherence to an interpretative strategy has a fundamental bearing on the overall integrity and coherence of the research, since it determines the context of meaning that will be analysed (Bergström and Boréus 2017, 11). Subsequently, the choice of interpretative strategy needs to be informed by the given research problem. In choosing a discourse-oriented strategy I focus not on the various agents pertaining to the texts (e.g. text producers or addressees) but on the implicit meanings that are created from the discourses that the textual and metaphoric substance give rise to. Aside from the systematic analysis of discursive patterns latent within the corpus, this interpretation involves an equal attention to the wider social context in which the texts and discourses are situated (*ibid.*, 14). Critical metaphor analysis, as will be explained shortly, provides the researcher with an array of tools that caters to these requirements.

Critical Metaphor Analysis

Critical metaphor analysis (CMA), as proposed by Jonathan Charteris-Black (2004, 41), is an approach to the study of metaphor that incorporates elements of cognitive linguistics, corpus linguistics, and critical discourse analysis, and features both qualitative and quantitative elements.

There are other well-developed methods of metaphor identification and analysis, such as the Pragglejaz Group's *Metaphor Identification Procedure* (Pragglejaz Group 2007) and Gerard Steen's five step procedure (Steen 1999, 57-77). However, I considered the corpus-driven approach of CMA and its methodological affinity with critical discourse analysis, a method I have prior experience of, as particularly suitable for the type of material and research questions of this study. This coupled with its unique attention to discourse and ideology added further justification for its adoption.

Since I have found little in the way of complementary literature on CMA methodology, the following outline is by necessity a close approximation of Charteris-Black's framework (2004, chapter 1, 2).

First off is an account of the steps followed in the identification and interpretation of metaphors in the corpus. This involves addressing the following points: the establishment of a working definition of metaphor to be used in this study; the formulation of a methodology for the identification and collection of metaphors for the analysis; the discussion of interpretative and explanatory strategies of metaphorical phenomena.

Defining Metaphor According to CMA

To aid in the definition of metaphors in the corpus I rely on a set of criteria developed by Charteris-Black (2004, 21) as a response to the fact that metaphor is essentially a relative and fluid concept; one can never be completely certain that what is intended as a metaphor will be interpreted as one, since language users will always understand and experience language differently (*ibid.*, 20). Charteris-Black proposes therefore that a definition of metaphor ought to include a linguistic, a pragmatic and a cognitive aspect, each of which may subsequently serve as a criterion.

By the linguistic criterion one may determine whether a word or phrase is a metaphor if it produces a semantic tension through:

- *Reification*, by which an abstract concept is referred to by a word or phrase that in other settings describes a concrete concept
- *Personification*, by which an inanimate concept is referred to by a word or phrase that in other settings describes an animate concept
- *De-personification*, by which an animate concept is referred to by a word or phrase that in other settings describes an inanimate concept

By the pragmatic criterion, a metaphor is identified when a linguistic utterance is used incongruently with the aim to persuade and influence according to the speaker's underlying motives. However, only by investigating the contextual meaning of the utterance can one elucidate the exact nature of its purpose (Charteris-Black 2004, 21).

Lastly, the cognitive criterion pays attention to the conceptual nature of metaphor. The general idea is that the mechanisms in which linguistic metaphors function (the transferring of meaning from an original context to a novel one, based on some form of analogy) originates from a shift in the conceptual system of the human mind. It is thus the process of mentally establishing associations between previously unrelated conceptual domains and their various attributes that generates this process. Essentially, the distinct schema of a concrete and typically familiar *source domain* is mapped onto that of an abstract *target domain*, denoting that which the metaphor describes (ibid, 13.). Thus, a conceptual metaphor may be defined according to Lakoff's mnemonic "TARGET-DOMAIN IS SOURCE-DOMAIN" (Lakoff 1993, 207), hence for example CLIMATE CHANGE (i.e. the target domain) IS WAR (i.e. the source domain). Importantly, a metaphor is not only the result of such a conceptual shift but may also be the cause of one (Charteris-Black 2004, 21).

These linguistic, pragmatic and cognitive aspects are not fixed measures of metaphor; in other words, a metaphor may embody any or all of these aspects and may reflect a stronger orientation towards one or the other (ibid., 20-21).

The metaphor identification strategy used in this study follows Charteris-Black's (ibid.) corpus approach to metaphor identification according to CMA, with a few modifications. CMA pays attention to three aspects of linguistic analysis and is carried out in three respective stages. While the first stage represents a rather practical computer-assisted procedure through which metaphors are manually identified in the corpus, the other two—metaphor interpretation and

metaphor explanation, requires a further analysis of the collected metaphors alongside the application of the theories stated in chapter 1. Here I give an account of the steps I followed in metaphor identification, the first stage of CMA methodology.

Stage 1: Metaphor identification

Inspired by Charteris-Black's approach (2004), I first re-read a sample of the corpus with the purpose of identifying candidate metaphors, that is, words or phrases I judged as having potential metaphorical uses. I soon decided however to read the entirety of the corpus (300 articles) to identify and collect from the texts (including headlines) as many candidate metaphors as possible, a more time-consuming process but with the anticipated upshot of leading to a more thorough analysis. Relying on the system of criteria explained in the previous section as basis, as well as my own intuition and the consultation of entries in the *Macmillan English Dictionary for Advanced Learners* (2007), each candidate metaphor was then further investigated to determine if it could potentially be used as a metaphor. Those that satisfied this requirement were then designated as metaphor keywords. Now, it is neither expected nor desirable that every instance of a keyword should indicate the presence of a metaphor (this is partly due to the required element of semantic tension in metaphors, discussed in the previous section). Therefore, the next step was to perform searches in the corpus of occurrences of each keyword with the help of NVivo 12, then examining the context of every occurrence in order to determine whether the keyword in question was used in a metaphorical sense (i.e., whether it causes semantic tension or not). Those that did were classified in the software as metaphors and were subsequently ready to be analysed quantitatively in terms of frequency and sub-corpus distribution and patterns—ascertaining moreover the degree in which a linguistic metaphor has become conventionalized, and qualitatively in terms of their conceptual and discursive attributes. 279 of 300 articles were thus found to contain one or more metaphors. This marked the second stage of analysis where the deeper meanings and socio-cognitive entanglements of the metaphors were investigated.

Stage 2: Metaphor interpretation

According to Fairclough, "Texts are social spaces in which two fundamental social processes simultaneously occur: cognition and representation of the world, and social interaction"

(Fairclough 1995, 6). This general proposition in critical discourse analysis motivates the analysis of the implicit content of texts to lay bare underlying structures of ideology, discourse, and social relations.

The interpretative stage of CMA similarly extends beyond the surface level of a text to consider the “relationship between metaphors and the cognitive and pragmatic factors that determine them” (Charteris-Black 2004, 37). Metaphor choices implicitly reflect, to a greater or lesser degree, such underlying mental and social factors. Moreover, the construction of a socially important representation is—again, to a greater or lesser degree—determined by metaphor choice (ibid., 38). This relationship can be studied more closely by examining the nature and extent in which certain related metaphors are systematically employed. In CMA, interpretation is effectuated primarily through the classification of conceptual metaphors. Although Charteris-Black (ibid., 16) points to the possibility of further analysis of so-called *conceptual keys*; superordinate or higher-level metaphors which provide evidence of how conceptual metaphors are related (as Charteris-Black explains, from conceptual metaphors like AMERICA IS A PERSON a conceptual key; A NATION IS A PERSON, may be inferred), time and work constraints precluded any extensive analysis in this area.

In the present study, the classification of conceptual metaphors was based on the presence of multiple, unique metaphors showing relatedness in terms of their source and target domain structure. Metaphors for which a full cross-domain structure could not be determined were grouped as “other”. One pertinent caveat to the rule above is in the formulation of conceptual metaphors for which only one metaphor expression was found. To resolve this issue, I found it useful to slightly amend the definition by espousing Steen’s perspective on one-shot conceptual metaphors (Steen 1999, 58-59). A metaphor’s conceptuality, if I understand Steen’s argument correctly, is not necessarily reliant on the presence of additional expressions of the same kind (ibid). Though the potency of a conceptual metaphor is surely enhanced by a diverse and systematic bundle of underlying metaphoric expressions, I argue that the pervasiveness of a single metaphor may even so be an important indicator of conceptuality. That said, a couple of such one-shot conceptual metaphors as defined in the study were realised by such a low number of metaphor occurrences that their conceptual status is debatable.

To be clear, the expressions grouped in the potentially confusing category “compounds” represent a variety of conceptual metaphors that share the linguistic characteristic of being made up of two words from separate conceptual domains. Since these types of metaphors are especially interesting because of this property, I decided thus to subsume them into this

category rather than to divide them into the usual “target domain - source domain” arrangement.

Keeping in line with the research problem of this study, I disregarded metaphors and possible conceptual metaphors that did not refer to climate change or associated concepts and themes.

Though all can be accessed in appendix A, it was decided due to the sheer amount and diversity of the conceptual metaphors thus classified that a delimitation for analysis was necessary. To do this I fashioned a procedure of prioritization guided by 1) prevalence, and 2) generative potentiality. Subsequently, a group of metaphors was included for further analysis if it was pervasive in either or both sub-corpora, satisfying the first criterion, and/or displayed a possible generative function. See chapter 4 for the groups thus selected for analysis.

Stage 3: Metaphor explanation

It is at the stage of explanation that the discursive and ideological dimensions of metaphors are investigated (Charteris-Black 2004, 39), making it an integral part in answering research questions 2 and 3.

Drawing on the interpretation of conceptual metaphors and conceptual keys, explanation attempts to determine the social context in which metaphors are produced and their social function in persuasion (ibid.). Identifying the discursive role of metaphors is a necessary step in the explanation of their possible ideological motivations (ibid.) and is effectuated in this study by analysing the identified metaphors in relation to the social context of their articulation. Here, the theoretical and conceptual framework is applied to further define these processes. Subsequent discussions and evidence pointing to ideological motivations are brought forward in chapters 4 and 5.

Limitations and delimitations of methodology

That the selected newspapers warrant investigation on account of the inarguable influence they command does naturally not dispel the need for the equal treatment of other sources. The inclusion of a conservative newspaper like *Wall Street Journal*, or a Left Coast newspaper such as *Los Angeles Times* would presumably expand the discursive and metaphorical “tapestry” of the material. Unfortunately, neither were available through Nexis Uni at the time of analysis.

As for limitations pertaining to the research method, there is no escaping the fact that the enterprise of metaphor analysis entails some subjective evaluation, even when adhering to a set of criteria as the one presented earlier in this chapter. Hence, what I interpreted as a metaphor might be a literal statement to someone else. Therefore, notwithstanding my efforts to be as rigorous and comprehensive as possible in the definition, collection, and analysis of metaphors, there are bound to be omissions and points of contention arising from my inevitably subjective evaluations. But as Charteris-Black notes, one of the strengths of corpus-based analyses of publicly available data is that anyone who wishes to replicate the analysis or review the classifications can access the empirical material on which they are based on (Charteris-Black 2004, 35). To further increase transparency, appendices B through G contain links to most articles. All articles are also available through Nexis Uni (<https://www.lexisnexis.com/en-us/support/nexis-uni/default.page>).

Lastly, I wish to stress that this study's engagements with conceptual metaphor theory, generative metaphor, and cognitive linguistics is by necessity limited and merely scratches the surface of these immensely rich and deep disciplines.

Chapter 4

Findings

Introduction and Outline of Chapter

This chapter presents and critically analyses the results of the identification and classification of metaphors according to the CMA procedures outlined in the previous chapter.

Preceding the analysis proper is a brief and condensed overview of *all* metaphors (grouped in source domain, "compounds" and one "other" category) identified in the corpus. The overview serves to illustrate the breadth of source domains (such as I defined them) that were manifest in the opinion articles (see table 2). A summary of all defined conceptual metaphors (target + source domains) is also provided in table 3, giving a clue as to the range of subjects that to some extent were described or contextualized using metaphors.

As previously noted, and which is made obvious in tables 2 and 3, the identification and classification of metaphors in the opinion articles resulted in a substantial amount of disparate

conceptual metaphors. While many of these may be of interest, I decided for the sake of cohesion and attendance to the research questions to delineate and focus the analysis on those groups of metaphors showing significance in terms of pervasiveness and/or generative function. The conceptual metaphors thus chosen to be analysed and discussed in the next section are the following: CLIMATE ACTION IS WAR, CLIMATE ACTION IS A JOURNEY, CLIMATE ACTION IS MOVEMENT, ECOLOGICAL IS A SCALE OF CLEANLINESS, and COMPOUNDS. That said, I believe that following a strict demarcation may lead to a more decontextualized account and the foreclosing of possibly pertinent connections. As a compromise, throughout the analysis and discussion I make occasional and judicious references to some of these “ancillary” metaphors. There is thus some justification in the summary review and inclusion of this data, as it provides greater contextualization and allows for a more flexible and dynamic approach to the analysis.

This overview is followed by the main analysis of the primary conceptual metaphors and metaphoric compounds. To restate, the cardinal task is to explore and define the nature in which the conceptual and generative elements of the metaphors structure subliminal ways of understanding climate change—along with the putative linkages that stretch between metaphors and connect to an external sociocultural/discursive context. In addition, observations and elaborations concerning temporal differences in the two sub-corpora are incorporated throughout this chapter. The investigation of each group of conceptual metaphor is based on the CMA stages of interpretation and explanation (see previous chapter). To provide context and lucidity, examples drawn from the material intersperse each group. Throughout the tables and examples, the abbreviations NYT (*New York Times*), WP (*Washington Post*), and UT (*USA Today*) are used. In the next section of this chapter—the contextual analysis of metaphors—these abbreviations are used in order to state which newspaper each example is drawn from and are suffixed with either “07” or “17” (denoting the sub-corpora) and a numerical value. Each such citation corresponds to an entry in the full list of articles in appendices B through G.

Overview of Metaphors

Table 2 shows the total number of unique metaphorical expressions related to each source domain as values enclosed by parenthesis (for both years). The two middle columns show how many times a metaphorical expression from each domain occurred in each sub-corpus. The

right-hand column reveals the total number of metaphor occurrences for both sub-corpora and for each source domain. The bottom three rows describe how the total occurrences were distributed across the newspapers.

As can be inferred from table 2, the metaphorical content of the opinion articles varies a lot, though there appears to be a prominence of metaphors relating to journeys and war, as well as metaphoric compounds and metaphors of cleanliness.

Table 2. Summary of metaphor source domains

<i>Source domain</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Journey (47)	124	103	227
War (68)	79	139	218
Compounds (37)	81	104	185
Scale of cleanliness (5)	69	107	176
Entity (34)	57	50	107
Movement (37)	55	34	89
Green (1)	60	16	76
Money (12)	29	21	50
Sports (19)	32	11	43
Construction (6)	20	12	32
Gambling (11)	6	21	27
Evolution (1)	12	9	21
Game (5)	13	1	14
Drug (3)	11	1	12
Natural element (6)	6	3	9
Sickness (2)	7	1	8
Relationship (1)	2	2	4
Machine (3)	3	1	4
Liquid (2)	-	4	4
Gas (2)	1	2	3
Bank (1)	1	2	3
Destructive force (2)	2	-	2
Religion (1)	-	2	2
Other (59)	125	130	255
Total	795	776	1571
- <i>NYT</i>	386	335	721
- <i>WP</i>	358	351	709
- <i>UT</i>	51	90	141

The total number of identified metaphor occurrences (2007 + 2017) is thus 1 571 (1 316 if excluding the “other” category), while the average number of metaphor occurrences per article is 5,2 (4,4 if excluding the “other” category).

Table 3 displays all conceptual metaphors based on target and source domain, along with the number of metaphor occurrences per conceptual metaphor. From this information we may gather that the greatest share of metaphors, both in terms of occurrences and diversity of source domains, appears in the target domain of climate action. Whether this prevalence is wholly the result of a general inclination in the articles to focus on themes related to climate change mitigation is not resolved in this study. However, considering the relative lack of metaphors surrounding climate change—the overarching concept of all articles—it seems likely that the metaphoric convergence in the target domain of climate action has at least as much to do with the ideational and pragmatic motivations of the authors as the textual emphasis on climate action.

Table 3. Distribution of conceptual metaphors based on target and source domain

Target domain	Source domain	Target domain	Source domain
Climate action	Journey 227	Ecological	Scale of cleanliness 176
	War 143		Green 76
	Movement 34		Relationship 4
	Construction 32		
	Evolution 21	Emissions	Entity 65
	Money 20		Movement 9
	Gambling 15		Liquid 4
	Sports 14	Fossil fuels	Drug 12
	Game 11		Entity 2
Climate politics	War 52	Fossil fuel industry	War 9
	Sports 29		Religion 2
	Gambling 10	Coal industry	Entity 7
	Game 3		
Climate change	Movement 26	Climate denialism and anti-science	War 12
	Sickness 8		Machine 4
	Entity 7		Gas 3
	Gambling 2	Innovation and technology	Movement 19
	War 2		Natural element 4
Climate impact	Money 30	Market and economy	Entity 12
	Natural element 5		
	Destructive force 2		
	Movement 1		
Earth	Entity 14		
	Bank 3		

Contextual Analysis of Metaphors

Climate Action is War

A recurring theme of the opinion articles expectedly revolve around the addressment of climate change. As will be revealed in these findings, there is a strong tendency in the articles to linguistically represent the cause of climate change mitigation in terms which can be associated with war and conflict. From the identification and interpretation of metaphorical expressions drawing from this source domain I have specified the conceptual metaphor CLIMATE ACTION IS WAR⁸.

Table 4 shows the various metaphorical expressions (types) that were interpreted as underlying this conceptual metaphor, their respective occurrences (number of times that each was used) distributed across the two sub-corpora (2007 and 2017), followed by the total number of occurrences (2007 + 2017). The final three rows show how the total occurrences were distributed across the newspapers.

The findings of the critical metaphor analysis indicate a greater spread of metaphors expressing CLIMATE ACTION IS WAR in the 2017 sub-corpus, both in terms of number of occurrences and diversity (27 metaphor types in 2017 as compared to 21 in 2007, not shown in table). Total identified occurrences had increased by 42.4 percent from 2007 to 2017. All in all, CLIMATE ACTION IS WAR metaphors are found in one third of all articles (100/300)—35.8 percent of all articles that contained metaphors (100/279), relatively equally distributed across the two years (46 in 2007, 54 in 2017).

⁸ Attempting to capture the myriad ways in which this overarching question is framed in the articles is arguably a contentious pursuit, yet that is exactly what I have done. Suggesting “climate action” as an umbrella term for such various sentiments, arguments, strategies and the like, is admittedly imprecise. I believe however that a distinction is appropriate for the scope of this study and is also somewhat compensated by contextual examples from the articles.

Table 4. Distribution of metaphors underlying conceptual metaphor CLIMATE ACTION IS WAR

CLIMATE ACTION IS WAR			
<i>Metaphor (36 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Fight	16	26	42
Combat	5	11	16
Tackle	4	11	15
Confront	7	5	12
Battle	8	4	12
Mobilize	1	2	3
Target	3	-	3
Retreat	-	3	3
Join forces	-	3	3
Lead the charge	-	2	2
Arm	-	2	2
War	-	2	2
Rally	1	1	2
Struggle	1	1	2
Blow	1	1	2
Grapple	2	-	2
Wrestle	1	-	1
Weapon	1	-	1
Body blow	-	1	1
Rear-guard	-	1	1
Call to arms	-	1	1
Conquer	1	-	1
Assault	1	-	1
Skirmish	1	-	1
Win	-	1	1
Conscript	-	1	1
Rallying call	1	-	1
High ground	1	-	1
Task force	-	1	1
Reinforcements	-	1	1
Lost	1	-	1
Holding action	1	-	1
Defend	-	1	1
Breaking ranks	-	1	1
Battlefield	-	1	1
Attack	1	-	1
Total	59	84	143
- <i>NYT</i>	24	37	61
- <i>WP</i>	31	38	69
- <i>UT</i>	4	9	13

The examples from the articles below may shed some contextual light on how concepts from the domain of war were used to metaphorically structure expressions concerning climate action.

1. “In the meantime, though, a good energy bill would help slow greenhouse gas emissions, provide some of the tools we will need to *fight* the larger *battle* and set the stage for bolder measures down the road.” (NYT07 1)
2. “Altering building codes and encouraging the use of energy-efficient bulbs are some of the inexpensive yet effective ways to *combat* global climate change.” (WP07 1)
3. “At this point, the *battle* to control global warming needs all the leaders it can get.” (UT17 1)
4. “Until recently, China and India have been cast as obstacles, at the very least reluctant *conscripts*, in the *battle* against climate change. . . . It’s America – Donald Trump’s America – that now looks like the laggard.” (NYT17 1)
5. “I wish President Trump and his administration would recognize the health, economic and environmental benefits of *tackling* climate change. . . . Thanks to forces beyond the Washington beltway that have reached a critical mass, we should be more optimistic than ever about our ability to lead – and *win* – the *fight* against climate change.” (NYT17 2)

The sense in which references to war and conflict appear natural in these sentences bespeaks the great ubiquity of the war domain in media and public discourse—to put it in context, around 17 percent of *TIME magazine* articles published in the period from 1981-2000 featured war metaphors (Karlberg and Buell 2005); in another study, war metaphors were found in almost half (43.7%) of all metaphor-containing Guardian Online editorial/op-eds about climate change (Atanasova and Koteyko 2015a). The proliferation of the war domain in the English language is further evinced when we consider its centrality in other familiar themes in discourse, such as the war on terrorism, drugs, crime, poverty, and so on (Flusberg, Matlock, and Thibodeau 2017, 771). The examples from the corpus all harness the emotive and persuasive effect of this domain, pitting climate change as a natural enemy against which tools, light bulbs, conscripts and leaders are mobilized.

Many, if not most, of the metaphors identified as underlying the conceptual metaphor relate to what Andrew Goatly (2007, 72-3) terms ACTIVITY IS FIGHTING, a rich and dynamic system of metaphors by which the “topography” of fighting is extrapolated onto what are seen as

analogous aspects of activity. Hence, purposeful activity that is expected to demand collective action and sacrifice may conjure up a so-called cognitive script (Charteris-Black 2004, 92), that makes the idea of nations embroiled in a “battle” against climate change (example 4) seem perfectly legitimate. There is thus a strong sense in which CLIMATE ACTION IS WAR enables a framing of unified and cooperative effort towards a common good not only in the examples but in the corpus as a whole (whether this common good is mainly located in our continued survival or in the economic benefits pointed out in example 5 will be discussed at length in the coming pages). Less obvious, however, is the exact nature of that which is being “fought”. This is a crucial question with regards to the cognitive and discursive implications of the conceptual metaphor, since insofar that climate change is designated as the enemy, the structural roots of the problem are effectively obscured (Atanasova and Koteyko 2015b). Whereas most corpus instances of CLIMATE ACTION IS WAR fall victim to this tacit vindication of systemic causes, a more sharply defined enemy is occasionally described in a few articles. Some of these expressions, which depart from the diffuse application of war metaphors in favour of a more explicitly trenchant critique of the fossil fuel industry, were defined as the much smaller conceptual metaphor FOSSIL FUEL INDUSTRY IS WAR⁹ (see table 3 and appendix A).

Regardless, CLIMATE ACTION IS WAR is undoubtedly a key conceptual metaphor that underpins the pragmatic narrative of a large portion of the articles. As may be noted in examples 1 and 4, its potent allusions to war and conflict does not bar the possibility of interactions with metaphorical expressions drawing on other source domains. ‘Down the road’, ‘obstacle’, ‘laggard’—expressions deriving from the journey domain similarly evokes an evaluative sense of struggle and collective action.

Climate Action is a Journey

In this section I review and investigate the ubiquitous and dynamic conceptual metaphor CLIMATE ACTION IS A JOURNEY as I identified it in the articles. The findings, shown in table 5, describe a relatively equal use of the conceptual metaphor in the two years; there were 124 occurrences of journey metaphors in 2007 compared to 103 in 2017, signifying a moderate decrease, in which the ‘lead’ metaphor represents the largest drop.

⁹ The twenty largest fossil fuel companies are collectively responsible for 35% of global carbon dioxide and methane emissions since 1965 according to a recent study by the Climate Accountability Institute (2019). Indeed, there is ample justification in framing the fossil fuel industry in the context of war.

Table 5. Distribution of metaphors underlying conceptual metaphor
CLIMATE ACTION IS A JOURNEY

CLIMATE ACTION IS A JOURNEY			
<i>Metaphor (47 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Lead	33	18	51
Step	21	23	44
Follow	9	5	14
Path	4	10	14
Ahead	5	3	8
Foot-dragging	6	-	6
On board	2	4	6
On track	2	4	6
Stand in way	3	2	5
Burden	4	1	5
Down the road	4	1	5
Course	2	3	5
Obstacle	2	2	4
Way forward	-	4	4
Pathway	-	4	4
Falling behind	1	2	3
Laggard	1	2	3
Heavy lifting	3	-	3
Embark	3	-	3
Drag	1	1	2
Trail	1	1	2
Road map	2	-	2
Roadblock	-	2	2
Catch up	-	2	2
Parade	2	-	2
Push ahead	1	-	1
Forge ahead	-	1	1
Traveller	1	-	1
Muddle along	1	-	1
Chase	1	-	1
Adrift	-	1	1
Block	-	1	1
Carry load	1	-	1
Change tack	-	1	1
Come along	1	-	1
Foothold	1	-	1
Further along	1	-	1
Get ahead	-	1	1
Halting	-	1	1
Lagged behind	1	-	1
Precipice	1	-	1
Pull	-	1	1
Schedule	-	1	1
Stall	1	-	1
Threshold	1	-	1
U-turn	1	-	1
Wait	-	1	1
Total	124	103	227
- <i>NYT</i>	65	48	113
- <i>WP</i>	49	42	91
- <i>UT</i>	10	13	23

Journey metaphors occur in 42 percent of all articles (126/300) and is somewhat evenly distributed across the sub-corpora (65 articles in 2007 and 61 articles in 2017).

Seeing as how pervasive this conceptual metaphor is in the articles raises the question of how it is articulated by metaphorical expressions. Here are some examples from the corpus of how the conceptual domain of journey was used to frame climate action:

6. “The United States has always *led the way* in confronting global challenges, especially ones that profoundly affect our own country.” (NYT17 3)
7. “But at Bali, the goal is simpler and more immediate. We must set an agenda – create a *road map* to a better future, coupled with a timeline that produces a deal by 2009.” (WP07 2)
8. “But there are still plenty of *open paths* toward a clean-energy future. It is up to all of us to *blaze those trails* on behalf of our children and grandchildren.” (WP17 1)
9. “But, barring some technological breakthrough in green energy, the accord is a vital *first step toward* preventing catastrophic climate change.” (UT17 2)

Even though it is only present in the context of climate action, “journey” is one of the largest source domains in this study. According to Goatly, there is a propensity in the English language to conceptualize activities and processes through the domain of motion (commonly forward motion) (Goatly 2007, 52). From this broad schema, expressions linking improvement and development to forward motion (for example as *progress* and *advance*) is borne out by the conceptual metaphor DEVELOPING/SUCCEEDING IS MOVING FORWARD (ibid.). The journey metaphors analysed here uses these schemas as building blocks but adds a level of familiarity and pragmatic meaning. Now, despite there being variations as to cognitive force (i.e. some metaphors are presumably more conceptually “potent” than others) and to the specifics of the referents, as a whole they converge around the central idea of a predetermined and socially desired end, ostensibly the mitigation of climate change. Indeed, this notion is present in all four examples above, why a more accurate classification might be CLIMATE ACTION IS TRAVELLING ALONG A PATH TOWARDS A DESTINATION (see Charteris-Black 2004, 74; Lakoff

1993). What is the source of journey metaphors' salience and how do they affect our conceptualization of climate change?

We tend to connect strongly to journey metaphors because most of us have a strong sense of familiarity and relatability to the concept of journeys themselves. As Charteris-Black succinctly puts it: "The expressive force of the journey metaphors is precisely because of the readiness with which very familiar bodily experience can be integrated into a set of contrasts that serve the basis for a system of evaluation" (Charteris-Black 2006, 201). In other words, the efficacy and prevalence of the conceptual metaphor, he suggests, is by dint of the journey domain's rich system of elements, making it a highly flexible and modifiable metaphorical source for the rhetorical framing of long-term purposeful activities. Generally speaking, we have an intuitive and evaluative sense of the nature of journeys and their various contingencies and typical elements. For example, instruments such as compasses or maps (like the one in example 7), or even a guide (as in example 6), might be invaluable when setting off on a journey (Charteris-Black 2006, 201), more so if it is expected to be arduous or enter uncharted territory.

Journey metaphors, at least when defined as collective endeavours, may be rhetorically structured to inspire solidarity for the attainment of a positively evaluated goal. Interestingly, in example 8 the goal adheres to a utilitarian logic: *clean-energy*¹⁰, yet also a moral imperative: *on behalf of our children and grandchildren*—a vision that quite precisely embodies the quintessential win-win pitch of ecological modernization, elaborated upon in chapter 1. The persuasive and consensual backdrop of journey metaphors can be further buttressed by the conceptual key A NATION IS A PERSON, as is illustrated most clearly in example 6 but can also be perceived in the inclusive, or consensual, "we/us/our" in examples 7 and 8 (Charteris-black 2004, 75-76; Fowler 1996, 48-54). But insofar then that "we" are on a journey, who is our guide? And what precisely is the destination? These are questions that will be further discussed as we take a closer look at the related conceptual metaphor CLIMATE ACTION IS MOVEMENT.

¹⁰ That the future should be powered by renewable energy is not disputed here. Rather, it is an observation of the easy action by which a persuasive and pervasive metaphor tacitly enters discourse. It is fundamentally utilitarian because it allocates primacy to the *means* of a future, rather than to a future full stop. Such a reordering may instil a sense of optimism, but arguably at the cost of severely deemphasizing the threat of climate change.

Climate Action is Movement

Despite the clear similarities to CLIMATE ACTION IS A JOURNEY, I regarded the more basic character of this group of metaphors as warranting a separate conceptual group. Nonetheless, there is a degree of overlap and interaction between these domains that merits further exploration. Because these groups share a similar underlying conceptual structure, I will devote more attention to the contextual and pragmatic properties, as well as the putative interconnections to other conceptual metaphors, and less on its cognitive nature.

Table 6 shows that the number of movement metaphors to frame climate action was slightly smaller in 2017 than in 2007. However, the ‘move’ metaphor, representing more than half of all occurrences, stayed almost the same. Metaphors channelling CLIMATE ACTION IS MOVEMENT are found in 10 percent of the articles (30/300–16 in 2007 and 14 in 2017).

Table 6. Distribution of metaphors underlying conceptual metaphor CLIMATE ACTION IS MOVEMENT

<i>Metaphor (12 types)</i>	CLIMATE ACTION IS MOVEMENT		
	<i>2007</i>	<i>2017</i>	<i>Total</i>
Move	10	9	19
Headed	1	1	2
Go forward	2	-	2
Leap back	-	2	2
Pace	2	-	2
Speed	1	-	1
Trajectory	-	1	1
Obstruct	1	-	1
Go one way	-	1	1
Stride	-	1	1
Leap forward	1	-	1
Slow	1	-	1
<i>Total</i>	19	15	34
- <i>NYT</i>	10	8	18
- <i>WP</i>	7	5	12
- <i>UT</i>	2	2	4

Below are some examples of how movement metaphors were used in the context of climate action.

10. “The rest of the industrialized world has decided to *move toward* a clean-energy future – and reap the economic benefits such a shift can entail.” (WP17 2)

11. “What these bills offer is a chance to *move* the country *toward* developing the fuels and technologies that will be necessary for a sustainable energy future.” (NYT07 2)
12. “Our hope is that the report will *speed* the glacial *pace* of action in Washington.” (WP07 3)
13. “Market forces all seem to be *headed in the right direction*.” (NYT17 4)

As may be inferred from examples 10 and 11, the ‘move’ metaphor strongly resemble a journey metaphor, albeit without the same level of pragmatic, interpersonal dimension typical of the latter. All four examples demonstrate the elemental DEVELOPING/SUCCEEDING IS MOVING FORWARD conceptual metaphor described on page 36, further reiterating a spatiotemporal goal orientation with regards to climate action. Examples 10 and 11 illustrates a function of movement metaphors (generally shared with journey metaphors) as coordinating key arguments and sentiments, some of which are themselves metaphorically structured. For instance, in example 10, from the 2017 sub-corpus, the global effort at mitigation is conceptualized as less a journey than a race to reach a clean-energy future and obtain the prize of capital. ‘Move’ makes it possible to reframe global efforts toward sustainability as a competition, an archetypically capitalist conceptualization with a “clean” veneer. Example 11 from the 2007 sub-corpus summons a similar vision albeit with some notable differences: here, the ‘toward’ refers to a *necessary* course of action, whereas back in example 10 this intermediary stage is deleted, which may conjure up an image of painless transition to a clean-energy future in which economic benefits loom large, echoing example 8.

The political inaction of the Bush administration in terms of climate change is metaphorized in example 12 as something that can be sped up, evoking again the DEVELOPMENT/SUCCEEDING IS MOVING FORWARD metaphor but with an augmented metaphorical function by which speed describes the rate or intensity of an activity or process (Goatly 2007, 52). That this sentence follows one which declares that ‘... global warming is real but could be *slowed* ...’ (WP07 3), only works to strengthen this conceptual metaphor.

In example 13, the concept of market force is suffused with the additional force of directionality, by which it is possible to “head in a right direction”. This conceptualization is

mirrored in another article in which it is assumed that ‘The global economy is on the right trajectory.’ (NYT17 5).

Interesting as these observations may be, the question is whether they are indicative of a larger trend. A review of the collocations¹¹ of the 19 ‘move’ metaphor occurrences as shown in table 7 suggest a strong tendency to occur in the proximity of the concept of energy and the directional pronouns “toward” and “forward”.

Table 7. Collocations of the ‘move’ metaphor

	2007	2017	Total
Energy	5	4	9
Toward	5	4	9
We	2	6	8
USA	4	2	6
Forward	1	4	5
Cleaner	3	1	4

Ecological is a Scale of Cleanliness

I have previously noted and returned to the salience of the concept of cleanliness in association with the conceptual metaphors CLIMATE ACTION IS A JOURNEY/MOVEMENT. Here, I investigate the metaphorical nature and career of the term, define it as a conceptual metaphor ECOLOGICAL IS A SCALE OF CLEANLINESS, and provide linguistic evidence pointing to its vital role in structuring key arguments throughout the 2017 sub-corpus.

As can be seen in table 8, occurrences of metaphors belonging to this group increased dramatically (up 55%) in 2017. Whereas the use of the metaphor ‘clean’ had in 2017 increased across all newspapers, the comparative ‘cleaner’ decreased in the *New York Times*, which partly explains why its total number remained at 54.

The conceptual metaphor figure in 30 percent of all articles (90/300)—23.3 percent of the 2007 sub-corpus articles and 37.6 percent of the 2017 sub-corpus articles.

¹¹ Collocations are used to display the words that frequently co-occur with a chosen word.

Table 8. Distribution of metaphors underlying conceptual metaphor
 ECOLOGICAL IS A SCALE OF CLEANLINESS

ECOLOGICAL IS A SCALE OF CLEANLINESS			
<i>Metaphor (5 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Clean	30	67	97
Cleaner	29	24	53
Dirty	5	13	18
Dirtier	3	3	6
Cleaning	2	-	2
Total	69	107	176
- <i>NYT</i>	54	54	108
- <i>WP</i>	14	42	56
- <i>UT</i>	1	11	12

The metaphorical potential of the cleanliness source domain, and the word “clean” in particular, is probably not consciously recognized by most of the authors of the articles. If anything, this should only serve to demonstrate the readiness by which the metaphor has tacitly become embedded in the context of climate change discourse. The following examples from the articles illustrate this process and show the distinct ways the metaphor is utilized.

14. “Globally, the economic potential of the *clean*-energy transition is staggering, amounting to trillions of dollars. No one has more to gain than the United States by jumping into this new “great race” with both feet” (WP17 3)
15. “But we will only green the world when we change the very nature of the electricity grid – moving it away from *dirty* coal or oil to *clean* coal and renewables.” (NYT07 3)
16. “Other governments, notably in the European Union and China, vow to forge ahead developing the *clean*-energy technologies that will be the drivers of economic growth in the 21st century.” (UT17 3)
17. “We can hope, though, that the rest of the world will keep pulling, and that market forces and the march of technology will achieve the *cleaner* energy future that Mr. Trump seems unable to embrace.” (NYT17 6)

At the outset, we may in the clustering of diverse metaphors in the examples above—hailing predominantly from the journey and movement domains—see some support for the claim of the ‘clean’ metaphor’s centrality made earlier. Above all, ‘clean’ is consistently associated with the central arguments or the implicit “goals” commanding the sentences. For instance, examples 14 and 16 reprises the competitive version of the CLIMATE ACTION IS A JOURNEY metaphor discussed earlier, and merges this framing with a cornucopian prescription which, in no uncertain terms, reconceptualizes the climate change crisis as a non-zero-sum game that will clear the way to a “clean-energy future”. Another tenet of ecological modernization is elucidated in example 17, in which market forces and technology (the latter conceptualized as a coordinated and steadfast movement, demonstrative of the TECHNOLOGY IS MOVEMENT conceptual metaphor, see table 3) are entrusted to bring about such a “cleaner energy future”. Seen this way, the ‘clean’ metaphor becomes the pragmatic, indeed normative, linchpin for these ideologically rooted arguments. Striking as these examples are, how well do they represent the corpus as a whole?

Investigating the concordances¹² of the ‘clean’ metaphor in the articles reveals a marked divergence of its usage between 2007 and 2017. As can be seen in figure 1, ‘clean’ occurs almost exclusively as the adjective of those salient concepts recurring throughout the corpus (e.g. energy, technology and economy). A comparatively large proportion of the ‘clean’ metaphor was used in 2007 to describe coal (a debatable endeavour), which might be a symptom of an initial incertitude with the metaphor. This appears to have improved by 2017, since as much as 74.6 percent (50/67) of all ‘clean’ occurrences in that year were used to describe energy, whereas in 2007 this figure was “merely” 33.3 percent (10/30). Interestingly, the exact term “renewable energy” occurred only 34 times in 2017 and 23 times in 2007. Though questions of causality and correlation are not elaborated here, these figures signal even so the predominance of an evaluative and vague term in lieu of more specific and definite ways of describing energy sources.

¹² Concordances reveal the context of a chosen word by displaying all of its occurrences together with a specified number of words before and after.

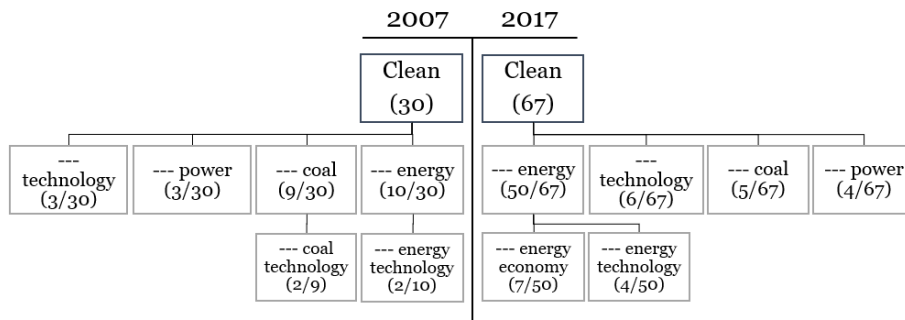


Figure 1. Concordances of the ‘clean’ metaphor

Its systematicity, contextuality and highly successful evolution thus at least partially charted, we turn now to the question of how the conceptual metaphor may be explained from a cognitive and discursive perspective. Clearly, it is not the physical state of being free from dirt that is denoted when describing coal, energy, and technology as being clean. A better but still inadequate interpretation of the present usage would suggest a concern with pollution and harmful substances, as hinted in example 15 from 2007. A more satisfactory explanation might be provided by Zoltán Kövecses, who gives primacy to the conceptual metaphor MORAL/ETHICAL IS CLEAN in idioms such as ‘have clean hands’ (2010, 246). To this, I would submit the phrase ‘clean conscience’ and perhaps even the ancient expression “cleanliness is next to godliness”. However, I posit that the further development of the vague, symbolic, and evaluative orientation of the metaphor dovetails with its expansion (perhaps partly explaining the relative waning trend of the ‘green’ metaphor, see tables 2 and 3) observable in the 2017 sub-corpus and the broader discursive context.

In their linguistic analysis of 63 international science-policy reports, Shaw and Nerlich (2015) note the first appearance of the term “clean energy” in 2005. Indeed, starting from this year, they observe a conspicuous growth of technically and economically oriented themes and metaphors (e.g. green growth, transition, and various so-called carbon compounds) suggestive of a fundamental narrative re-design of the idea of climate change mitigation. At this juncture we may witness the overture of a metaphorically represented paradigm shift by which mitigation is no longer conceived of as being at odds with the principles of economic growth, but crucially as a *source* of continued growth, competition and innovation. Clean energy, Shaw and Nerlich comment, is a conception that effectively supplants any sentiment of using less energy and works to reaffirm an overarching perspective that presupposes *increased* use of energy (Shaw and Nerlich 2015, 38). From this perspective then, ‘clean’ is arguably more than simply a reference to pollution, it is first and foremost a positively evaluated symbol of the

promise of technology, innovation and efficiency; what the metaphor lacks in descriptive power it makes up for in discursive power.

Shaw and Nerlich's claims of such a discursive reorientation in climate policy reports beginning around 2005 appear to concord with the present findings insofar that the "implicated" bundles of metaphors only have increased in use by 2017. As Shaw and Nerlich (2015) and Koteyko (2012) have found, the emergence of carbon compounds that accompanied this development further increased the monetization and technologization of climate change discourse. The critical metaphor analysis of this study identified a large amount of various compound metaphors, and it is to these we now turn.

Compounds

As can be seen in table 9, the use of compounds increased in the articles published in 2017. Briefly put, compounding refers to a "process of word formation in which two lexemes are combined to form a complex lexeme ... that results in a binary grouping of constituents in which one of the elements functions as the head" (Koteyko 2012, 25). To take 'carbon budget' as an example: here, since the head noun (budget) is modified by (carbon) we may infer from the compound and its context a rather complex meaning that construes the planet's tolerance to carbon dioxide emissions with reference to an economic concept. As Koteyko, Thelwall, and Nerlich (2010, 30) argue, expressions like 'carbon budget' are essentially metaphorical since they—like "ordinary" conceptual metaphors—work by joining two separate domains; carbon dioxide—often (but not invariably) intended to be inferred from "carbon", is thus interpreted in terms of the concept "budget". The resulting compound is non-literal and arguably something else than the sum of its parts. In addition, the compounding of two words represents more than simply an arbitrary combination of two domains but may (as in the case of carbon compounds) work to reinforce dominant ideologies and concomitant policies, such as those complementary to the discourse of ecological modernization (Koteyko 2012, 34).

Compounds were found in 29.3 percent of the articles (88/300), 42 articles from 2007, and 46 from 2017. From the outset then, it would seem that this increase of compounds noted in the 2017 sub-corpus resonates with the observation of a growing trend of carbon compounds in climate policy documents (Shaw and Nerlich 2015) and UK newspapers (Koteyko 2012).

Table 9. Distribution of metaphoric compounds

<i>Metaphor (37 types)</i>	COMPOUNDS		
	<i>2007</i>	<i>2017</i>	<i>Total</i>
Carbon tax	48	44	92
Carbon pricing	-	10	10
Low carbon	2	6	8
Climate challenge	2	5	7
Carbon footprint	3	4	7
Carbon trading	5	1	6
Carbon content	2	4	6
Carbon-intensive	2	2	4
Carbon credit	2	1	3
Carbon budget	-	3	3
Carbon cuts	-	3	3
Climate friendly	3	-	3
Climate leader	-	3	3
Carbon policy	2	-	2
Climate threat	-	2	2
Climate legacy	-	2	2
Polluter-friendly	1	1	2
Eco-friendly	2	-	2
Market-friendly	-	2	2
Carbon ruling	1	-	1
Carbon-consuming	1	-	1
Carbon challenge	1	-	1
Carbon dividend	-	1	1
Carbon index	-	1	1
Carbon burden	1	-	1
Carbon ladder	-	1	1
Climate-smart	-	1	1
Climate credit	1	-	1
Climate progress	-	1	1
Climate lesson	-	1	1
Climate bottom line	-	1	1
Climate saving	-	1	1
Eco-healthier	-	1	1
Eco-efficient	1	-	1
Eco-civilization	-	1	1
Business-friendly	-	1	1
Enviro-technology	1	-	1
Total	81	104	185
- <i>NYT</i>	20	41	61
- <i>WP</i>	60	54	114
- <i>UT</i>	1	9	10

To be sure, the compounds identified in the critical metaphor analysis represent quite disparate conceptual domains—withstanding the great convergence on the ‘carbon tax’ compound, quite likely the result of it being a key (and often endorsed) idea in many articles—which is why I henceforth will bring special attention to those metaphoric compounds that exhibit a discursive closeness to the economic and technological imaginary of mitigation

(ecological modernization). To that end, the discussion will proceed from examples in the articles which involve the concepts of economy, technology and carbon.

18. “It is possible to create an economically sustainable *low-carbon* future by investing in technology now and deploying these technologies worldwide. We need to start today, with the Kennedyesque goal of making the transition from 250 years of *carbon-intensive* growth to a *low-carbon* future in the next 25 years.” (WP07 4)
19. “Policies that lead to a *low-carbon* economy also lead to enhanced competitiveness and innovation.” (WP17 4)
20. “If the president wants to strengthen America’s competitive position, he should combine a price on carbon with border tariffs or rebates based on *carbon content*.” (NYT17 7)
21. “Still others are reducing their own *carbon footprints*, promoting markets for *carbon-credit* trading and even moving to protect *carbon-consuming* forests.” (WP07 5)

These examples illustrate the central role and great flexibility with which carbon compounds are used in the corpus. In example 18, ‘carbon’ is understood not so much as carbon dioxide emissions as an aggregated mystification of the climate change-inducing ills of development. Importantly, the concepts of a “low-carbon future”, (attainable through economic and technological means), and a “low-carbon economy” in example 19 (the path to which is lined with “enhanced competitiveness and innovation”) are projected into the future as things we sensibly should strive for, arguments drawing in part from the CLIMATE ACTION IS A JOURNEY conceptual metaphor. The primacy given to these temporally indeterminate “solutions” comes at the expense of other possible interpretations and proposals that may be closer at hand (see Koteyko 2012, who provides empirical evidence for such temporal fixation in UK newspapers). Examples 20 and 21 demonstrate the prevalent framing in which climate change and mitigation is seen as predicated on the logic and mechanisms of the market (the wild sprouting of carbon compounds in example 21 illustrative of the metaphor’s multi-use function in this regard).

Financial carbon compounds cut across both sub-corpora and generates a distinctly economic and market-oriented framing by which climate change policy is discussed. “Carbon tax” may be the quintessential expression of this framing: a metaphorical proxy for an actual instrumental part of climate change policy that nonetheless reifies the complexities of climate change according to the topography of economic discourse—it is never explicitly proclaimed a panacea, although its ubiquity and the relative dearth of other proposals would suggest otherwise.

Chapter 5

Discussion

This chapter summarizes the findings and establishes the broader discursive and conceptual entailments of the metaphorical content laid bare in the analysis, by further engaging with the theoretical and conceptual framework. In so doing, it provides answers to research questions 1 through 2. In addition, this chapter ascertains and problematizes the veracity and legitimacy of the dominant discourses and worldviews articulated by the metaphors by drawing on political ecology, thereby answering research question 3.

Based on the findings we may arrive at the following general conclusions: metaphors were identified in almost all articles (279/300), whereas metaphors that I defined as underlying conceptual metaphors were found in almost as many articles (261/300). A total of 41 separate conceptual metaphors, not counting one group of metaphoric compounds and one “other” group, were delineated from these metaphors (see table 3).

The most powerful conceptual metaphors in the sense of prevalence and conceptual/generative potency were determined as CLIMATE ACTION IS WAR; CLIMATE ACTION IS A JOURNEY; CLIMATE ACTION IS MOVEMENT; ECOLOGICAL IS A SCALE OF CLEANLINESS; and COMPOUNDS. I propose that these conceptual metaphors spearheaded the overarching cognitive and discursive locus within the articles; on the cognitive level this was the habitual interpretation and representation of the enterprise of climate change mitigation by the perceived analogies of the conceptual domains of war, journeys and the basic notion of movement. In terms of surface-level discursive meaning, ECOLOGICAL IS A SCALE OF CLEANLINESS and compounds were found to be instrumental metaphorical vehicles of market- and technology-oriented conceptions of

mitigation, but above all, reproductive of a non-zero-sum imaginary akin to sustainable development and ecological modernization.

To conclude, I submit as answer to research question 1: “What conceptual metaphors were used in the opinion articles of three major US newspapers, published in 2007 and 2017?”, the results as presented in tables 2 and 3, and the section on findings in the preceding chapter, as well as the full list of identified metaphors in appendix A.

Although the amount of metaphors was generally comparable in both years, prominent differences as to the nature of metaphor use were detected. Specifically, journey and movement metaphors decreased in usage in 2017, while metaphoric compounds, along with war and cleanliness metaphors increased significantly. Although this is true of the five conceptual metaphors that were subjected to closer analysis, with the exception of CLIMATE ACTION IS WAR, these decreases and increases were solely on the aggregate level. In other words, these trends were not uniformly observed in all three newspapers. Moreover, the aggregate results were often strongly influenced by the presence of a few pervasive metaphors, further complicating the picture. Clearly, more corroborative evidence from other sources in news media would be needed in order to make a stronger claim of a structural temporal shift in the social use of these conceptual metaphors. Nevertheless, these findings are indicative of a growing predisposition for war metaphors and so-called *semantic shortcuts* (Koteyko 2012, 28) such as metaphoric compounds and ‘clean’ metaphors. This answers sub-question 1.1: “How do the use of these conceptual metaphors differ between the two years?” which may be further investigated by again referring to tables 2 and 3, and the findings in the previous chapter, as well as the full list of identified metaphors in appendix A.

The rest of this discussion serves to address research question 2: “How do these conceptual metaphors structure ways of understanding climate change and how do they legitimise dominant discourses and ideologies of climate change?”, and research question 3: “What are the possible implications of these metaphorically structured discourses and ideologies with regards to the mitigation of climate change?”

Interestingly, climate change as phenomenon was subjected to very little direct metaphorical description in the articles. From a purely anecdotal perspective, this may be because the analysed opinion articles were much more about the politics, policies and economics of climate change than the issue itself, a trend observed in climate change coverage from around the end of 2007 (Boykoff 2009, 438). Nonetheless, the conceptual metaphors analysed in this study

naturally structure particular ways of understanding climate change, indirectly if nothing else, such as the “enemy” role commonly assigned through the conceptualization of climate action as war.

To be sure, the patterns of metaphor use are to a lesser or greater degree born out and reflective of the prevailing social and political circumstances of their production. Hence, the rise in war metaphors and the emergence of the conceptual metaphors FOSSIL FUEL INDUSTRY IS WAR and DENIALISM AND ANTI-SCIENCE IS WAR in 2017 can quite likely be at least partly attributed to a changing “climate” in the political landscape of USA following Donald Trump and the republican party’s ascendancy to power. In any case, the clear target painted in these conceptual metaphors may, as Mangat and Dalby (2018) argue, represent a conceptual deviation from the more general and diffuse meaning transmitted in CLIMATE ACTION IS WAR. Furthermore, the possible decline of the efficacy by which the war domain inspires action towards climate change mitigation, as discussed by Flusberg, Matlock, and Thibodeau (2017, 780) and Atanasova, and Koteyko (2015a, 463-464), may be counteracted by the gradual replacement of such tiredly formulaic war metaphors with conceptual metaphors that explicitly bring the war (figuratively speaking) to the structural causes and main perpetrators of climate change, historically and presently.

Dynamic and salient, CLIMATE ACTION IS A JOURNEY and CLIMATE ACTION IS MOVEMENT conceptual metaphors were found to be cogent devices in conceptually structuring climate change action as a collaborative and often globally competitive endeavour that foregrounds the purported political and material incentives of mitigation (e.g. position in global politics, technological and economic gains), a framing which ultimately may serve to subordinate or even work against the true notion of the existential threat of climate change. Other latent ontological fallacies may arise from the repeated reproduction and concomitant naturalisation of this framing. For instance, the universalistic undercurrents of CLIMATE ACTION IS A JOURNEY, abetted by the frequent co-occurrence of the consensual “we”, obscures the fact that though the impacts of climate change affect us all in some way, they are and will continue to be highly differentiated and stratified across the world. In a manner of speaking, we are all in the same boat but some of us wear life jackets. These conceptual metaphors were also active in rhetorically segueing the narrative towards the salient and often overarching concepts of energy, technology, and economy—metaphorically conceptualized as ‘clean’, or made into compounds to form metaphors such as ‘carbon-tax’ and ‘low-carbon’ future.

I posit that the discursive propagation of these semantic shortcuts serves at least two purposes: it consolidates or maintains agreed upon terms that are vital for the cohesion of a narrative—an interpersonal common ground between the storyteller and the audience. And in so doing, they simultaneously enable a linguistic—and crucially a cognitive—bypass that avoids bringing up aspects of an issue that conflict with this overarching narrative. What we may see then in terms of problems is the development of a continuous reproductive process that bars reflexive dialogue about the human-environmental contradictions brought about by capitalism, and the emergence of alternative interpretations of mitigation. Now, insofar that carbon compounds repeatedly systematize and affirms the pragmatic centrality of financial and technological solutions to climate change in the articles—which I argue they do—then they exhibit the symptoms of generative metaphor.

The metamorphosis of entrenched technocentric ideologies and neoliberal principles of market solutions into hegemonic environmental policy and discourse (e.g. ecological modernization and sustainable development) is intrinsically predicated on the idea of perpetual economic, technological and industrial expansion—a concept that vainly and at great environmental cost attempts to circumvent the unyielding laws of thermodynamics and the biophysical limits to growth (Daly and Farley 2011; Hornborg 2016, 125). However, the contradictions between continued growth and sustainability finds a way of being cognitively resolved, perhaps even primarily on a subconscious and automatic level, by the persuasive and reproductive logic of non-zero-sum environmental discourse and adjunct metaphors. By embodying and spreading the belief in the reciprocal relationship of capital and technological accumulation on the one hand and climate change mitigation on the other, these discursive imaginaries represent a wholesale refutation of the structural causes of climate change to begin with—that is, capital and technological accumulation (Foster, Clark, and York 2010; Hornborg 2019, 147).

Suggestions for further research

The importance of continued research into the field of metaphor and climate change communication is reflected in the relative dearth of previous studies. As such, there is a fertile ground of possible avenues of inquiry—a comprehensive summation of which is obviously impossible to provide in these few paragraphs. Nevertheless, I would like to submit a couple of rudimentary ideas for future research that developed during the course of this study.

Further diachronic analyses of metaphor use in the context of climate change, regardless of genre, is arguably a highly relevant research pursuit, not least due to the relative infancy and continually evolving nature of climate change discourse. The possible spatiotemporal permutations of such studies are practically limitless. Similar critical metaphor analyses could for example be fruitfully carried out on a wider selection of news sources from other parts of the world, thus potentially discovering and mapping out new strands of dominant environmental discourses.

Metaphor is an integral part of language and cognition than can be harnessed both as a powerful tool of obfuscation *and* as a catalyst for social change. From this perspective, I perceive a need for further research regarding the discursive entanglements of certain metaphor uses in the context of climate change and the Anthropocene. It is possible that an approximate “metaphorical signature” of an environmental discourse could be evinced by comparing the patterns by which candidate metaphors occurs in a studied corpus and a large corpus such as the *American National Corpus* and the *Oxford English Corpus*¹³. Similarly, investigations concerning the propagation of salient or incipient climate change metaphors would conceivably benefit from the incorporation of intertextual analyses by the extensive examination of cross-genre recurrences of the metaphors of interest.

Conclusion

By critically and extensively analysing and discussing the metaphorical content of 300 opinion articles, evidence has been put forward to support this thesis’ cardinal argument; that language and metaphor plays an extremely important role in societal and individual awareness and action with regards to climate change. To recapitulate briefly, the study was empirically based on editorial and op-ed textual content of three major US newspapers from the years 2007 and 2017, to which a critical metaphor analysis was applied. Although questions pertaining to the degree and exact nature by which an identified body of metaphors articulate and engender ideological and cognitive processes are complex and cannot be fully resolved by such an analysis alone, the contextual orientation and the extent by which certain pervasive metaphors

¹³ See Charteris-Black (2004) for integrating corpus methodology in critical metaphor analysis. See also Semino (2017) for a good introduction to corpus linguistic studies of metaphor.

were drawn towards specific source domains strongly indicate the presence of such “mischievous metaphors”¹⁴.

The results of the critical metaphor analysis indicated a predominance of metaphors drawing on war, journey and movement source domains. Metaphors of cleanliness and metaphoric compounds were also common occurrences in various contexts. Expectedly—although it must be emphasized—not all metaphors were found to be ideologically or conceptually motivated. Nevertheless, the conceptual metaphors CLIMATE ACTION IS A JOURNEY, CLIMATE ACTION IS MOVEMENT, ECOLOGICAL IS A SCALE OF CLEANLINESS and especially metaphoric compounds were found to be instrumental in structuring discursive formations akin to ecological modernization and sustainable development. It was argued that these prominent discourses dominated the overarching narrative surrounding climate mitigation, effectively precluding the introduction of radically different discourses and imaginaries concerning society and climate change. It was also argued that the apparent ease and perceived naturalness by which core tenets of ecological modernization and sustainable development were reproduced and legitimized in the articles can be attributed from them being tacitly expressed through metaphors. This is not to suggest a universal rule by which a metaphorical expression implies a moment of discursive or cognitive practice, yet the often interpersonal and evaluative language of the opinion articles—which were taken into account throughout the analysis—often worked to compound such pragmatic and conceptual elements. For example, the marked increase of metaphors using war as source domain in 2017 (including the conceptual metaphor CLIMATE ACTION IS WAR), as indicated in the analysis, can likely be connected to a discursive shift in editorial tone following the fossil fuel sector’s attacks on climate change science and the US abdication of a purported “climate leadership”, owing to Donald Trump’s political decisions.

Above all, this study sought to emphasize the importance of recognizing the dual force of conceptual metaphors—firstly, the efficacy by which they may reproduce and embed ideological and discursive ideas; secondly, the cognitive role by which they structure our thinking and behaviour in relation to climate change. It is through the interlocking of these two forces that nested worldviews predicated on intransigent ideas of human-environmental relations imperceptibly becomes part of everyday life. Our language systems have repercussions within our minds from whence we make imprints on the physical environment outside us. Acknowledging this power and paying closer attention to the characteristics of

¹⁴ A term borrowed from Mann and Wainwright (2018, 71).

pervasive linguistic practices in various areas of climate change communication will equip us with the means to resist and bring to light deleterious or obfuscating metaphor practices, whether unintentional or nefarious. Such critical language awareness will simultaneously aid us in the advancement of alternative metaphorical and linguistic representations of climate change, sustainability, environmental justice and of our place in the natural world. Such representations must reflect and originate from a worldview profoundly different from the one which paved the road to the ecological and climatic crisis. Such a worldview is right that does not value nature in terms of economy, nor economy over nature.

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Appendices

Appendix A

Full List of Metaphors

CLIMATE ACTION IS WAR			
<i>Metaphor (36 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Fight	16	26	42
Combat	5	11	16
Tackle	4	11	15
Confront	7	5	12
Battle	8	4	12
Mobilize	1	2	3
Target	3	-	3
Retreat	-	3	3
Join forces	-	3	3
Lead the charge	-	2	2
Arm	-	2	2
War	-	2	2
Rally	1	1	2
Struggle	1	1	2
Blow	1	1	2
Grapple	2	-	2
Wrestle	1	-	1
Weapon	1	-	1
Body blow	-	1	1
Rear-guard	-	1	1
Call to arms	-	1	1
Conquer	1	-	1
Assault	1	-	1
Skirmish	1	-	1
Win	-	1	1
Conscript	-	1	1
Rallying call	1	-	1
High ground	1	-	1
Task force	-	1	1
Reinforcements	-	1	1
Lost	1	-	1
Holding action	1	-	1
Defend	-	1	1
Breaking ranks	-	1	1
Battlefield	-	1	1
Attack	1	-	1
Total	59	84	143
- <i>NYT</i>	24	37	61
- <i>WP</i>	31	38	69
- <i>UT</i>	4	9	13

CLIMATE ACTION IS A JOURNEY

<i>Metaphor (47 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Lead	33	18	51
Step	21	23	44
Follow	9	5	14
Path	4	10	14
Ahead	5	3	8
Foot-dragging	6	-	6
On board	2	4	6
On track	2	4	6
Stand in way	3	2	5
Burden	4	1	5
Down the road	4	1	5
Course	2	3	5
Obstacle	2	2	4
Way forward	-	4	4
Pathway	-	4	4
Falling behind	1	2	3
Laggard	1	2	3
Heavy lifting	3	-	3
Embark	3	-	3
Drag	1	1	2
Trail	1	1	2
Road map	2	-	2
Roadblock	-	2	2
Catch up	-	2	2
Parade	2	-	2
Push ahead	1	-	1
Forge ahead	-	1	1
Traveller	1	-	1
Muddle along	1	-	1
Chase	1	-	1
Adrift	-	1	1
Block	-	1	1
Carry load	1	-	1
Change tack	-	1	1
Come along	1	-	1
Foothold	1	-	1
Further along	1	-	1
Get ahead	-	1	1
Halting	-	1	1
Lagged behind	1	-	1
Precipice	1	-	1
Pull	-	1	1
Schedule	-	1	1
Stall	1	-	1
Threshold	1	-	1
U-turn	1	-	1
Wait	-	1	1
Total	124	103	227
- <i>NYT</i>	65	48	113
- <i>WP</i>	49	42	91
- <i>UT</i>	10	13	23

CLIMATE ACTION IS MOVEMENT

<i>Metaphor (12 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Move	10	9	19
Headed	1	1	2
Go forward	2	-	2
Leap back	-	2	2
Pace	2	-	2
Speed	1	-	1
Trajectory	-	1	1
Obstruct	1	-	1
Go one way	-	1	1
Stride	-	1	1
Leap forward	1	-	1
Slow	1	-	1
Total	19	15	34
- <i>NYT</i>	10	8	18
- <i>WP</i>	7	5	12
- <i>UT</i>	2	2	4

CLIMATE ACTION IS CONSTRUCTION

<i>Metaphor (6 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Control	12	3	15
Fix	4	3	7
Tool	2	4	6
Mechanism	1	1	2
Blueprint	1	-	1
Engineer	-	1	1
Total	20	12	32
- <i>NYT</i>	14	7	21
- <i>WP</i>	2	2	4
- <i>UT</i>	4	3	7

CLIMATE ACTION IS EVOLUTION

<i>Metaphor (1 type)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Adapt	12	9	21
Total	12	9	21
- <i>NYT</i>	1	5	6
- <i>WP</i>	10	3	13
- <i>UT</i>	1	1	2

CLIMATE ACTION IS MONEY

<i>Metaphor (2 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Cost	7	3	10
Bottom line	2	2	4
Price	1	1	2
Broker	1	-	1
Hedge against	-	1	1
Insurance	-	1	1

Repayment	1	-	1
Total	12	8	20
- <i>NYT</i>	7	2	8
- <i>WP</i>	3	4	1
- <i>UT</i>	2	2	3

CLIMATE ACTION IS GAMBLING

<i>Metaphor (5 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Bet	-	5	5
Stake	1	4	5
Double down	-	3	3
Casino	-	1	1
Game	-	1	1
Total	1	14	15
- <i>NYT</i>	1	6	7
- <i>WP</i>	-	8	8
- <i>UT</i>	-	-	-

CLIMATE ACTION IS SPORTS

<i>Metaphor (7 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Race	3	1	4
Sideline	2	1	3
Catch up	2	-	2
Lead	-	2	2
Step up to plate	-	1	1
Sprint	1	-	1
Hurdle	-	1	1
Total	8	6	14
- <i>NYT</i>	-	3	3
- <i>WP</i>	8	2	10
- <i>UT</i>	-	1	1

CLIMATE ACTION IS A GAME

<i>Metaphor (3 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Player	4	-	4
Game	3	1	4
Lose	3	-	3
Total	10	1	11
- <i>NYT</i>	8	-	8
- <i>WP</i>	2	1	3
- <i>UT</i>	-	-	-

CLIMATE POLITICS IS WAR

<i>Metaphor (22 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Kill	8	8	16

Gut	1	4	5
Fight	1	3	4
War	-	3	3
Rip	-	3	3
Survive	2	1	3
Long shot	-	2	2
Defuse	1	1	2
Gauntlet	-	1	1
Weaponize	-	1	1
Eviscerate	-	1	1
Torpedo	1	-	1
Spar	1	-	1
Assault	-	1	1
Battle	-	1	1
Battle line	1	-	1
Stand its ground	1	-	1
Hold their ground	1	-	1
Target	-	1	1
Blow up	-	1	1
Kill zone	-	1	1
War chest	1	-	1
Total	19	33	52
- <i>NYT</i>	11	13	24
- <i>WP</i>	8	14	22
- <i>UT</i>	-	6	6

CLIMATE POLITICS IS SPORTS

<i>Metaphor (12 types)</i>	2007	2017	Total
Team	11	3	14
Grandstanding	2	1	3
Punt	1	1	2
Sideline	2	-	2
Sprint	1	-	1
Playbook	1	-	1
Cheerleader	1	-	1
Body-block	1	-	1
All-star team	1	-	1
End-run	1	-	1
Play defence	1	-	1
Warm-up	1	-	1
Total	24	5	29
- <i>NYT</i>	8	1	9
- <i>WP</i>	16	4	20
- <i>UT</i>	-	-	-

CLIMATE POLITICS IS GAMBLING

<i>Metaphor (7 types)</i>	2007	2017	Total
Stake	2	1	3
Double down	-	2	2
Trumped	1	-	1
Cards	-	1	1
Bluff	-	1	1

Wager	-	1	1
Good hand	-	1	1
Total	3	7	10
- <i>NYT</i>	1	2	3
- <i>WP</i>	2	4	6
- <i>UT</i>	-	1	1

CLIMATE POLITICS IS A GAME

<i>Metaphor (2 types)</i>	2007	2017	Total
Gambit	2	-	2
Stalemate	1	-	1
Total	3	-	3
- <i>NYT</i>	1	-	1
- <i>WP</i>	2	-	2
- <i>UT</i>	-	-	-

CLIMATE CHANGE IS MOVEMENT

<i>Metaphor (12 types)</i>	2007	2017	Total
Reverse	5	-	5
Slow	5	-	5
Advance	3	1	4
Trajectory	1	1	2
Path	2	-	2
Halt	1	1	2
Head start	1	-	1
Projected course	1	-	1
Automatic pilot	1	-	1
Track	1	-	1
Outrun	-	1	1
Contain	-	1	1
Total	21	5	26
- <i>NYT</i>	1	3	4
- <i>WP</i>	15	2	17
- <i>UT</i>	5	-	5

CLIMATE CHANGE IS A SICKNESS

<i>Metaphor (2 types)</i>	2007	2017	Total
Remedy	7	-	7
Metastasize	-	1	1
Total	7	1	8
- <i>NYT</i>	5	-	5
- <i>WP</i>	2	1	3
- <i>UT</i>	-	-	-

CLIMATE CHANGE IS AN ENTITY

<i>Metaphor (5 types)</i>	2007	2017	Total
Rein in	-	3	3

Monster	-	1	1
Mother	-	1	1
Stare	1	-	1
Culprit	1	-	1
Total	2	5	7
- <i>NYT</i>	-	3	3
- <i>WP</i>	2	-	2
- <i>UT</i>	-	2	2

CLIMATE CHANGE IS GAMBLING

<i>Metaphor (2 types)</i>	2007	2017	Total
Game	1	-	1
Loaded dice	1	-	1
Total	2	-	2
- <i>NYT</i>	2	-	2
- <i>WP</i>	-	-	-
- <i>UT</i>	-	-	-

CLIMATE CHANGE IS WAR

<i>Metaphor (2 types)</i>	2007	2017	Total
Phalanx	-	1	1
Collateral damage	-	1	1
Total	-	2	2
- <i>NYT</i>	-	2	2
- <i>WP</i>	-	-	-
- <i>UT</i>	-	-	-

CLIMATE IMPACT IS MONEY

<i>Metaphor (5 types)</i>	2007	2017	Total
Afford	7	4	11
Cost	3	5	8
Price	4	3	7
Pay	1	1	2
Debt	2	-	2
Total	17	13	30
- <i>NYT</i>	12	6	18
- <i>WP</i>	3	6	9
- <i>UT</i>	2	1	3

COMPOUNDS

<i>Metaphor (37 types)</i>	2007	2017	Total
Carbon tax	48	44	92
Carbon pricing	-	10	10
Low carbon	2	6	8
Climate challenge	2	5	7
Carbon footprint	3	4	7
Carbon trading	5	1	6

Carbon content	2	4	6
Carbon-intensive	2	2	4
Carbon credit	2	1	3
Carbon budget	-	3	3
Carbon cuts	-	3	3
Climate friendly	3	-	3
Climate leader	-	3	3
Carbon policy	2	-	2
Climate threat	-	2	2
Climate legacy	-	2	2
Polluter-friendly	1	1	2
Eco-friendly	2	-	2
Market-friendly	-	2	2
Carbon ruling	1	-	1
Carbon-consuming	1	-	1
Carbon challenge	1	-	1
Carbon dividend	-	1	1
Carbon index	-	1	1
Carbon burden	1	-	1
Carbon ladder	-	1	1
Climate-smart	-	1	1
Climate credit	1	-	1
Climate progress	-	1	1
Climate lesson	-	1	1
Climate bottom line	-	1	1
Climate saving	-	1	1
Eco-healthier	-	1	1
Eco-efficient	1	-	1
Eco-civilization	-	1	1
Business-friendly	-	1	1
Enviro-technology	1	-	1
Total	81	104	185
- <i>NYT</i>	20	41	61
- <i>WP</i>	60	54	114
- <i>UT</i>	1	9	10

THE EARTH IS AN ENTITY

<i>Metaphor (10 types)</i>	2007	2017	Total
Mother Nature	3	1	4
Fever	2	-	2
Raped	1	-	1
Hostage	1	-	1
Wait	1	-	1
Whack us	-	1	1
In uncharted territory	-	1	1
Rage	-	1	1
Send a message	-	1	1
Issue warning	1	-	1
Total	9	5	14
- <i>NYT</i>	8	4	12
- <i>WP</i>	-	1	1
- <i>UT</i>	1	-	1

THE EARTH IS A BANK

<i>Metaphor (1 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Dividend	1	2	3
Total	1	2	3
- <i>NYT</i>	-	1	1
- <i>WP</i>	1	1	2
- <i>UT</i>	-	-	-

ECOLOGICAL IS A SCALE OF CLEANLINESS

<i>Metaphor (5 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Clean	30	67	97
Cleaner	29	24	53
Dirty	5	13	18
Dirtier	3	3	6
Cleaning	2	-	2
Total	69	107	176
- <i>NYT</i>	54	54	108
- <i>WP</i>	14	42	56
- <i>UT</i>	1	11	12

ECOLOGICAL IS GREEN

<i>Metaphor (1 type)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Green	60	16	76
Total	60	16	76
- <i>NYT</i>	41	8	49
- <i>WP</i>	16	5	21
- <i>UT</i>	3	3	6

ECOLOGICAL IS A RELATIONSHIP

<i>Metaphor (1 type)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Friendly	2	2	4
Total	2	2	4
- <i>NYT</i>	2	2	4
- <i>WP</i>	-	-	-
- <i>UT</i>	-	-	-

EMISSIONS IS AN ENTITY

<i>Metaphor (7 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Capture	21	8	29
Trap	8	13	21
Catch	2	3	5
Culprit	2	2	4
Pull	-	3	3
Rein in	1	1	2
Escape	1	-	1

Total		35	30	65
-	<i>NYT</i>	13	6	19
-	<i>WP</i>	22	20	42
-	<i>UT</i>	-	4	4

EMISSIONS IS MOVEMENT

<i>Metaphor (4 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>	
Reverse	6	-	6	
Arrest	1	-	1	
Skyrocket	1	-	1	
Contain	1	-	1	
Total	9	-	9	
-	<i>NYT</i>	8	-	8
-	<i>WP</i>	1	-	1
-	<i>UT</i>	-	-	-

EMISSIONS IS A LIQUID

<i>Metaphor (2 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>	
Gush	-	3	3	
Pour	-	1	1	
Total	-	4	4	
-	<i>NYT</i>	-	1	1
-	<i>WP</i>	-	-	-
-	<i>UT</i>	-	3	3

FOSSIL FUELS ARE A DRUG

<i>Metaphor (3 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>	
Addiction	4	1	5	
Wean	5	-	5	
Carboholic	2	-	2	
Total	11	1	12	
-	<i>NYT</i>	3	-	3
-	<i>WP</i>	7	-	7
-	<i>UT</i>	1	1	2

FOSSIL FUELS ARE AN ENTITY

<i>Metaphor (1 type)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>	
Tame	2	-	2	
Total	2	-	2	
-	<i>NYT</i>	2	-	2
-	<i>WP</i>	-	-	-
-	<i>UT</i>	-	-	-

FOSSIL FUEL INDUSTRY IS WAR			
<i>Metaphor (8 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Bully	-	2	2
Armament	-	1	1
Musketry	-	1	1
Heavy artillery	-	1	1
Mercenary	-	1	1
Operative	-	1	1
Lead the charge	-	1	1
Hoodlum politics	-	1	1
Total	-	9	9
- <i>NYT</i>	-	1	1
- <i>WP</i>	-	8	8
- <i>UT</i>	-	-	-

FOSSIL FUEL INDUSTRY IS RELIGION			
<i>Metaphor (1 type)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Acolyte	-	2	2
Total	-	2	2
- <i>NYT</i>	-	1	1
- <i>WP</i>	-	1	1
- <i>UT</i>	-	-	-

COAL INDUSTRY IS AN ENTITY			
<i>Metaphor (3 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Dying	-	3	3
Revive	-	3	3
Blind	-	1	1
Total	-	7	7
- <i>NYT</i>	-	5	5
- <i>WP</i>	-	2	2
- <i>UT</i>	-	-	-

CLIMATE DENIALISM AND ANTI-SCIENCE IS WAR			
<i>Metaphor (6 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
War	-	5	5
Axis	-	3	3
Ammunition	-	1	1
Hired guns	-	1	1
Lieutenant	-	1	1
Dark forces	1	-	1
Total	1	11	12
- <i>NYT</i>	-	9	9
- <i>WP</i>	1	2	3
- <i>UT</i>	-	-	-

CLIMATE DENIALISM AND ANTI-SCIENCE IS A MACHINE

<i>Metaphor (3 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Machine	2	-	2
Machinery	-	1	1
Full throttle	1	-	1
Total	3	1	4
- <i>NYT</i>	-	1	1
- <i>WP</i>	3	-	3
- <i>UT</i>	-	-	-

CLIMATE DENIALISM AND ANTI-SCIENCE IS GAS

<i>Metaphor (2 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Fog	1	1	2
Billow	-	1	1
Total	1	2	3
- <i>NYT</i>	-	-	-
- <i>WP</i>	1	2	3
- <i>UT</i>	-	-	-

INNOVATION AND TECHNOLOGY ARE MOVEMENT

<i>Metaphor (8 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Advance	3	7	10
Innovation curve	2	-	2
Timeline	-	2	2
Move forward	1	-	1
Torrent	-	1	1
Course	-	1	1
Stride	-	1	1
March	-	1	1
Total	6	13	19
- <i>NYT</i>	4	5	9
- <i>WP</i>	2	7	9
- <i>UT</i>	-	1	1

INNOVATION AND TECHNOLOGY ARE NATURAL ELEMENTS

<i>Metaphor (4 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Nurture	1	-	1
Blossom	-	1	1
Landscape	-	1	1
Climate	-	1	1
Total	1	3	4
- <i>NYT</i>	1	1	2
- <i>WP</i>	-	2	2
- <i>UT</i>	-	-	-

MARKET AND ECONOMY IS AN ENTITY

<i>Metaphor (8 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Hurt	3	1	4
Hamstring	1	1	2
Cripple	1	-	1
Survive	1	-	1
Suffer	1	-	1
Pain	1	-	1
Rousing	-	1	1
Voracious	1	-	1
Total	9	3	12
- <i>NYT</i>	4	2	6
- <i>WP</i>	4	-	4
- <i>UT</i>	1	1	2

MARKET AND ECONOMY ARE NATURAL ELEMENTS

<i>Metaphor (2 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Windfall	4	-	4
Stunt	1	-	1
Total	5	-	5
- <i>NYT</i>	-	-	-
- <i>WP</i>	5	-	5
- <i>UT</i>	-	-	-

MARKET AND ECONOMY IS A DESTRUCTIVE FORCE

<i>Metaphor (2 types)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Flood	1	-	1
Juggernaut	1	-	1
Total	2	-	2
- <i>NYT</i>	2	-	2
- <i>WP</i>	-	-	-
- <i>UT</i>	-	-	-

MARKET AND ECONOMY ARE MOVEMENT

<i>Metaphor (1 type)</i>	<i>2007</i>	<i>2017</i>	<i>Total</i>
Trajectory	-	1	1
Total	-	1	1
- <i>NYT</i>	-	1	1
- <i>WP</i>	-	-	-
- <i>UT</i>	-	-	-

<i>Metaphor (59 types)</i>	OTHER		
	2007	2017	<i>Total</i>
Cut	65	58	123
Table	2	7	9
Steward	4	2	6
Guzzle	4	1	5
Bet	1	4	5
Culprit	-	5	5
At hand	3	1	4
Window	3	1	4
Jump-start	2	2	4
Bottom line	1	3	4
Doorstep	3	1	4
Cooked	2	1	3
Belch	2	1	3
Traction	1	2	3
Convert	2	1	3
Spew	2	1	3
Overtake	3	-	3
Footprint	1	2	3
Path	-	3	3
Magic bullet	3	-	3
Pillar	-	3	3
Crucible	2	-	2
Mantle	-	2	2
Sow	1	1	2
Fingerprint	-	2	2
Cocktail	-	2	2
Myopic	1	1	2
Pitfall	2	-	2
Door	1	1	2
Rock-solid	-	2	2
Corral	1	1	2
Overboard	1	1	2
Laser focus	-	2	2
Leapfrog	-	2	2
Saddle	-	2	2
Sojourn	1	-	1
Baking	-	1	1
Chorus	-	1	1
Grab	-	1	1
Tidal wave	1	-	1
Sideshow	1	-	1
Bedfellows	-	1	1
Slide	1	-	1
Paper tiger	-	1	1
Ledger	-	1	1
Lifeblood	1	-	1
Tinkering	1	-	1
Blunt	1	-	1
Giant	1	-	1
Wean	1	-	1
Hurdle	1	-	1
Landscape	-	1	1
Gamble	-	1	1
Energy hog	1	-	1

Graveyard	-	1	1
Groundwork	-	1	1
Undertow	-	1	1
Pushing	-	1	1
Operating system	1	-	1
Total	125	130	255
- <i>NYT</i>	53	46	99
- <i>WP</i>	59	68	127
- <i>UT</i>	13	16	29

Appendix B

New York Times Articles 2007

<i>Article</i>	<i>Headline and link to article *</i>	<i>Author</i>	<i>Date</i>	<i>Word count</i>
NYTo7 1	Testing Time on Energy https://www.nytimes.com/2007/09/03/opinion/03mon1.html	Editorial Board	Sept. 3	603
NYTo7 2	A Fresh Start on Energy https://www.nytimes.com/2007/05/14/opinion/14mon2.html	Editorial Board	May. 14	421
NYTo7 3	A Warning From The Garden https://www.nytimes.com/2007/01/19/opinion/19friedman.html	Thomas Friedman	Jan. 19	771
NYTo7 4	A Glacial Pace on Warming https://www.nytimes.com/2007/04/28/opinion/28sat3.html	Editorial Board	Apr. 28	482
NYTo7 5	A Green Deal on Coal https://www.nytimes.com/2007/02/28/opinion/28wed3.html	Editorial Board	Feb. 28	402
NYTo7 6	A Loud Legal Voice on Warming https://www.nytimes.com/2007/11/18/opinion/18sun3.html	Editorial Board	Nov. 18	401
NYTo7 7	A Prize for Mr. Gore and Science https://www.nytimes.com/2007/10/13/opinion/13sat1.html	Editorial Board	Oct. 13	508
NYTo7 8	A Shameful Presidential Threat https://www.nytimes.com/2007/12/13/opinion/13thu2.html	Editorial Board	Dec. 13	417
NYTo7 9	A Swiftly Melting Planet https://www.nytimes.com/2007/10/04/opinion/04homer-dixon.html	Thomas Homer-Dixon	07-10-04	855
NYTo7 10	Al Gore's Outsourcing Solution https://www.nytimes.com/2007/03/09/opinion/09easterbrook.html	Gregg Easterbrook	Mar. 9	896
NYTo7 11	Another Warning on Warming	Editorial Board	Mar. 11	454

NYT07 12	Arrogance and Warming https://www.nytimes.com/2007/12/21/opinion/21fri1.html	Editorial Board	Dec. 21	506
NYT07 13	At Humanity's Doorstep https://www.nytimes.com/2007/02/04/opinion/04sun1.html	Editorial Board	Feb. 4	486
NYT07 14	Blinding Ourselves in Space	Editorial Board	Jan. 21	472
NYT07 15	Blotting Out the Big Sky https://www.nytimes.com/2007/04/29/opinion/29mcnamer.html	Deirdre McNamer	Apr. 29	704
NYT07 16	Bringing an Energy Bill Home	Editorial Board	Dec. 4	436
NYT07 17	Can Cities Save the Earth? https://www.nytimes.com/2007/05/19/opinion/19sat4.html	Editorial Board	May. 19	420
NYT07 18	Change on the Cheap https://www.nytimes.com/2007/07/26/opinion/26collins.html	Gail Collins	July. 26	754
NYT07 19	Chile's Rising Waters and Frozen Avocados https://www.nytimes.com/2007/12/23/opinion/23skarmeta.html	Antonio Skarmeta	Dec. 23	521
NYT07 20	China's Signals on Warming https://www.nytimes.com/2007/04/16/opinion/16mon2.html	Editorial Board	Apr. 16	356
NYT07 21	Climate Week https://www.nytimes.com/2007/09/22/opinion/22sat1.html	Editorial Board	Sept. 22	520
NYT07 22	Colorless Green Ideas https://www.nytimes.com/2007/02/23/opinion/23krugman.html	Paul Krugman	Feb. 23	760
NYT07 23	Did We Do That? https://www.nytimes.com/2007/10/28/opinion/28friedman.html	Thomas L. Friedman	Oct. 28	793
NYT07 24	Disappointments on Climate https://www.nytimes.com/2007/12/17/opinion/17mon1.html	Editorial Board	Dec. 17	577
NYT07 25	Doha And Dalian https://www.nytimes.com/2007/09/19/opinion/19friedman.html	Thomas L. Friedman	Sept. 19	791

NYTo7 26	Energy Rhetoric, and Reality	Editorial Board	Jan. 25	552
NYTo7 27	Energy Surge https://www.nytimes.com/2007/08/11/opinion/11sat3.html	Editorial Board	Aug. 11	390
NYTo7 28	Energy Time https://www.nytimes.com/2007/01/16/opinion/16tue1.html	Editorial Board	Jan. 16	640
NYTo7 29	Environmental Harmony https://www.nytimes.com/2007/01/01/opinion/01mon2.html	Editorial Board	Jan. 1	500
NYTo7 30	Evangelical Environmentalism https://www.nytimes.com/2007/03/10/opinion/10sat4.html	Editorial Board	Mar. 10	252
NYTo7 31	Generation Q https://www.nytimes.com/2007/10/10/opinion/10friedman.html	Thomas L. Friedman	Oct. 10	795
NYTo7 32	Global Warming and Your Wallet https://www.nytimes.com/2007/07/06/opinion/06fri1.html	Editorial Board	July. 6	589
NYTo7 33	Gore Derangement Syndrome https://www.nytimes.com/2007/10/15/opinion/15krugman.html	Paul Krugman	Oct. 15	796
NYTo7 34	Home on the Rainforest https://www.nytimes.com/2007/06/16/opinion/16powers-hurowitz.html	William Powers, Glenn Hurowitz	June. 16	866
NYTo7 35	Hot and Cold https://www.nytimes.com/2007/04/08/opinion/08sun1.html	Editorial Board	Apr. 8	492
NYTo7 36	Hot Enough in Here? https://www.nytimes.com/2007/06/02/opinion/02sat2.html	Editorial Board	June. 2	324
NYTo7 37	How Many Scientists? https://www.nytimes.com/2007/03/28/opinion/28friedman.html	Thomas L. Friedman	Mar. 28	758
NYTo7 38	How to Cool the Globe https://www.nytimes.com/2007/10/24/opinion/24caldiera.html	Ken Caldeira	Oct. 24	407

NYTo7 39	In Search of Cheney's 'Virtue' https://www.nytimes.com/2007/08/20/opinion/20kristof.html	Nicholas D. Kristof	Aug. 20	792
NYTo7 40	In the Age Of Noah https://www.nytimes.com/2007/12/23/opinion/23friedman.html	Thomas L. Friedman	Dec. 23	796
NYTo7 41	It's Too Late for Later https://www.nytimes.com/2007/12/16/opinion/16friedman.html	Thomas L. Friedman	Dec. 16	781
NYTo7 42	Lead, Follow or Move Aside https://www.nytimes.com/2007/09/26/opinion/26friedman.html	Thomas L. Friedman	Sept. 26	796
NYTo7 43	Letter From California: A Late-Night Seminar on Lewis Thomas https://www.nytimes.com/2007/04/11/opinion/11wed4.html	Verlyn Klinkenborg	Apr. 11	888
NYTo7 44	Letter from California: Some Thoughts on Living the Combustible Life https://www.nytimes.com/2007/05/23/opinion/23wed4.html	Verlyn Klinkenborg	May. 23	793
NYTo7 45	Listen to the States	Editorial Board	Oct. 27	407
NYTo7 46	Live Bad, Go Green https://www.nytimes.com/2007/07/08/opinion/08friedman.html	Thomas L. Friedman	July. 8	769
NYTo7 47	Looking for Leadership	Editorial Board	June. 7	494
NYTo7 48	Losing Bangladesh, by Degrees https://www.nytimes.com/2007/03/04/opinion/04Anam.html	Tahmima Anam	Mar. 4	757
NYTo7 49	Marching With a Mouse https://www.nytimes.com/2007/03/16/opinion/16friedman.html	Thomas L. Friedman	Mar. 16	754
NYTo7 50	Montana and Kansas Take On Big Coal	Editorial Board	Oct. 23	442
NYTo7 51	Moving Beyond Kyoto https://www.nytimes.com/2007/07/01/opinion/01gore.html	Al Gore	July. 1	1376
NYTo7 52	Mr. Johnson's Unused Authority	Editorial Board	Dec. 11	365
NYTo7 53	Mr. Spitzer's Chance on Warming	Editorial Board	Feb. 20	487

	https://www.nytimes.com/2007/02/20/opinion/20tues2.html			
NYTo7 54	My Favorite Green Lump https://www.nytimes.com/2007/01/10/opinion/10friedman.html	Thomas L. Friedman	Jan. 10	782
NYTo7 55	My Warming Garden https://www.nytimes.com/2007/05/06/opinion/06sun3.html	Editorial Board	May. 6	245
NYTo7 56	Our Gas Guzzlers, Their Lives https://www.nytimes.com/2007/06/28/opinion/28kristof.html	Nicholas D. Kristof	June. 28	701
NYTo7 57	Our Green Bubble https://www.nytimes.com/2007/06/03/opinion/03friedman.html	Thomas L. Friedman	June. 3	784
NYTo7 58	Our Moral Footprint https://www.nytimes.com/2007/09/27/opinion/27havel.html	Vaclav Havel	Sept. 27	820
NYTo7 59	Rose Garden Charade https://www.nytimes.com/2007/05/18/opinion/18fri1.html	Editorial Board	May. 18	499
NYTo7 60	Searching for Local Heroes in China https://www.nytimes.com/2007/12/23/opinion/23lin-liu.html	Jen Lin-Liu	Dec. 23	519
NYTo7 61	Slashing and Warming https://www.nytimes.com/2007/06/16/opinion/16sat3.html	Editorial Board	June. 16	394
NYTo7 62	Spring Bulbs	Editorial Board	Mar. 25	475
NYTo7 63	Still Out in the Cold	Editorial Board	Sept. 29	373
NYTo7 64	Talk About Warming https://www.nytimes.com/2007/06/01/opinion/01fri1.html	Editorial Board	June. 1	468
NYTo7 65	Taming Fossil Fuels https://www.nytimes.com/2007/03/22/opinion/22iht-edfossil.4992489.html	Editorial Board	Mar. 17	483
NYTo7 66	Terror In The Weather Forecast https://www.nytimes.com/2007/04/24/opinion/24homer-dixon.html	Thomas Homer-Dixon	Apr. 24	937

NYTo7 67	The Aussie 'Big Dry' https://www.nytimes.com/2007/05/04/opinion/04friedman.html	Thomas L. Friedman	May. 4	769
NYTo7 68	The Big Melt https://www.nytimes.com/2007/08/16/opinion/16kristof.html	Nicholas D. Kristof	Aug. 16	832
NYTo7 69	The Climate in Bali and Washington https://www.nytimes.com/2007/12/03/opinion/03mon1.html	Editorial Board	Dec. 3	557
NYTo7 70	The First Domed City https://www.nytimes.com/2007/06/16/opinion/16egan.html	Timothy Egan	June. 16	726
NYTo7 71	The Great Swiss Meltdown https://www.nytimes.com/2007/07/29/opinion/29stamm.html	Peter Stamm	July. 29	660
NYTo7 72	The People We Have Been Waiting For https://www.nytimes.com/2007/12/02/opinion/02friedman.html	Thomas L. Friedman	Dec. 2	806
NYTo7 73	The Scientists Speak https://www.nytimes.com/2007/11/20/opinion/20tue1.html	Editorial Board	Nov. 20	541
NYTo7 74	The Senate's Task on Warming https://www.nytimes.com/2007/01/06/opinion/06sat1.html	Editorial Board	Jan. 6	436
NYTo7 75	The Sum of All Ears https://www.nytimes.com/2007/01/29/opinion/29krugman.html	Paul Krugman	Jan. 29	761
NYTo7 76	The Truth About Coal https://www.nytimes.com/2007/02/25/opinion/25sun2.html	Editorial Board	Feb. 25	536
NYTo7 77	The Warming Challenge	Editorial Board	May. 5	492
NYTo7 78	Turning the Election Green https://www.nytimes.com/2007/04/25/opinion/25friedman.html	Thomas L. Friedman	Apr. 25	769
NYTo7 79	Upsetting the Balance https://www.nytimes.com/2007/04/11/opinion/11friedman.html	Thomas L. Friedman	Apr. 11	757
NYTo7 80	Warming and Global Security	Editorial Board	Apr. 20	351

	https://www.nytimes.com/2007/04/20/opinion/20fri2.html			
NYTo7 81	Warming Up on Capitol Hill	Editorial Board	Mar. 25	596
NYTo7 82	What Was That All About? https://www.nytimes.com/2007/12/19/opinion/19friedman.html	Thomas L. Friedman	Dec. 19	814
NYTo7 83	When Being Green Raises the Heat https://www.nytimes.com/2007/01/16/opinion/16caldeira.html	Ken Caldeira	Jan. 16	792
NYTo7 84	When John Meets Al https://www.nytimes.com/2007/01/22/opinion/22mon4.html	Editorial Board	Jan. 22	420
NYTo7 85	Where's EuroArnold? https://www.nytimes.com/2007/06/07/opinion/7egan.html	Timothy Egan	June. 7	725
NYTo7 86	Where's That Energy Bill? https://www.nytimes.com/2007/11/14/opinion/14wed1.html	Editorial Board	Nov. 14	488
NYTo7 87	While Australia Burns https://www.nytimes.com/2007/03/04/opinion/04McCalman.html	Iain McCalman	Mar. 4	660
NYTo7 88	Who Will Succeed Al Gore? https://www.nytimes.com/2007/10/14/opinion/14friedman.html	Thomas L. Friedman	Oct. 14	790

* Note that a payed subscription to New York Times is required for unlimited access to the articles. However, a limited number of articles can be accessed each month with a free account. All links were accessed and confirmed to be working at 2020-01-03.

Appendix C

New York Times Articles 2017

<i>Article</i>	<i>Headline and link to article *</i>	<i>Author</i>	<i>Date</i>	<i>Word count</i>
NYT17 1	On Climate, Look to China and India https://www.nytimes.com/2017/05/22/opinion/paris-agreement-climate-china-india.html	Editorial Board	May. 22	667
NYT17 2	Climate Progress, Without Trump https://www.nytimes.com/2017/03/31/opinion/climate-progress-with-or-without-trump.html	Michael R. Bloomberg	Mar. 31	956
NYT17 3	Fixing the Climate Without Trump https://www.nytimes.com/2017/11/14/opinion/global-warming-paris-climate-agreement.html	Michael R. Bloomberg, Jerry Brown	Nov. 15	970
NYT17 4	A Disgraceful Exit From the Paris Pact https://www.nytimes.com/2017/06/01/opinion/trump-paris-climate-change-agreement.html	Editorial Board	June. 2	1224
NYT17 5	World economy, carbon free by 2050 https://www.nytimes.com/2017/03/23/opinion/why-the-world-economy-has-to-be-carbon-free-by-2050.html	Johan Rockström	Mar. 24	658
NYT17 6	Mr. Trump, the Climate Change Loner https://www.nytimes.com/2017/07/14/opinion/mr-trump-the-climate-change-loner.html	Editorial Board	July. 15	665
NYT17 7	Paris Deal Benefits Business https://www.nytimes.com/2017/05/09/opinion/the-business-case-for-the-paris-climate-accord.html	George P. Shultz, Ted Halstead	May. 9	848
NYT17 8	5 Climate Truths Mr. Trump Doesn't Get https://www.nytimes.com/interactive/2017/10/15/opinion/editorials/donald-trump-epa-truths.html	Editorial Board	Oct. 16	768
NYT17 9	A challenge for Latin America https://www.nytimes.com/2017/06/23/opinion/paris-agreement-climate-change-latin-america.html	Lisa Viscidi	June. 24	1073
NYT17 10	A Conservative Case for Climate Action https://www.nytimes.com/2017/02/08/opinion/a-conservative-case-for-climate-action.html	Martin S. Feldstein, Ted Halstead, N. Gregory Mankiw	Feb. 8	894

NYT17 11	A flood and an efficient response in Bangladesh https://www.nytimes.com/2017/09/01/opinion/bangladesh-floods.html	K. Anis Ahmed	Sept. 2	810
NYT17 12	A Lesson on Warming, From a River https://www.nytimes.com/2017/04/20/opinion/a-lesson-on-warming-from-an-icy-river.html	Editorial Board	Apr. 21	387
NYT17 13	A message from the end of the world https://www.nytimes.com/2017/03/31/opinion/a-message-from-the-end-of-the-world.html	Ariel Dorfman	Apr. 1	761
NYT17 14	A Republican Call to Climate Action https://www.nytimes.com/2017/02/13/opinion/a-rare-republican-call-to-climate-action.html	Editorial Board	Feb. 13	660
NYT17 15	Alone and Adrift in a Warming World https://www.nytimes.com/2017/11/09/opinion/trump-climate-paris-syria.html	Editorial Board	Nov. 10	685
NYT17 16	And Then The Rain Came https://www.nytimes.com/2017/08/27/opinion/harvey-hurricane-tropical-storm-houston.html	Mimi Swartz	Aug. 28	831
NYT17 17	Around the Mediterranean, the Fire This Time https://www.nytimes.com/2017/08/07/opinion/mediterranean-sardinia-italy-fires-climate.html	Mira Kamdar	Aug. 7	712
NYT17 18	As the Waters Swell, So Does Trump's Ego https://www.nytimes.com/2017/08/29/opinion/trump-ego-harvey-floods.html	Frank Bruni	Aug. 30	849
NYT17 19	As Trump Denies Climate Change, These Kids Die https://www.nytimes.com/2017/01/06/opinion/sunday/as-donald-trump-denies-climate-change-these-kids-die-of-it.html	Nicholas Kristof	Jan. 8	1845
NYT17 20	Australia's climate-change politics https://www.nytimes.com/2017/11/01/opinion/australia-climate-change.html	Waleed Aly	Nov. 2	1146
NYT17 21	Beyond Houston, a World Awash https://www.nytimes.com/2017/08/31/opinion/harvey-climate-global-cities.html	Editorial Board	Aug. 31	544
NYT17 22	Britain Joins the Shift to Electric Cars https://www.nytimes.com/2017/07/31/opinion/britain-electric-cars.html	Editorial Board	July. 31	540
NYT17 23	California Leads, Again, on Climate https://www.nytimes.com/2017/07/24/opinion/california-climate-change-cap-trade.html	Editorial Board	July. 24	804

NYT17 24	California's Climate Lessons https://www.nytimes.com/2017/08/17/opinion/california-climate-snow-heat-trump.html	Noah S. Diffenbaugh	Aug. 17	878
NYT17 25	China imperils Latin America's environment https://www.nytimes.com/2017/07/21/opinion/china-climate-pollution-global-warming.html	Paulina Garzón, Leila Salazar-López	July. 22	965
NYT17 26	Climate of Complete Certainty https://www.nytimes.com/2017/04/28/opinion/climate-of-complete-certainty.html	Bret Stephens	Apr. 29	889
NYT17 27	Coal Museum Sees Future; Trump Doesn't https://www.nytimes.com/2017/04/19/opinion/coal-museum-sees-the-future-trump-doesnt.html	Thomas L. Friedman	Apr. 19	901
NYT17 28	Connecticut Should Be Tesla Turf https://www.nytimes.com/2017/07/07/opinion/connecticut-tesla-dealership-laws.html	Nick Sibilla	July. 7	922
NYT17 29	Conspiracies, Corruption and Climate https://www.nytimes.com/2017/09/11/opinion/columnists/climate-rush-limbaugh-hurricanes.html	Paul Krugman	Sept. 11	866
NYT17 30	Divesting from Fossil Fuels https://www.nytimes.com/2017/12/15/opinion/finance-global-warming.html	Bill McKibben	Dec. 18	853
NYT17 31	Endangered Children https://www.nytimes.com/2017/06/01/opinion/toxic-chemicals-pregnancy-fetus.html	Frederica Perera	June. 1	1049
NYT17 32	Filling the Void on Climate Change https://www.nytimes.com/2017/06/07/opinion/climate-change-cities-states.html	Editorial Board	June. 7	764
NYT17 33	Grade Buildings on Energy Use https://www.nytimes.com/2017/06/05/opinion/new-york-buildings-energy-efficiency.html	Danielle Spiegel-Feld	June. 5	816
NYT17 34	Houston Could Use a Hand https://www.nytimes.com/2017/09/02/opinion/sunday/houston-texas-harvey-government.html	Mimi Swartz	Sept. 3	1282
NYT17 35	How Not To Run The E.P.A. https://www.nytimes.com/2017/09/08/opinion/how-not-to-run-the-epa.html	Christine Todd Whitman	Sept. 8	860
NYT17 36	Hunger Haunts the U.N. Festivities https://www.nytimes.com/2017/09/22/opinion/world-hunger-united-nations.html	Editorial Board	Sept. 22	713

NYT17 37	Irma, and the Rise of Extreme Rain https://www.nytimes.com/interactive/2017/09/12/opinion/columnists/leonhardt-temperatures-extreme-storms.html	David Leonhardt	Sept. 12	599
NYT17 38	It's Not Too Late to Learn From Our Mistakes https://www.nytimes.com/2017/09/02/opinion/sunday/hurricane-harvey-climate-change.html	Nicholas Kristof	Sept. 3	888
NYT17 39	Nailing the Coffin on Climate Relief https://www.nytimes.com/2017/10/10/opinion/trump-coal-climate-emissions.html	Editorial Board	Oct. 11	979
NYT17 40	Powerless Puerto Rico https://www.nytimes.com/2017/10/26/opinion/power-puerto-rico-whitefish.html	Editorial Board	Oct. 27	637
NYT17 41	President Trump Risks the Planet https://www.nytimes.com/2017/03/28/opinion/president-trump-risks-the-planet.html	Editorial Board	Mar. 29	737
NYT17 42	President Trump's War on Science https://www.nytimes.com/2017/09/09/opinion/sunday/trump-epa-pruitt-science.html	Editorial Board	Sept. 10	1517
NYT17 43	Rick Perry's Strange Sex Story https://www.nytimes.com/2017/11/03/opinion/rick-perry-energy-sexual-assault.html	Gail Collins	Nov. 4	861
NYT17 44	Shed a Tear for the Reefs https://www.nytimes.com/2017/03/18/opinion/shed-a-tear-for-the-reefs.html	Editorial Board	Mar. 19	504
NYT17 45	Soil Power! The Dirty Way to a Green Planet https://www.nytimes.com/2017/12/02/opinion/sunday/soil-power-the-dirty-way-to-a-green-planet.html	Jacques Leslie	Dec. 3	1431
NYT17 46	Sowing Climate Doubt Among Schoolteachers https://www.nytimes.com/2017/04/27/opinion/sowing-climate-doubt-among-schoolteachers.html	Curt Stager	Apr. 27	891
NYT17 47	States Dare to Think Big on Climate https://www.nytimes.com/2017/08/28/opinion/climate-change-states-trump.html	Editorial Board	Aug. 28	749
NYT17 48	The Axis of Climate Evil https://www.nytimes.com/2017/08/11/opinion/climate-science-denial.html	Paul Krugman	Aug. 11	859
NYT17 49	The Climate Lab That Sits Empty https://www.nytimes.com/2017/07/28/opinion/greenhouse-gas-emissions-trump-funding.html	Hillary Rosner	July. 28	979

NYT17 50	The Devastation in Houston https://www.nytimes.com/2017/08/28/opinion/harvey-houston-residents-resilience.html	Editorial Board	Aug. 29	657
NYT17 51	The Electric Car Revolution https://www.nytimes.com/2017/07/18/opinion/a-brighter-future-for-electric-cars-and-the-planet.html	Editorial Board	July. 18	764
NYT17 52	The Great Butter Meltdown https://www.nytimes.com/2017/11/21/opinion/butter-shortage-france-climate.html	Elaine Khosrova	Nov. 22	1232
NYT17 53	The Last Thing Our Planet Needs https://www.nytimes.com/2017/10/25/opinion/the-last-thing-australia-and-our-planet-need.html	Editorial Board	Oct. 26	445
NYT17 54	The Rush to Exploit the Arctic https://www.nytimes.com/2017/08/26/opinion/sunday/the-rush-to-exploit-the-arctic.html	Editorial Board	Aug. 27	554
NYT17 55	The Storm That Humans Helped Cause https://www.nytimes.com/2017/08/29/opinion/harvey-the-storm-that-humans-helped-cause.html	David Leonhardt	Aug. 29	838
NYT17 56	Threat of factory farms https://www.nytimes.com/2017/05/21/opinion/who-factory-farming-meat-industry-.html	Scott Weathers, Sophie Hermanns, Mark Bittman	May. 22	851
NYT17 57	Trump Is an Agent of the Chinese https://www.nytimes.com/2017/03/29/opinion/trump-is-a-chinese-agent.html	Thomas L. Friedman	Mar. 29	996
NYT17 58	Trump Stomps Planet Earth https://www.nytimes.com/2017/06/03/opinion/sunday/trump-stomps-planet-earth.html	Maureen Dowd	June. 4	960
NYT17 59	Trump, Niger And Making Dots Connect https://www.nytimes.com/2017/10/31/opinion/trump-niger-africa-desertification.html	Thomas L. Friedman	Nov. 1	1096
NYT17 60	Trump's Act of Gratuitous Destruction https://www.nytimes.com/2017/06/01/opinion/trump-gratuitously-rejects-the-paris-climate-agreement.html	Paul Krugman	June. 2	851
NYT17 61	Trump's Energy, Low and Dirty https://www.nytimes.com/2017/05/29/opinion/trump-g-7-summit-energy.html	Paul Krugman	May. 29	860
NYT17 62	Trump's Folly	Thomas L. Friedman	Sept. 13	920

	https://www.nytimes.com/2017/09/13/opinion/trump-climate-north-korea.html			
NYT17 63	Trump's Reckless Climate Decision https://www.nytimes.com/2017/06/01/opinion/trump-paris-climate-accord.html	Bill McKibben	June. 2	995
NYT17 64	We Need A Green 'New Deal' https://www.nytimes.com/2017/08/31/opinion/in-hurricane-harveys-wake-we-need-a-green-new-deal.html	Rebecca Elliott	Sept. 1	889
NYT17 65	We're Choking on Smoke In Seattle https://www.nytimes.com/2017/08/09/opinion/smoke-heat-seattle-climate.html	Lindy West	Aug. 10	873
NYT17 66	The Week the Earth Stood Still https://www.nytimes.com/2017/09/01/opinion/harvey-rain-record-climate-change.html	Timothy Egan	Sept. 2	814

* The provided URL:s in this list directs to online versions of the articles. There may be discrepancies between these and the printed versions (which were analysed), such as headlines, being published one day earlier, and possibly minor textual differences. Note that a payed subscription to New York Times is required for unlimited access to the articles. However, a limited number of articles can be accessed each month with a free account. All links were accessed and confirmed to be working at 2020-01-03.

Appendix D

Washington Post Articles 2007

<i>Article</i>	<i>Headline and link to article *</i>	<i>Author</i>	<i>Date</i>	<i>Word count</i>
WPO7 1	Green Arlington; How to fight global warming without the federal government's help http://www.washingtonpost.com/wp-dyn/content/article/2007/01/03/AR2007010301645.html	Editorial Board	Jan. 4	347
WPO7 2	A New Green Economics; The Test for the World In Bali and Beyond http://www.washingtonpost.com/wp-dyn/content/article/2007/12/02/AR2007120201635.html	Ban Ki-Moon	Dec. 3	800
WPO7 3	Greenhouse Inertia; A U.N. report highlights U.S. paralysis in addressing climate change http://www.washingtonpost.com/wp-dyn/content/article/2007/11/21/AR2007112102058.html	Editorial Board	Nov. 22	483
WPO7 4	An Apollo Program for Climate Change	David Sokol	June. 22	844

	http://www.washingtonpost.com/wp-dyn/content/article/2007/06/21/AR2007062101859.html			
WPO7 5	The Climate Change Peril That Insurers See http://www.washingtonpost.com/wp-dyn/content/article/2007/09/26/AR2007092602070.html	John Morrison, Alex Sink	Sept. 27	872
WPO7 6	A Climate Culprit in Darfur http://www.washingtonpost.com/wp-dyn/content/article/2007/06/15/AR2007061501857.html	Ban Ki-Moon	June. 16	839
WPO7 7	A Consensus on Crisis; A U.N. panel details the distress that global climate change might cause human societies http://www.washingtonpost.com/wp-dyn/content/article/2007/04/07/AR2007040700821.html	Editorial Board	Apr. 8	561
WPO7 8	A Conservative Conservationist?; Why the Right Needs to Get Invested in the Search for Climate Change http://www.washingtonpost.com/wp-dyn/content/article/2007/02/22/AR2007022201455.html	Mark Sanford	Feb. 23	824
WPO7 9	A Full Tank of Hypocrisy http://www.washingtonpost.com/wp-dyn/content/article/2007/05/29/AR2007052901640.html	Robert J. Samuelson	May. 30	862
WPO7 10	A Global Warm and Fuzzy Escape http://www.washingtonpost.com/wp-dyn/content/article/2007/04/09/AR2007040901000.html	Anne Applebaum	Apr. 10	784
WPO7 11	A Low-Watt Bill; The Democrats' 100-hour sprint is shortchanging policy http://www.washingtonpost.com/wp-dyn/content/article/2007/01/16/AR2007011601380.html	Editorial Board	Jan. 17	467
WPO7 12	A Price on Carbon; Moving inexorably to the inevitable http://www.washingtonpost.com/wp-dyn/content/article/2007/09/24/AR2007092401440.html	Editorial Board	Sept. 25	458
WPO7 13	...And Why Arlington Will Be http://www.washingtonpost.com/wp-dyn/content/article/2007/04/13/AR2007041301819.html	John Morrill	Apr. 15	629
WPO7 14	As California Goes . . .; So should go Maryland on cleaner cars http://www.washingtonpost.com/wp-dyn/content/article/2007/02/08/AR2007020801864.html	Editorial Board	Feb. 9	449
WPO7 15	California v. the EPA; Gov. Arnold Schwarzenegger is right to sue the Environmental Protection Agency http://www.washingtonpost.com/wp-dyn/content/article/2007/11/15/AR2007111502079.html	Editorial Board	Nov. 16	389

WP07 16	Carbon Challenge; To do something real about climate change, a price on emissions is a must http://www.washingtonpost.com/wp-dyn/content/article/2007/08/12/AR2007081200969.html	Editorial Board	Aug. 13	530
WP07 17	Carbon Policy That Works; Avoiding the Pitfalls Of Kyoto Cap-and-Trade http://www.washingtonpost.com/wp-dyn/content/article/2007/07/22/AR2007072200884.html	Sebastian Mallaby	July. 23	830
WP07 18	Carbon Ruling: A Welcome First Step http://www.washingtonpost.com/wp-dyn/content/article/2007/04/08/AR2007040800927.html	Christine Todd Whitman	Apr. 9	804
WP07 19	Changing With the Climate	Fareed Zakaria	Feb. 12	853
WP07 20	China's Chance to Lead http://www.washingtonpost.com/wp-dyn/content/article/2007/08/01/AR2007080102049.html	Maximilian Auffhammer, Richard Carson	Aug. 2	781
WP07 21	Climate Change Malpractice; The Bush administration won't lead. And now it won't get out of California's way, either http://www.washingtonpost.com/wp-dyn/content/article/2007/12/23/AR2007122302232.html	Editorial Board	Dec. 24	465
WP07 22	Climate Change on Capitol Hill; With Sens. Lieberman and Warner on board, maybe Congress will try something new: action http://www.washingtonpost.com/wp-dyn/content/article/2007/10/21/AR2007102101067.html	Editorial Board	Oct. 22	391
WP07 23	Climate Obstacles Ahead http://www.washingtonpost.com/wp-dyn/content/article/2007/11/25/AR2007112501548.html	Sebastian Mallaby	Nov. 26	851
WP07 24	Climate Policy's Odd Man Out; Debate Is Fast Passing Bush By http://www.washingtonpost.com/wp-dyn/content/article/2007/01/21/AR2007012101106.html	Sebastian Mallaby	Jan. 22	802
WP07 25	Energy Independence?; A Serious Plan Requires Taxes, ANWR and Nukes https://www.washingtonpost.com/archive/opinions/2007/01/26/energy-independence-span-classbankheada-serious-plan-requires-taxes-anwr-and-nukesspan/7a8fe950-1e2c-4154-9755-1c0e90db74bo/	Charles Krauthammer	Jan. 26	804
WP07 26	Energy to Burn; Congress will get around to convening that energy-bill conference – sometime http://www.washingtonpost.com/wp-dyn/content/article/2007/09/08/AR2007090801423.html	Editorial Board	Sept. 9	360
WP07 27	Forecast: Heavy Weather	Eugene Robinson	Oct. 23	794

	http://www.washingtonpost.com/wp-dyn/content/article/2007/10/22/AR2007102201557.html			
WP07 28	Fuel for Consensus; Congress can agree on improved gas-saving standards for autos http://www.washingtonpost.com/wp-dyn/content/article/2007/12/08/AR2007120801261.html	Editorial Board	Dec. 9	456
WP07 29	Fuzzy Climate Math http://www.washingtonpost.com/wp-dyn/content/article/2007/04/11/AR2007041102109.html	George F. Will	Apr. 12	783
WP07 30	Global Warming and Hot Air http://www.washingtonpost.com/wp-dyn/content/article/2007/02/06/AR2007020601526.html	Robert J. Samuelson	Feb. 7	954
WP07 31	Global Warming Simplificities http://www.washingtonpost.com/wp-dyn/content/article/2007/08/14/AR2007081401331.html	Robert J. Samuelson	Aug. 15	857
WP07 32	Global Warming's Simple Remedy http://www.washingtonpost.com/wp-dyn/content/article/2007/02/05/AR2007020501248.html	Anne Applebaum	Feb. 6	857
WP07 33	Global Warning; The world's scientists agree, again, that climate change is a big problem http://www.washingtonpost.com/wp-dyn/content/article/2007/02/04/AR2007020400953.html	Editorial Board	Feb. 5	387
WP07 34	Gloom and Doom in A Sunny Day http://www.washingtonpost.com/wp-dyn/content/article/2007/06/24/AR2007062401374.html	Emily Yoffe	June. 25	802
WP07 35	Going Green? Easy Doesn't Do It http://www.washingtonpost.com/wp-dyn/content/article/2007/11/21/AR2007112101856.html	Michael Maniates	Nov. 22	821
WP07 36	Gore v. Bush; The Nobel Peace Prize committee hands a victory to Al Gore http://www.washingtonpost.com/wp-dyn/content/article/2007/10/12/AR2007101202104.html	Editorial Board	Oct. 14	509
WP07 37	Hollywood's Climate Follies http://www.washingtonpost.com/wp-dyn/content/article/2007/03/20/AR2007032001430.html	Robert J. Samuelson	Mar. 21	842
WP07 38	Hope on Climate Change? Here's Why http://www.washingtonpost.com/wp-dyn/content/article/2007/08/14/AR2007081401327.html	Michael Gerson	Aug. 15	783
WP07 39	In Search of a Better Kyoto	Fareed Zakaria	Apr. 9	824

WPO7 40	Lead or Step Aside, EPA; States Can't Wait on Global Warming http://www.washingtonpost.com/wp-dyn/content/article/2007/05/20/AR2007052001059.html	Arnold Schwarzenegger, Jodi Rell	May. 21	712
WPO7 41	Low Energy; A House bill nibbles at the edges of a bigger problem http://www.washingtonpost.com/wp-dyn/content/article/2007/08/02/AR2007080202237.html	Editorial Board	Aug. 3	556
WPO7 42	Martian Logic; Earth science pays the price for starry-eyed ambitions http://www.washingtonpost.com/wp-dyn/content/article/2007/01/17/AR2007011701803.html	Editorial Board	Jan. 18	428
WPO7 43	Mr. Bush Gets Warmer; But the president still resists mandatory limits on global carbon emissions http://www.washingtonpost.com/wp-dyn/content/article/2007/09/28/AR2007092801744.html	Editorial Board	Sept. 30	368
WPO7 44	Mr. Bush Warms Up; The president joins the climate-change debate – finally http://www.washingtonpost.com/wp-dyn/content/article/2007/06/01/AR2007060102303.html	Editorial Board	June. 3	419
WPO7 45	Prius Politics http://www.washingtonpost.com/wp-dyn/content/article/2007/07/24/AR2007072401855.html	Robert J. Samuelson	July. 25	868
WPO7 46	Remember This: 350 Parts Per Million http://www.washingtonpost.com/wp-dyn/content/article/2007/12/27/AR2007122701942.html	Bill McKibben	Dec. 28	773
WPO7 47	Stalling in Bali; The Bush administration continues to say one thing and do another on climate change http://www.washingtonpost.com/wp-dyn/content/article/2007/12/17/AR2007121701684.html	Editorial Board	Dec. 18	442
WPO7 48	The Climate-Change Precipice http://www.washingtonpost.com/wp-dyn/content/article/2007/03/01/AR2007030101293.html	David Ignatius	Mar. 2	833
WPO7 49	The Long Consensus On Climate Change http://www.washingtonpost.com/wp-dyn/content/article/2007/01/31/AR2007013101808.html	Naomi Oreskes	Feb. 1	969
WPO7 50	The Other Team's Playbook http://www.washingtonpost.com/wp-dyn/content/article/2007/01/14/AR2007011400888.html	Sebastian Mallaby	Jan. 15	829
WPO7 51	The Planet NASA Needs to Explore; Shifting Priorities Imperil Satellites Crucial to Tracking Climate http://www.washingtonpost.com/wp-dyn/content/article/2007/05/09/AR2007050902451.html	Tony Haymet, Mark Abbott, Jim Luyten	May. 10	631

WPO7 52	The Power in the Carbon Tax http://www.washingtonpost.com/wp-dyn/content/article/2007/08/01/AR2007080102051.html	John D. Dingell	Aug. 2	796
WPO7 53	The Race Against Warming http://www.washingtonpost.com/wp-dyn/content/article/2007/09/28/AR2007092801400.html	Bill McKibben	Sept. 29	753
WPO7 54	The Senate Energy Bill; Ignoring the 800-pound gorilla in the room http://www.washingtonpost.com/wp-dyn/content/article/2007/06/13/AR2007061301939.html	Editorial Board	June. 14	427
WPO7 55	Threatened by Warming; Polar bear as harbinger http://www.washingtonpost.com/wp-dyn/content/article/2007/01/06/AR2007010601012.html	Editorial Board	Jan. 7	283
WPO7 56	Waiting on the EPA; It's time the agency allowed California's tougher tailpipe emissions standards to take effect http://www.washingtonpost.com/wp-dyn/content/article/2007/12/14/AR2007121401711.html	Editorial Board	Dec. 15	523
WPO7 57	Warming Proposals; The presidential candidates and climate change http://www.washingtonpost.com/wp-dyn/content/article/2007/05/13/AR2007051301050.html	Editorial Board	May. 14	605
WPO7 58	We're Carboholics. Make Us Stop http://www.washingtonpost.com/wp-dyn/content/article/2007/10/12/AR2007101202153.html	David Crane	Oct. 14	687
WPO7 59	Virginia Joins the Battle; New goals to fight global warming get a foothold in Richmond http://www.washingtonpost.com/wp-dyn/content/article/2007/09/18/AR2007091801823.html	Editorial Board	Sept. 19	477

* The provided URL:s in this list directs to digital versions of the articles. There may be discrepancies between these and the printed versions (which were analysed), such as headlines and being published one day earlier. Note that a payed subscription to The Washington Post is required for unlimited access to the articles. However, a limited number of articles can be accessed each month for free. All links were accessed and confirmed to be working at 2020-01-03.

Appendix E

Washington Post Articles 2017

<i>Article</i>	<i>Headline and link to article *</i>	<i>Author</i>	<i>Date</i>	<i>Word count</i>
WP17 1	On climate, it's up to us now https://www.washingtonpost.com/opinions/trump-is-on-a-rampage-to-endanger-the-planet-now-its-up-to-us-to-save-it/2017/03/28/62790e5a-13d3-11e7-ada0-1489b735b3a3_story.html	John Podesta	Mar. 29	842
WP17 2	Pay heed to nature's warning https://www.washingtonpost.com/opinions/hurricane-harvey-previews-our-stormy-future/2017/08/28/cd4737cc-8c26-11e7-91d5-ab4e4bb76a3a_story.html	Eugene Robinson	Aug. 29	785
WP17 3	The deal of the century on climate https://www.washingtonpost.com/opinions/trump-can-make-the-deal-of-the-century-on-climate/2017/01/24/903cf778-e199-11e6-a547-5fb9411d332c_story.html	Todd Stern	Jan. 25	841
WP17 4	The U.S. must be in the fight against climate change https://www.washingtonpost.com/opinions/the-world-needs-the-united-states-in-the-fight-against-climate-change/2017/04/06/4d4ed4a2-1981-11e7-bcc2-7d1a0973e7b2_story.html	Jean-Marc Ayrault	Apr. 7	472
WP17 5	A chance on climate change https://www.washingtonpost.com/opinions/every-country-on-the-planet-has-embraced-the-paris-pact-except-one/2017/11/09/cd3635ec-b027-11e7-be94-fabbofie9ffb_story.html	Editorial Board	Nov. 10	528
WP17 6	A climate policy that grows the economy https://www.washingtonpost.com/opinions/a-climate-change-policy-that-grows-the-economy-and-benefits-dc-residents/2017/11/24/f87e807e-cae4-11e7-bocf-7689a9f2d84e_story.html	Khalid Pitts, Roger Horowitz	Nov. 26	730
WP17 7	A global warning to the G-20 https://www.washingtonpost.com/opinions/the-g-20-should-put-climate-change-at-the-top-of-its-list/2017/07/05/cefc68b6-5db5-11e7-9fc6-c7ef4bc58d13_story.html	Editorial Board	July. 6	483
WP17 8	A reckless climate reversal https://www.washingtonpost.com/opinions/trump-puts-the-planet-on-a-dangerous-path/2017/03/28/fcb3564e-13d6-11e7-833c-503e1f6394c9_story.html	Editorial Board	Mar. 29	540
WP17 9	Abandoning clean power https://www.washingtonpost.com/opinions/the-epa-rips-up-the-clean-power-plan/2017/10/11/3e08f38e-adf5-11e7-be94-fabbofie9ffb_story.html	Editorial Board	Oct. 12	502

WP17 10	An elegant climate policy https://www.washingtonpost.com/opinions/a-group-of-prominent-republicans-has-an-excellent-plan-to-fight-climate-change/2017/02/09/05acb234-ee4a-11e6-9662-6eedf1627882_story.html	Editorial Board	Feb. 10	560
WP17 11	Climate denial's deadly consequences https://www.washingtonpost.com/opinions/another-deadly-consequence-of-climate-change-the-spread-of-dangerous-diseases/2017/05/30/fd3b8504-34b1-11e7-b4ee-434b6d506b37_story.html	Brian Deese, Ronald A. Klain	May. 31	1074
WP17 12	Denying climate change insults victims https://www.washingtonpost.com/opinions/the-cruellest-insult-to-harvey-and-irmas-victims/2017/09/11/60e54caa-9715-11e7-82e4-f1076f6d6152_story.html	Eugene Robinson	Sept. 12	770
WP17 13	Don't gut the Clean Power Plan https://www.washingtonpost.com/opinions/if-trump-wants-to-gut-climate-regulations-hed-better-have-a-good-alternative/2017/02/24/264109f8-fa0e-11e6-9845-576c69081518_story.html	Editorial Board	Feb. 26	534
WP17 14	Fairfax County is falling behind on the climate crisis https://www.washingtonpost.com/opinions/fairfax-county-falls-behind-in-addressing-the-climate-crisis/2017/02/17/47fe3198-f2c9-11e6-a9b0-ecee7ce475fc_story.html	Eric Goplerud	Feb. 19	750
WP17 15	Famine in South Sudan https://www.washingtonpost.com/opinions/south-sudans-man-made-famine-demands-a-response/2017/02/22/be5a379c-f927-11e6-bf01-d47f8cf9b643_story.html	Editorial Board	Feb. 23	505
WP17 16	Flood of courage https://www.washingtonpost.com/opinions/harveys-heroes--the-inspiring-response-to-a-terrible-storm/2017/08/28/eod4a3fe-8c14-11e7-8df5-c2e5cf46c1e2_story.html	Editorial Board	Aug. 29	444
WP17 17	Fossil-fuel bullies vs. Republicans https://www.washingtonpost.com/opinions/republicans-want-to-fight-climate-change-but-fossil-fuel-bullies-wont-let-them/2017/01/10/177dbd4e-cc82-11e6-b8a2-8c2a61b0436f_story.html	Sheldon Whitehouse	Jan. 11	856
WP17 18	From Houston, this looks like a 'black elephant' https://www.washingtonpost.com/opinions/harvey-should-be-the-turning-point-in-fighting-climate-change/2017/08/29/21c53244-8cd2-11e7-84co-02cc069f2c37_story.html	Vernon Loeb	Aug. 30	836
WP17 19	Hogan's untenable silence on climate https://www.washingtonpost.com/opinions/larry-hogans-silence-on-the-paris-agreement-is-only-his-latest-climate-transgression/2017/06/16/efa05c2c-4c61-11e7-bc1b-fddb8359dee_story.html	Krishanti Vignarajah	June. 18	768
WP17 20	Homegrown climate initiatives	Editorial Board	May. 30	503

	https://www.washingtonpost.com/opinions/thankfully-virginia-and-dc-are-taking-climate-policy-into-their-own-hands/2017/05/29/745e9a10-41bc-11e7-adba-394ee67a7582_story.html			
WP17 21	How to turn those policy frowns upside-down https://www.washingtonpost.com/opinions/this-one-weird-trick-can-solve-all-of-trumps-problems/2017/03/31/272b9774-1620-11e7-833c-503e1f6394c9_story.html	Dana Milbank	Apr. 2	792
WP17 22	How Trump made me a whistleblower https://www.washingtonpost.com/opinions/im-a-scientist-the-trump-administration-reassigned-me-for-speaking-up-about-climate-change/2017/07/19/389b8dce-6b12-11e7-9c15-177740635e83_story.html	Joel Clement	July. 20	886
WP17 23	Hurricanes and other blowhards https://www.washingtonpost.com/opinions/did-lesbians-cause-hurricanes-irma-and-harvey-god-knows/2017/09/08/638efbca-94bf-11e7-89fa-bb822a46da5b_story.html	Dana Milbank	Sept. 10	820
WP17 24	Irma reminds us of our limits https://www.washingtonpost.com/opinions/irma-reminds-us-of-all-we-dont-know-about-the-natural-world/2017/09/10/db90d506-9660-11e7-82e4-f1076f6d6152_story.html	David Von Drehle	Sept. 11	764
WP17 25	It was best to prepare for the worst https://www.washingtonpost.com/opinions/florida-was-right-to-prepare-for-the-worst/2017/09/11/a6a68d98-972f-11e7-87fc-c3f7ee4035c9_story.html	Editorial Board	Sept. 12	506
WP17 26	Look to California on climate https://www.washingtonpost.com/opinions/californias-cap-and-trade-program-could-offer-other-states-guidance/2017/07/28/80aadf4c-6e4c-11e7-96ab-5f38140b38cc_story.html	Editorial Board	July. 30	512
WP17 27	Micromanage less, accomplish more https://www.washingtonpost.com/opinions/dont-ban-fracking-in-maryland/2017/01/10/cfbcf542-d6b8-11e6-9a36-1d296534b31e_story.html	Editorial Board	Jan. 11	480
WP17 28	Montgomery County should divest from fossil fuels https://www.washingtonpost.com/opinions/local-montgomery-county-should-divest-from-fossil-fuels/2017/01/27/628dc39e-e247-11e6-a547-5fb9411d332c_story.html	Mike Tidwell	Jan. 29	603
WP17 29	Mr. Trump betrays the planet https://www.washingtonpost.com/opinions/trump-turns-his-back-on-the-planet/2017/06/01/d581afb4-4624-11e7-98cd-af64b4fe2dfc_story.html	Editorial Board	June. 2	520
WP17 30	Neither side is right on offshore drilling https://www.washingtonpost.com/opinions/neither-side-is-really-right-on-offshore-drilling/2017/05/07/ce4fe466-31cc-11e7-8674-437ddb6e813e_story.html	Editorial Board	May. 8	540
WP17 31	Nuclear energy in peril https://www.washingtonpost.com/opinions/a-bankruptcy-thats-bad-news-for-climate-policy/2017/04/01/72ab782c-163e-11e7-833c-503e1f6394c9_story.html	Editorial Board	Apr. 2	534

WP17 32	People-powered optimism can fuel Earth Day https://www.washingtonpost.com/opinions/john-kerry-why-im-an-optimist-this-earth-day/2017/04/21/bdd5128a-26b6-11e7-b503-9d616bd5a305_story.html	John F. Kerry	Apr. 23	838
WP17 33	See it, say it: Climate change https://www.washingtonpost.com/opinions/see-it-say-it-climate-change/2017/10/14/83c3c8e4-b049-11e7-be94-fabb0f1e9ffb_story.html	Editorial Board	Oct. 15	452
WP17 34	So much for the climate change 'hoax' https://www.washingtonpost.com/blogs/post-partisan/wp/2017/09/19/so-much-for-the-climate-change-hoax/	Stephen Stromberg	Sept. 20	521
WP17 35	Still waffling on basic science https://www.washingtonpost.com/opinions/pruitt-and-perry-continue-to-play-down-climate-change/2017/01/21/c891c61c-de97-11e6-ad42-f3375f271c9c_story.html	Editorial Board	Jan. 22	484
WP17 36	The American way to fight climate change https://www.washingtonpost.com/opinions/forget-the-paris-accord-heres-what-can-really-fight-climate-change/2017/06/05/59fa2302-4a21-11e7-9669-250dob15f83b_story.html	Michael Gerson	June. 6	793
WP17 37	The business case for tackling climate change https://www.washingtonpost.com/opinions/my-companys-carbon-footprint-is-the-size-of-a-small-country-we-need-to-act/2017/10/05/e13c2cea-a93d-11e7-850e-2bdd1236be5d_story.html	Stephen Badger	Oct. 6	671
WP17 38	The dream of 'clean coal' is burning up https://www.washingtonpost.com/opinions/the-dream-of-clean-coal-is-burning-up/2017/07/09/784bc838-61a0-11e7-a4f7-af34fc1d9d39_story.html	Editorial Board	July. 10	535
WP17 39	The Great Barrier Reef is dying https://www.washingtonpost.com/opinions/the-great-barrier-reef-is-dying/2017/03/19/a1e1277a-ob37-11e7-93dc-00f9bdd74ed1_story.html	Editorial Board	Mar. 20	548
WP17 40	The harm of leaving the Paris accord https://www.washingtonpost.com/opinions/the-harm-of-leaving-the-paris-accord/2017/03/04/ca831394-0053-11e7-99b4-9e613afeb09f_story.html	Editorial Board	Mar. 5	541
WP17 41	The inevitable climate solution https://www.washingtonpost.com/opinions/this-is-the-one-climate-solution-thats-best-for-the-environment--and-for-business/2017/06/19/9736b72c-542f-11e7-a204-ad706461fa4f_story.html	George P. Shultz, Lawrence H. Summers	June. 20	896
WP17 42	The message in the storm https://www.washingtonpost.com/opinions/hurricane-harveys-warning-to-all/2017/09/01/cb458ca2-8f5b-11e7-91d5-ab4e4bb76a3a_story.html	Kathleen Parker	Sept. 3	753
WP17 43	The most important information to seep out has nothing to do with Russia https://www.washingtonpost.com/blogs/right-turn/wp/2017/08/09/the-most-important-information-to-seep-out-has-nothing-to-do-with-russia/	Jennifer Rubin	Aug. 10	432

WP17 44	The population doomsayers are back https://www.washingtonpost.com/opinions/the-overpopulation-doomsayers-are-at-it-again-and-theyre-still-wrong/2017/07/14/aa9fe3a8-68a0-11e7-a1d7-9a32c91c6f40_story.html	Christine Emba	July. 16	708
WP17 45	The risk ahead https://www.washingtonpost.com/opinions/this-is-how-bad-things-could-get-if-trump-denies-the-reality-of-climate-change/2017/08/08/087b8bb0-7bae-11e7-9d08-b79f191668ed_story.html	Editorial Board	Aug. 9	553
WP17 46	The truth about warming: We don't yet have solutions https://www.washingtonpost.com/opinions/trump-ignores-the-messy-reality-of-global-warming--and-makes-it-all-about-him/2017/06/04/6bf913ec-47bf-11e7-a196-a1bb629f64cb_story.html	Robert J. Samuelson	June. 5	778
WP17 47	The warning signs from Texas https://www.washingtonpost.com/opinions/houston-is-paying-the-price-for-public-officials-ignorance/2017/08/29/1566f14e-8c29-11e7-8df5-c2e5cf46c1e2_story.html	Editorial Board	Aug. 30	500
WP17 48	The world will rally. It has to https://www.washingtonpost.com/opinions/trump-just-betrayed-the-world-now-the-world-will-fight-back/2017/06/01/3cob8026-46e7-11e7-a196-a1bb629f64cb_story.html	Todd Stern	June. 2	902
WP17 49	Trump's Paris decision was an accidental call to action https://www.washingtonpost.com/opinions/trumps-paris-decision-was-an-accidental-call-to-action/2017/06/02/a9d3630e-47cc-11e7-98cd-af64b4fe2dfc_story.html	Kathleen Parker	June. 4	778
WP17 50	Two cheers for a carbon tax https://www.washingtonpost.com/opinions/two-cheers-for-a-carbon-tax-but-dont-expect-it-to-fix-everything/2017/02/19/edfdc07a-f52d-11e6-a9b0-ecce7ce475fc_story.html	Robert J. Samuelson	Feb. 20	788
WP17 51	Wage war on coal emissions, not coal country https://www.washingtonpost.com/opinions/how-to-declare-war-on-coals-emissions-without-declaring-war-on-coal-communities/2017/02/24/610c7da2-f864-11e6-bf01-d47f8cf9b643_story.html	Maria T. Zuber	Feb. 26	770
WP17 52	What climate denial sounds like https://www.washingtonpost.com/opinions/scott-pruitt-demonstrates-what-climate-denial-sounds-like/2017/03/09/66dc1508-04f8-11e7-b9fa-ed727b644a0b_story.html	Editorial Board	Mar. 10	541
WP17 53	What states can do on climate change https://www.washingtonpost.com/opinions/what-states-can-do-on-climate-change-even-though-we-really-need-the-feds/2017/06/03/a95aec30-47c7-11e7-98cd-af64b4fe2dfc_story.html	Editorial Board	June. 4	598
WP17 54	Why Virginia acted on climate change https://www.washingtonpost.com/opinions/heres-how-states-can-lead-on-clean-energy/2017/06/09/ob7979c2-4ae8-11e7-a186-60c031eab644_story.html	Terry McAuliffe	June. 11	675

WP17 55	Virginia is too slow on climate change https://www.washingtonpost.com/opinions/virginias-leaders-have-a-serious-case-of-the-slows-on-climate-change/2017/09/22/e644cb4c-9278-11e7-8754-d478688d23b4_story.html	Stephen Nash	Sept. 24	817
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* The provided URL:s in this list directs to digital versions of the articles. There may be discrepancies between these and the printed versions (which were analysed), such as headlines and being published one day earlier. Note that a payed subscription to The Washington Post is required for unlimited access to the articles. However, a limited number of articles can be accessed each month for free. All links were accessed and confirmed to be working at 2020-01-03.

Appendix F

USA Today Articles 2007

<i>Article</i>	<i>Headline</i>	<i>Author</i>	<i>Date</i>	<i>Word count</i>
UT07 1	An opening on warming	Editorial Board	Mar. 3	446
UT07 2	As globe heats up, nation warms to nuclear power	Editorial Board	May. 16	556
UT07 3	Gore blazes eco-trail	Editorial Board	Oct. 15	422
UT07 4	How to change lightbulbs?; Market forces, not mandates	Editorial Board	Mar. 5	575
UT07 5	Live with climate change	Patrick J. Michaels	Feb. 2	502
UT07 6	Political climate shifts as verdict on warming arrives	Editorial Board	Feb. 2	735
UT07 7	Put brakes on pricey plans to convert coal to car fuel	Editorial Board	June. 19	532
UT07 8	Speaking of global warming	Editorial Board	Dec. 17	434
UT07 9	States wean from fossil fuels, so why can't Washington?	Editorial Board	Dec. 12	530
UT07 10	Warming to the issue; The planet is running a fever. The presidential candidates need to say how they	Editorial Board	Nov. 28	879
UT07 11	Warming to the subject	Editorial Board	June. 4	396
UT07 12	Winter's worrisome warmth	Editorial Board	Jan. 11	465

Appendix G

USA Today Articles 2017

<i>Article</i>	<i>Headline and link to article *</i>	<i>Author</i>	<i>Date</i>	<i>Word count</i>
UT17 1	Germany falters on climate change leadership https://eu.usatoday.com/story/opinion/2017/11/20/germany-falters-climate-leadership-editorials-debates/879129001/	Editorial Board	Nov. 21	497
UT17 2	As the world warms, preserve the Paris treaty https://eu.usatoday.com/story/opinion/2017/04/19/preserve-paris-climate-treaty-editorials-debates/100599580/	Editorial Board	Apr. 20	446
UT17 3	Trump's Paris pullout endangers the planet https://eu.usatoday.com/story/opinion/2017/06/01/paris-pullout-endangers-planet-our-view/102341358/	Editorial Board	June. 2	517
UT17 4	As globe warms, Trump doubles down on fossil fuels https://eu.usatoday.com/story/opinion/2017/10/29/globe-warms-trump-doubles-down-fossil-fuels-editorials-debates/756854001/	Editorial Board	Oct. 30	477
UT17 5	As globe warms, Trump rolls back environmental progress https://eu.usatoday.com/story/opinion/2017/03/15/trump-fiddles-while-earth-burns-editorials-debates/99126844/	Editorial Board	Mar. 16	526
UT17 6	Did climate change intensify Harvey? https://eu.usatoday.com/story/opinion/2017/08/30/climate-change-juiced-hurricane-harvey-editorials-debates/105130334/	Editorial Board	Aug. 31	426
UT17 7	Don't hype draft studies https://eu.usatoday.com/story/opinion/2017/08/14/hyping-draft-climate-studies-editorials-debates/104607052/	Christopher C. Horner	Aug. 15	359
UT17 8	Even if Washington leaves climate accord, Americans won't quit protecting Earth https://eu.northjersey.com/story/opinion/contributors/2017/11/28/opinion-even-if-u-s-leaves-climate-accord-americans-wont-quit-protecting-earth/898386001/	Rhea Suh, Lin-Manuel Miranda, Vanessa Nadal	Nov. 22	356
UT17 9	Focus on coastal infrastructure https://eu.usatoday.com/story/opinion/2017/09/13/dont-exploit-hurricanes-editorials-debates/105583844/	Myron Ebell	Sept. 14	350
UT17 10	Germany is on track to meet our targets https://eu.usatoday.com/story/opinion/2017/11/20/germany-on-track-meet-targets-peter-wittig-editorials-debates/107885764/	Peter Wittig	Nov. 21	341

UT17 11	How Trump should celebrate Energy Week https://eu.usatoday.com/story/opinion/2017/06/28/energy-cuts-worse-than-paris-for-climate-ted-nordhaus-column/431806001/	Ted Nordhaus	June. 29	501
UT17 12	Hurricane Harvey will test Trump's leadership https://eu.northjersey.com/story/opinion/contributors/2017/08/28/hurricane-harvey-test-trumps-leadership/607254001/	James Lee Witt	Aug. 28	505
UT17 13	Hurricanes Harvey, Irma and climate disruption: Let's talk https://eu.usatoday.com/story/opinion/2017/09/13/hurricanes-harvey-irma-global-warming-editorials-debates/658353001/	Editorial Board	Sept. 14	504
UT17 14	Paris deal harms U.S. prosperity https://eu.usatoday.com/story/opinion/2017/06/01/paris-deal-harms-us-prosperity-opposing-view/102401950/	Roger Wicker	June. 2	351
UT17 15	Protect the environment, reject Pruitt's nomination https://eu.usatoday.com/story/opinion/2017/01/31/scott-pruitt-epa-environment-editorials-debates/96949070/	Editorial Board	Feb. 3	492
UT17 16	Smart hurricane fixes are not climate fixes https://eu.usatoday.com/story/opinion/2017/09/22/climate-change-dangerous-doesnt-mean-we-have-spend-money-stupidly-bjorn-lomborg-column/684610001/	Bjorn Lomborg	Sept. 22	510
UT17 17	To combat global warming, listen to these GOP elders https://eu.usatoday.com/story/opinion/2017/02/09/carbon-tax-james-baker-climate-change-editorials-debates/97647630/	Editorial Board	Feb. 10	471
UT17 18	To fight climate change, start with celebs, pols https://eu.usatoday.com/story/opinion/2017/06/04/some-modest-proposals-to-fight-climate-change-glenn-reynolds-column/102489538/	Glenn Harlan Reynolds	June. 12	507
UT17 19	Trump exposes climate deal; Power plants executive order shows that Paris agreement is a paper tiger	Bjorn Lomborg	Mar. 30	753
UT17 20	Withdraw now from climate pact https://eu.usatoday.com/story/opinion/2017/04/19/quit-paris-climate-treaty-editorials-debates/100665498/	Christopher C. Horner	Apr. 20	355

* The provided URL:s in this list directs to online versions of the articles. There may be discrepancies between these and the printed versions (which were analysed), such as headlines, date of publication, and possibly minor textual differences. All links were accessed and confirmed to be working at 2020-01-03.