
Metaphors in Climate Change Discourse

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Table of Contents

1	INTRODUCTION	8
1.1	Background for the study.....	8
1.2	Aims and Scope.....	10
1.3	Outline of thesis	12
2	METAPHOR	14
2.1	A transfer of meaning	14
2.2	Traditional Metaphor Theory	15
2.3	Current Metaphor Theory	15
2.3.1	Cognitive linguistics.....	16
2.3.2	Cognitive semantics	17
2.3.3	Cognitive metaphor theory (CMT).....	21
2.4	Comments on Lakoff and Johnson and CMT	26
2.4.1	Linguistic metaphor versus conceptual metaphor	27
2.4.2	Goatly	28
2.4.3	Charteris-Black	33
2.4.4	Semino.....	35
3	THE PERSUASIVE EFFECT OF METAPHOR.....	37
4	CLIMATE CHANGE DISCOURSE	41
4.1	Climate change discourse and environmental discourse.....	43
4.2	Climate change.....	44
4.2.1	Climate change	44
4.2.2	Climate change as a political issue.....	46
4.3	Earlier research on metaphor in environmental discourse	48
4.3.1	Romaine: ‘War and peace in the global greenhouse’	48
4.3.2	Harré, Brockmeier and Mühlhäusler: <i>Greenspeak</i>	50
4.3.3	Meisner: ‘Old vinegar in new bottles’	51
4.3.4	Political metaphors.....	52
5	METHODOLOGY IN METAPHOR RESEARCH	53
5.1	Method and metaphor	53
5.2	Corpus linguistics and discourse analysis.....	55
5.2.1	Corpus linguistics	55
5.2.2	Critical discourse analysis.....	56

5.3	Metaphor research and corpus linguistics	57
5.4	Metaphor identification procedures	59
5.4.1	Steen: ‘From linguistic to conceptual metaphor in five steps’	59
5.4.2	Semino <i>et al.</i> ‘Methodological problems in the analysis of metaphors in a corpus of conversations about cancer’	61
5.4.3	The Pragglejaz Group: ‘MIP: A method for identifying metaphorically used words in discourse’	64
5.4.4	Charteris-Black: Critical metaphor analysis	65
5.4.5	Steen’s procedure, MIP, critical metaphor analysis and the aims of this thesis.....	67
6	METHOD AND WORKING DEFINITIONS	68
6.1	Round 1: Identification of linguistic metaphors: Which linguistic metaphors are used in climate change discourse?	69
6.2	Round 2: Classification: Conceptual metaphors and conceptual keys	71
6.3	Round 3: ‘Ways of thinking’ expressed metaphorically and the persuasive effect of metaphor.	73
6.4	Round 4: Are there differences in the occurrence of metaphors between newspaper and organisation material?	75
7	MATERIAL	76
7.1	Background for collection and composition	77
7.2	Collection and composition	78
8	FINDINGS AND DISCUSSION	78
8.1	Outline of section 8	79
8.2	The identification of linguistic metaphors	80
8.3	Classification: conceptual metaphors and conceptual keys	83
8.4	Climate change is movement: Moving slowly or runaway?	84
8.5	Environmentalism is movement	90
8.5.1	Environmentalism is movement: Moving rapidly or sleepwalking?	90
8.5.2	Environmentalism is a journey: Following the road map	93
8.6	Environmentalism is war: Fighting, combating and battling climate change	94
8.7	Environmentalism is sports: Who is the front-runner?	99
8.8	Environmentalism is construction: Fixing, maintaining and repairing the climate	102
8.9	Environmentalism is a game: Gambits and cards	105
8.10	Environmentalism is a personal relationship: Embracing climate change initiatives	107
8.11	Production of environmentally friendly energy is farming: Fertile ground for wind farms.	108

8.12	Environmentally friendly is clean and pollution is dirty: Can coal be squeaky-clean?	109
8.13	Personification in climate change discourse: Is climate change threatening us?	112
8.14	The Earth is a house: The greenhouse	116
8.15	Other categories.....	118
8.16	Differences between the sources.....	120
9	FINAL REMARKS	126
9.1	Limitations of the study	126
9.2	Summary of findings.....	126
9.3	Further studies	130
10	REFERENCES	132
10.1	Literature.....	132
10.2	Websites/Dictionaries.....	136
11	APPENDICES	137
11.1	The New York Times material.....	137
11.2	The Washington Post material.....	140
11.3	World Wildlife Fund (WWF) material.....	142
11.4	Greenpeace material	145

List of Tables and Figures

Table 1.	Number of words and articles, per publication.....	78
Table 2.	Number of linguistic metaphors per conceptual domain.....	83
Table 3.	Number of lexical items from the domain of MOVEMENT used to describe CLIMATE CHANGE, per publication.....	85
Table 4.	Number of lexical items from the domain of MOVEMENT used to describe ENVIRONMENTALISM, per publication.....	91
Table 5.	Number of lexical items from the domain of JOURNEY used describe ENVIRONMENTALISM, per publication.....	93
Table 6.	Number of lexical items from the domain of WAR used to describe ENVIRONMENTALISM, per publication.	95
Table 7.	Number of lexical items from the domain of SPORTS used to describe ENVIRONMENTALISM, per publication.....	99

Table 8. Number of lexical items from the domain of CONSTRUCTION used to describe ENVIRONMENTALISM, per publication.....	102
Table 9. Number of lexical items from the domain of GAME used to describe ENVIRONMENTALISM, per publication.	105
Table 10. Number of lexical items from the domain of PERSONAL RELATIONSHIP used to describe ENVIRONMENTALISM, per publication.....	107
Table 11. Number of lexical items from the domain of FARMING used to describe PRODUCTION OF ENVIRONMENTALLY FRIENDLY ENERGY, per publication.....	108
Table 12. Number of lexical items from the domain of CLEAN/DIRTY used to describe ENVIRONMENTALISM, per publication.....	110
Table 13. Number of lexical items from the domain of PERSON used to describe CLIMATE CHANGE, per publication.	113
Table 14. Number of lexical items from the domain of PERSON used to describe CO₂, per publication	113
Table 15. Number of lexical items from the domain of PERSON used to describe FOSSIL FUEL, per publication.	113
Table 16. Number of lexical items from the domain of HOUSE used to describe THE EARTH, per publication.	116
Table 17. Number of lexical items from the domain of MUSIC used to describe ENVIRONMENTALISM, per publication.....	119
Table 18. Number of lexical items from the domain of X used to describe Y, per publication; one-shot conceptual metaphors per publication.....	119
Table 19. Number of linguistic metaphors per conceptual key per publication.....	122
Figure 1: 'Simple model for linguistic communication' (adapted from Goatly 1997: 14, fig.1.1).	30
Figure 2: 'Five metaphorical clines' (adapted from Goatly 1997: 38, fig.1.4)	31
Figure 3: 'A diagram of semantic distance' (adapted from Goatly 1997: 39, fig.1.5)	32

1 Introduction

1.1 Background for the study

Climate change is currently a ‘hot topic’, politically as well as in the media. During the last decades, scientists have repeatedly presented alarming data about the climate of the earth, and warned of the considerable impact that future climate change will have on the living conditions of human beings. In consequence, climate change has become an important political issue all around the globe, and an issue frequently discussed in the media.

According to Schoenfeld *et al.* (1979), the mass media are key actors in the identification and interpretation of environmental issues. That is, the media function as interpreters, intermediators or messengers between scientific articles and the public. According to some studies, the public, including policy actors, learns about science principally through the mass media (Nelkin 1987 and Wilson 1995, cited in Boykoff and Boykoff 2007: 1192). Considering that climate change is clearly an environmental issue and also a scientific issue, the conclusions of the above-mentioned studies are highly relevant to the current one. In addition to the fact that climate change is a current political issue that concerns many people, the findings of the above-mentioned studies make up good arguments for investigating how the media talk about climate change issues.

Former studies of environmental discourse have for example focused on communicating climate change in Portugal (Carvalho and Pereira 2008), climate change and journalistic norms (Boykoff and Boykoff 2007), cultural circuits of climate change in U.K. broadsheet newspapers (Carvalho and Burgess 2005) and the role that metaphorical thought plays in scientific and popular discussion of environmental issues (Romaine 1996). The books *Greenspeak* (Harré, Brockmeier and Mühlhäusler 1999) and *Politics of the Earth* (Dryzek 2005) are also valuable contributions to the discussion of environmental discourse.

In the last decade or so, an increasing amount of research has been carried out to explore how metaphor is used for purposes of persuasion in discourse dealing with social issues. The persuasive effects of metaphor have been elaborated upon by for instance Bosman (1987), Mio (1997) and Sopory and Dillard (2002), which all focus on political discourse in particular. For example, Mio claims that because information processing is demanding, people are unable to pay attention to all aspects of political evidence, and therefore, metaphor, among other cognitive heuristics, is needed to simplify decision-making (Mio 1997: 130).

Research on the metaphors used about different social issues extends over a broad spectre of subjects: Semino *et al.* (2004) investigated metaphors used in conversations about cancer, Charteris-Black (2006), O'Brien (2003) and Santa Ana (1999) looked at metaphors used about immigrants, Koller (2002) found metaphors used in business media discourse, and Larson, Nerlich and Wallis (2004) explored metaphors used about the SARS epidemic. They found war metaphors for cancer, war and disease metaphors for immigrants, marriage metaphors for merging of companies and killer metaphors for SARS, respectively, basing themselves on cognitive metaphor theory and real discourse material.

Today most work on metaphor, including the work mentioned in the preceding paragraph, is based on cognitive metaphor theory. In many ways, this theory revolutionised metaphor theory, and in particular through *Metaphors we live by*, which was written by George Lakoff and Mark Johnson in 1980. This book has since become a classic in literature about metaphors and cognitive linguistics, and is referred to in most work in this area, for example in Ortony (1993), Cameron and Low (1999), Croft and Cruse (2004), Charteris-Black (2004), Deignan (2005), Semino (2008), and Gibbs (2008), to mention only a few.

Some of the most central claims made in *Metaphors we live by* are that metaphor is a phenomenon 'pervasive in everyday life, not just in language but in thought and action' (Lakoff and Johnson 2003: 3), and that metaphor plays 'a central role in the construction of social and political reality' (Lakoff and Johnson 2003: 159).

In sum, the substantial attention that climate change currently receives in the media, the importance of the mass media in shaping public opinion and the potential force of metaphor both in persuasion and in the construction of political and social reality, make up good reasons for investigating metaphors in climate change discourse. Some of the above-mentioned works on environmental discourse do pay particular attention to metaphor, i.e. especially Romaine (1996), and to some extent Harré, Brockmeier and Mühlhäusler (1999). However, these contributions refrain from stating specifically what kind of methodology or criteria they used in order to identify the metaphors, and they do not convey the actual numbers as concerns their findings. Thus, there do not seem to be any studies that apply recent linguistic and metaphor research methodology to the research of metaphors in climate change discourse. Accordingly, this thesis aims to make a contribution to such research. The next section presents the aims of this thesis.

1.2 Aims and Scope

Due to the shortage of linguistic research on metaphors within the field of climate change discourse, the primary objective of this thesis is to contribute to a survey, or mapping, of the metaphors used in this type of discourse. Another important objective is to give a critical analysis of these metaphors, in order to say something about how we view climate change.

In order to do this, I will build on current metaphor theory (Lakoff and Johnson 2003, Goatly 1997) and on metaphor research methodology (the Pragglejaz Group 2007, Steen 1999, Charteris-Black 2004, Semino 2008).

In short, such a mapping involves the identification of linguistic metaphors in climate change discourse material, as well as a classification of these into larger groups of conceptual metaphors. The difference between linguistic and conceptual metaphor is an important one in this study, and will be elaborated on in the theory and method chapters below.

In the first part of the analysis, the linguistic metaphors are considered primarily in the immediate context in which they occur. In the subsequent parts of the analysis,

which involve the classification of the linguistic metaphors and the critical analysis of them, the linguistic metaphors are evaluated in a broader perspective, and are then seen as part of a larger discourse.

My critical analysis of climate change metaphors involves evaluating (i) the possible motivations for using these particular metaphors and (ii) the potential effects that these metaphors may have on the reader. Do the linguistic metaphors reflect a particular view on climate change? Is climate change depicted in a particular way via the metaphors? In order to discuss this, I will use theory about the persuasiveness of metaphor (Mio 1997) and critical metaphor analysis (Charteris-Black 2004) as a basis.

Besides, as will become evident in section 7, the material used in this thesis is taken from four different sources, namely two newspapers and two special interest organisations. The discussion of the primary findings also includes a comparison of the findings as concerns the different sources.

My research questions are as follows:

- Q1:** Which linguistic metaphors are used in climate change discourse?
- Q2:** What are the possible underlying conceptual metaphors?
- Q3:**
 - i. Do the metaphors possibly reflect any particular ways of thinking about climate change?
 - ii. To what extent are the metaphors persuasive?
- Q4:** Are there any differences in which linguistic and/or conceptual metaphors are used in newspaper articles versus press articles of environmental organisations?

Q1 can be seen as an overarching research question, since it concerns my primary aim with this thesis. Further, Q3 expresses the secondary aim of the thesis: to look at the metaphors used in climate change discourse in a critical light.

The answer to Q1 should provide the primary findings and thus the basis for providing answers to the other research questions, which are basically about viewing

the primary findings in a broader perspective. The study is based on the current paradigm within metaphor theory, namely cognitive theory.

Now, before we go on to have a look at the basic assumptions of cognitive metaphor theory, section 1.3 will present the outline of the thesis.

1.3 Outline of thesis

Section 2 presents metaphor theory. After the introductory section 2.1, section 2.2 presents a brief outline of traditional metaphor theory, in order to provide some perspective to the theory chapter. Section 2.3 consists of three subsections, which explain the major features of cognitive linguistics, cognitive semantics and cognitive metaphor theory. All of these subsections are important in order to understand the nature of metaphor. Finally, section 2.4 offers some comments on cognitive metaphor theory, made by three different linguists, introducing the distinction between linguistic and conceptual metaphor and the implications this distinction has for the application of cognitive metaphor theory in metaphor research. For example, we will see that several linguists emphasise the pragmatic effects of metaphorical language.

Section 3 presents the persuasive effects of metaphor, and thus narrows the focus on the pragmatic effects of metaphor onto the persuasive effects in particular. The section should provide the background for discussing the ways of thinking, or motivations, that possibly underlie the metaphors used in climate change discourse, as well as the possible effects of the use of such metaphors, cf. Q3i and Q3ii. It may thus be seen as an introduction to the critical view that I have on metaphor use in this thesis, which will be further elaborated on in subsection 5.4.4 and section 6.

Section 4 provides a discussion of what can be counted as climate change discourse, as well as a discussion of what climate change is and of the current status of climate change as a political issue. Like section 3, section 4 is also important for discussing Q3i and Q3ii. It provides information about the larger context in which the primary findings occur, and this is important in order to find possible explanations to the motivations and effects of the metaphors used in the material. For example, since climate change can possibly result in significant changes in our society, then this will

possibly explain why we use certain metaphors to talk about climate change. Hence, having a clear idea of what climate change really is and its status as a political issue is essential in order to consider the primary findings in a broader perspective.

Next, section 5 starts with a discussion of some of the methodological problems related to metaphor research. Then, the different aspects of current linguistic methodology that are applied in this thesis are presented in subsections 5.2, 5.3 and 5.4. Thus, section 5 offers a thorough presentation of which methodologies that are employed in this thesis.

Section 6 describes in detail the method applied in this thesis. The different aspects of the method used are presented as four different ‘rounds’ that include the specific steps of the method as well as the working definitions.

In section 7, information about the material is given. Subsection 7.1 presents the background for the collection and composition of the material, while subsection 7.2 presents some the facts about the material.

Then, section 8 gives a presentation and a discussion of the findings. Subsection 8.1 provides a more thorough outline of section 8 than the one given here. In short, however, subsection 8.2 presents some aspects related to the identification of the linguistic metaphors that was discovered during the analysis, subsection 8.3 presents the classification of the primary findings and subsections 8.4-8.16 present the major part of the discussion.

Lastly, section 9 offers some ‘Final remarks’ on the study. Subsection 9.1 discusses the limitations of the study, subsection 9.2 gives a ‘Summary of findings’, and section 9.3 gives some suggestions to further research.

2 Metaphor

2.1 A transfer of meaning

The word *metaphor* derives from the Greek word *metaphora*, or *μεταφορά*, and means ‘carrying between’, or ‘transfer’ (*Oxford English Dictionary* 2009). This continues to be the principal meaning, also in current metaphor theories. Yet, how should we describe the kind of transfer metaphor involves? The reader is encouraged to keep this question in mind as we go on to have a look at current metaphor theory in the following sections.

It is common to make a distinction between *metaphorical* and *literal* use of words. Most people would probably agree that literal use of words is the ‘straightforward’ way of using words, while metaphor, or the metaphorical use of a word, involves some kind of deviation, contrast, or tension. Where does this tension, or ‘non-literalness’, lie? Consider the following sentence, which is taken from the material:

- 1 Standing forests are a tremendous carbon storehouse. (G 15)

Certainly, forests cannot really be storehouses. Rather, it seems that *storehouses* has been used metaphorically. Now, how may we decide whether a word is used metaphorically?

It seems reasonable to say that the ‘non-literalness’ lies somewhere between the meaning of the word *forests*, and the word used to describe it, namely *storehouse*. So, in order to determine whether a word is used metaphorically or not it is necessary to take *word meaning* into consideration. If you are able to assert what the meaning of a certain word is, this should help you in determining whether it is used metaphorically or not in a certain context.

In other words, it seems that the contrast or ‘non-literalness’ that is part of metaphor is a matter of semantic tension. Furthermore, it seems that metaphor identification is a matter of semantics, or lexicology. As has already been revealed in the presentation of the research questions above, it is possible to distinguish between linguistic metaphor

and conceptual metaphor. Later, we will have a closer look at this distinction, and see that it is a quite important one. For now, however, I would only like to point out that since the analysis of this thesis has linguistic metaphor as the point of departure, firm ideas about word meaning, or semantic theory, are crucial to this study. In the next sections, we will see how cognitive linguistics, which provides the foundation for current metaphor theory, explains semantic meaning. We will also see that metaphor can be considered a matter of degree and that it can be considered a pragmatic issue.

2.2 Traditional Metaphor Theory

There are two traditional views on metaphor: the classical view and the romantic view. The classical view regards metaphor as a specialised trait of ordinary language, used for decoration, linguistic ornament, to construct imagery in literature and poetry, and also as a rhetorical device. Thus, in the classical view, metaphor is something optional and outside normal language (Saeed 2007: 346). It is perhaps the view that best corresponds with most people's view of or knowledge about metaphor. Deignan (2005: 2) calls the classical view 'the decorative view of metaphor', and she points out that this view does not seem to assign any role for metaphor as concerns thought.

According to the romantic view, metaphor is regarded 'integral to language and thought as a way of experiencing the world', and all language is seen as metaphorical (Saeed 2007: 346). Current metaphor theories reject the view that all language is metaphorical, but may nevertheless be considered an extension of the romantic view, as it regards metaphor as integral to language as well as to human thought (Saeed 2007: 346). The following sections will describe current metaphor theory, and thus give an account of how metaphor can be seen as central to language, thought and our experiencing of the world.

2.3 Current Metaphor Theory

Current metaphor theory is a part of cognitive semantics, and sees metaphor as a very central feature of both language and thought. Cognitive semantics is a branch of cognitive linguistics. Since cognitive linguistics thus constitutes the very basis of current metaphor theory, we will now look briefly at the most important assumptions

of cognitive linguistics. Then we go on to have a closer look at cognitive semantics. Finally, section 2.3.3 provides an exposition of the more particular features of current metaphor theory.

2.3.1 Cognitive linguistics

Cognitive linguistics emerged as a school of thought in the 1970s, and has been growing since the 1980s (Croft and Cruse 2004: 1). It is perhaps best characterised as a movement, enterprise or approach sharing a certain set of core commitments and guiding principles, rather than as an integrated theory (Evans, Bergen and Zinken 2006: 3). There has been carried out cognitive linguistic research into different areas of linguistics such as language acquisition, phonology and historical linguistics (Croft and Cruse 2004: 1). Cognitive linguistics was a reaction to the most influential approach of the time, namely the approach of Chomskian formal linguistics, including generative grammar and truth-conditional semantics (Croft and Cruse 2004: 1). Scholars like George Lakoff and Ronald Langacker believed that there was too much focus on syntax and formal rules, and called for an increased attention to the function of language, and for an integration of findings from other cognitive sciences, particularly cognitive psychology (Evans, Bergen and Zinken 2006: 1).

One of the central assumptions of the Cognitive Linguistic enterprise involves a refusal of the formal linguistic idea of modularity. In formal linguistics, language is seen as a separate, autonomous module of the brain. Furthermore, the idea of modularity entails the view that areas like phonology, semantics and syntax are significantly differently structured (Saeed 2007: 343), and that such areas exist as separate modules of the brain (Carroll 2004: 54). Accordingly, language is seen as separated and independent from non-linguistic cognitive abilities (Croft and Cruse 2004: 1).

Cognitive linguistics, however, regards language an integral part of our cognitive system. The rejection of the idea of modularity implies that cognitive linguistics considers language a cognitive ability equivalent to other cognitive abilities, such as perception, emotions, categorisation, abstraction processes and reasoning. Cognitive linguistics assumes that these other cognitive abilities interact with and are influenced

by language (Dirven and Verspoor 1998: xi). In the cognitive linguistic view, there is no separation of linguistic knowledge from general thinking or cognition (Saeed 2007: 342). Cognitive linguists only acknowledge a *notional* distinction between areas like phonology, semantics and syntax for the sake of practicality, but not the idea that these areas are actually separate in the brain (Evans, Bergen and Zinken 2006: 4).

Cognitive linguistic theory provides the very basic ideas of modern metaphor theory. We will see that the assumptions that are central to cognitive linguistics are also important in metaphor theory.

2.3.2 Cognitive semantics

As mentioned above, the establishment of cognitive linguistics was a reaction to the then current paradigm of formal linguistics, and, as concerns cognitive semantics, it involved a rejection of truth-conditional semantics. The formalist approach to semantics is also called objectivist semantics. We will give the formalist approach only a brief look, in order to be able to see more clearly what the assumptions of cognitive semantics are.

Objectivist semantics may be described by means of three doctrines (Lakoff 1988, as adapted by Saeed 2007: 344):

- (i) The doctrine of truth-conditional meaning: Meaning is based on reference and truth.
- (ii) The ‘correspondence theory’ of truth: Truth consists in the correspondence between symbols and states of affairs in the world.
- (iii) The doctrine of objective reference: There is an ‘objectively correct’ way to associate symbols with things in the world.

For the sake of clarity, it seems appropriate to point out that ‘truth’ should not be confused with ‘reality’. Both ‘truth’ and ‘reality’ are terms, or ideas, that all semantic theories have to take a stand on, since the main aim of all semantic theory is to provide a description of the relationship between thought, meaning, utterances, and the reality. In short, objective semantics and cognitive semantics share the view that there is an objective reality independent of human perception. Yet the two approaches

explain the semantic meaning, or ‘truth value’ of words differently. In the following, it should become evident how the views on ‘truth’ and ‘reality’ affect the way cognitive semantics and objectivist semantics explain semantic meaning. Moreover, it should become evident why cognitive semantics chooses a different approach to meaning than objectivist semantics.

As expressed in the first doctrine above, objectivist semantics uses reference to explain meaning. The second doctrine states that truth lies in the correspondence between symbols and states in the world. One may say that truth-conditional semantics is a kind of denotational or referential approach to meaning (Saeed 2007: 292). Objectivist semantics seems to hold that reality offers an ‘absolute truth’, and therefore, reference serves to explain the meaning of words. For example, the ‘true meaning’ of the word *cat* may be given by referring to a cat, i.e., by simply pointing to or showing a cat.

Objections have been raised against objectivist semantics. If reference is supposed to account for meaning, we may simply refer to entities or situations in order to explain the meaning of words (Saeed 2007: 24). Theories based on reference fail to explain how non-referential words like *anywhere*, *moreover* and *simply*, and also words like *devil*, *Harry Potter* and *July*, have meaning, because the meanings of these words are not physical objects, and may therefore not be pointed to or shown. Speakers of English will nevertheless argue that these words do indeed have meaning.

According to Lakoff, cognitive semantics involves ‘experiential realism’ (Lakoff 1988: 123), or ‘experientialism’ (Lakoff and Johnson 2003: 226-228). One of the most central tenets of experientialism is the rejection of an absolute truth. What does cognitive semantics say about truth, then? Now, only for the sake of clarity, let us first remind ourselves that cognitive semantics, like objectivist semantics, assumes that there is an objective reality independent of human beings: ‘there are real things, existing independently of us, which constrain both how we interact with them and how we comprehend them’ (Lakoff and Johnson 2003: 226). ‘Truth’ in the experientialist view, and thus also cognitive semantic view, however, ‘is always relative to understanding, which is based on a nonuniversal conceptual system’ (Lakoff and Johnson 2003: 226-227). As will be explained further below, the fact that

we have bodies, and that these function in a certain way, is crucial to the way experientialism regards and explains ‘truth’ and semantic meaning.

Since some semanticists regarded the objectivist and referential approach to explaining meaning as insufficient, representational theories emerged.

Representational theories assume that reference alone does not give a satisfactory explanation of meaning, due to for example the problem with explaining non-referential words mentioned above. A new level of ‘mental representation’ that lies between the word and its meanings was introduced in order to explain meaning.

Cognitive linguistics uses the term *concept* to describe what this ‘mental representation’ is like. Thereby, the cognitive linguistic enterprise throws ‘linguistic light onto a traditional line of research in cognitive psychology’ (Saeed 2007: 33).

The following paragraphs will provide further explanation to what ‘concepts’ and ‘conceptualisation’ involve, and also show in what way these terms are important to current metaphor theory.

Evans, Bergen and Zinken (2006: 6) sum up the characteristics of cognitive semantics in the following four guiding principles, which serve to describe the process of conceptualisation and the nature of concepts:

- 1 Conceptual structure is embodied (the ‘embodied thesis’).
- 2 Semantic structure is conceptual structure.
- 3 Meaning representation is encyclopaedic.
- 4 Meaning construction is conceptualisation.

The ‘embodied thesis’ and the implications of it are thoroughly explained in Mark Johnson’s article ‘Incarnate mind’ (1995). In essence, the thesis is that human language derives from bodily experience; that language relies on the body, on our perceptual system, the biology of our brains, and how our bodies function in the environment we live in. For example, the anatomy of our eyes and the force of gravity contribute to our perception of up and down, and our establishing of ‘up’ and ‘down’ as concepts. It is assumed that the repetitive experience of seeing things going (what we call) up and down, results in the establishment of the concepts of ‘up’ and ‘down’ (Lakoff and Johnson 2003: 14).

The second guiding principle implies what has already been explained to some extent above, that cognitive semantics uses the term *concept* to explain meaning. In other words, cognitive semantics generally see words as symbolising concepts (Croft and Cruse 2004: 7), rather than as symbolising objective objects or phenomena in the world.

Moreover, the second guiding principle implies that although ‘semantic structure is conceptual structure’, cognitive linguists do not believe that the opposite is true: that our conceptual structure is equal to our semantic structure. Cognitive linguistics recognises that we have many more thoughts and ideas than are conventionally encoded in language. Thus, the set of concepts that are available to a person as lexicalised concepts, or semantic units, or words, is only a subset of that person’s total conceptual system (Evans, Bergen and Zinken 2006: 8). Put in a different manner, there are lexical gaps. There are concepts that have not been lexicalised, i.e. concepts that have not been ‘encoded’ as words (Saeed 2007: 34).

We may see that the first and the second guiding principles are consistent with the rejection of an absolute truth. To sum up a little: in cognitive semantics, conceptual structure is seen as embodied and semantic structure is seen as conceptual. If one recognises this, concepts are not seen as existing in an objective reality, but as products of the human mind. Concepts are results of human physiology, anatomy, and also culture. In this view, it seems more reasonable to assume that word meaning, or the ‘true meanings’ of words, is relative to human understanding, rather than absolute.

The third guiding principle proposes that semantic structure should be regarded as encyclopaedic in nature. This means that lexical concepts are not tidy units of meaning, but rather, ‘points of access’ to large repositories of knowledge (Evans, Bergen and Zinken 2006: 8). When a certain word, for example ‘climate’, is used in an utterance, it serves as a mere prompt for the process of meaning construction. The conventional meaning(s) of the word, the context in which the word is used in the particular utterance, and our encyclopaedic knowledge, make appropriate interpretation possible (Evans, Bergen and Zinken 2006: 9). This guiding principle attends to the fact that words may have several meanings (that is, one certain linguistic form may have more than one meaning), and also that meaning depends on

context. Moreover, it seems to recognize that there is a pragmatic aspect to the process of semantic decoding: that there may also be a difference between what is said literally and what is the speaker's implied meaning. The hearer (alternatively reader) of an utterance needs to interpret and actively attempt to select the most appropriate meaning of the utterance.

Lastly, the fourth guiding principle is somewhat similar to the third. It holds that meaning construction is conceptualisation, and that meaning construction involves linguistic units serving as prompts for several conceptual operations, and the accessing of background knowledge. Meaning is thus not a 'thing' that is sharply distinguished from any other cognitive processes or mechanisms, but a process that we may call conceptualisation (Evans, Bergen and Zinken 2006: 9).

Taking the above four guiding principles into consideration, cognitive linguistics clearly has a quite different view on the nature of words and word meaning than formal linguistics has. A consequence of the objectivist view on semantics, which explains semantic meaning by means of reference, is that the meanings of words are definite and equal to all speakers of a language. The cognitivist view, on the other hand, seems to offer a much more flexible view of words: their meanings are primarily a product of the human brain and thus of human understanding, and furthermore, it is recognised that there are concepts that have not been lexicalised. The meanings of words are seen as 'points of access' to encyclopaedic information, which necessarily must be held by the individual, and not belong to a common pool of meaning accessible to all speakers of a language. And finally, cognitive semantics also recognises that words may have several meanings, and thus that pragmatic factors such as meaning interpretation is an important aspect of communication. Now, we shall go on to look at what Lakoff and Johnson say about metaphors, and how this corresponds to what has just been said about semantics and concepts.

2.3.3 Cognitive metaphor theory (CMT)

As mentioned above, cognitive metaphor theory will be used as a framework for this thesis, since it is currently the dominant paradigm in metaphor research (Semino 2008: 6, and see also Gibbs 1994, Charteris-Black 2006, Deignan 2005). Since Lakoff

and Johnson's *Metaphors we live by* to such a high extent contributed the establishment of current metaphor theory, this book is also particularly important to this thesis. What follows is an outline of the most important aspects of metaphor as presented in Lakoff and Johnson (2003), Lakoff (1993) and Lakoff (1988). Henceforth, 'Cognitive' or 'Conceptual' metaphor theory will be referred to as 'CMT', following Semino (2008: 6). For the sake of clarity, I would like to mention that the terminology used by Lakoff and Johnson is discussed thoroughly in the section after this.

Lakoff and Johnson use lists of linguistic expressions as evidence for the existence of what they call *conceptual metaphors*, such as ARGUMENT IS WAR, TIME IS MONEY, HAPPY IS UP, INFLATION IS AN ENTITY, THE MIND IS A BRITTLE OBJECT, THEORIES ARE BUILDINGS and IDEAS ARE PLANTS (see Lakoff & Johnson 2003: 4 *et passim.*). For example, Lakoff and Johnson claim that the linguistic expressions in the list below (or any similar expression) prove the existence of a conventional conceptual metaphor in the minds of speakers, namely the conceptual metaphor ARGUMENT IS WAR.

Your claims are *indefensible*.
He *attacked every weak point* in my argument.
His criticisms were *right on target*.
I *demolished* his argument.
I've never *won* an argument with him.
You disagree? Okay, *shoot!*
If you use that *strategy*, he'll *wipe you out*.
He *shot down* all of my arguments.
(Lakoff and Johnson 2003: 4)

In other words, they claim that the expressions above provide evidence that people understand arguments in terms of war. Moreover, the uttering of any of the sentences in the list above, or any similar sentence, can be counted as a *linguistic realisation* of the conceptual metaphor ARGUMENT IS WAR (Lakoff 1993: 203).

In more technical terms, in the conceptual metaphor ARGUMENT IS WAR, ARGUMENT is the *target* domain and WAR is the *source* domain. Concepts are conventionally given in small capitals. Conceptual metaphors are conventionally presented in small capitals and in the formula A IS B, where A is the target domain, and B is the source domain, as in ARGUMENT IS WAR (Lakoff 1993: 206). The term *grounding* can be used to talk

about the similarities, or correspondences, between A and B. Characteristics of the source domain are seen as *mapped onto* the target domain.

In order to gain a clearer understanding of this terminology, let us consider example 2, which is taken from the material.

- 2 Forests are carbon sinks. When they are logged the stored carbon is released into the atmosphere. (G 18)

In ex.2, *forests* is the target domain, *sinks* is the source domain, while both *carbon* and *When they are logged the stored carbon is released into the atmosphere* provide (at least some of) the grounding. That is, the source domain SINK is used to talk about the target domain FORESTS. Again, in more technical terms, the metaphor can be understood as a mapping from a source domain to a target domain. The mapping is tightly structured; there are certain correspondences between the source and the target domain: certain features of the source domain correspond to certain features of the target domain (Lakoff 1993: 206). This is further described in the paragraph about highlighting and hiding below. It is not always as obvious as in ex.2 what the target domain is, what the source domain is, and what the grounding is. How obvious or not this appears to the hearer or reader depends on the construction of the sentence as well as the context. Often, the grounding or even the topic is not provided, and the hearer or reader must figure this out himself. Just consider some of the sentences in the ARGUMENT IS WAR above. Neither of them are as ‘prototypical’ in their structure as the metaphor in ex.2, which actually satisfies the formula A IS B.

We will now have a closer look at Lakoff and Johnson’s description of metaphor. How do metaphors function? How are they structured?

Firstly, Lakoff and Johnson believe that conceptual metaphors are culturally dependent. For example, it is not necessarily so that arguments are conceptualised in terms of war, that theories are conceptualised in terms of buildings or that time is conceptualised in terms of money in all cultures around the globe. ‘This isn’t a necessary way for human beings to conceptualise time; it is tied to our culture’ (Lakoff and Johnson 2003: 9).

Secondly, our conceptual system is grounded in a specific way. While some concepts are understood directly, most concepts are partially understood in terms of other concepts (2003: 56). Lakoff puts it like this:

Meaningful conceptual structures arise from two sources:

(1) from the structured nature of bodily and social experience and

(2) from our innate capacity to imaginatively project from certain well-structured aspects of bodily and interactional experience to abstract conceptual structures.

(Lakoff 1988: 121)

Thus, in the first case, we establish concepts either on the basis of what we experience through our sensory-motor experiences; of what we hear, see, feel, etc. Clearly, this is compatible with the first guiding principle of cognitive semantics described above, which holds that conceptual structure is embodied. In the second case, however, we establish concepts on the basis of, or by means of, metaphor: we can understand the more abstract phenomenon ‘argument’ in terms of the more physical phenomenon ‘war’, as in the conceptual metaphor ARGUMENT IS WAR. That is, we can understand for example a counterargument in terms of a physical attack. According to Lakoff and Johnson, ‘we typically conceptualize the nonphysical *in terms of* the physical’ (2003: 59).

A third important characteristic of metaphor is the effect of ‘highlighting and hiding’. While metaphor allows us to focus on one aspect of a concept, it can also keep us from focusing on other aspects (Lakoff and Johnson 2003: 10-13). As described in the above paragraph, metaphor involves the ‘mapping’ or ‘correspondence’ of features from source to target domain. What is important to notice, is that *only some* features of each domain correspond to each other; when WAR is used in a certain context as a source domain to understand or talk about ARGUMENT, there are only certain aspects of WAR that are mapped onto the target domain of ARGUMENT. In Lakoff and Johnson’s terms, the features of the target domain that correspond to features in the source domain are *highlighted*. That is, an effect of talking about arguments in terms of war is that certain features of arguments are highlighted. In the case of the example used by Lakoff and Johnson presented above, ‘His criticisms were *right on target*’, the expression ‘*right on target*’ is probably used to highlight that someone’s verbal

criticisms were experienced by the speaker as being precise, determined and perhaps even that the speaker were taken by surprise because of the timing of the criticisms. Thus, these are the aspects of a real ‘right-on-target’ attack in a war, (which could involve for example a bullet or a bomb), that would be used to highlight something about the more abstract incident of someone criticising another during a verbal quarrel.

At the same time, other aspects of the verbal quarrel are not highlighted, but remain *hidden*. When using war metaphors to talk about arguments, we may forget those features that arguments do not share with war. As Lakoff and Johnson point out, a person arguing with you is actually devoting his or her time, and while the two of you are arguing, you are possibly trying to arrive at a mutual understanding of what you are arguing about. However, war metaphors contribute to hiding these aspects of arguments. Thus, we may be distracted by metaphorical language use.

This idea of metaphor at least partly describes the ‘transfer’ that metaphor involves, cf. the question posed in section 2.1. The effect of highlighting and hiding will be discussed further under the headline ‘The persuasive effect of metaphor’ in section 3.

Fourth, Lakoff and Johnson say that one single concept, for example ARGUMENT, can be understood not only in terms of WAR, but also in terms of several other concepts, for example JOURNEY, as in the following examples:

We have *set out* to prove that bats are birds.
When we get to the next point, we shall see that philosophy is dead.
So far, we’ve seen that no current theories will work.
(Lakoff and Johnson 2003: 90)

The two different source domains WAR and JOURNEY enable us to focus on different aspects of an argument.

Fifth, it is possible to see conceptual metaphors as organised in larger systems, and even hierarchical structures, with ‘higher’ and ‘lower’ mappings, or ‘higher level’ or ‘lower level’ conceptual metaphors. Lakoff presents ‘the event structure metaphor’ as an example of a higher-level metaphor in English. He claims that various aspects of

events, such as states, changes, processes, actions, causes, purposes and means, are conventionally understood and talked of metaphorically, in terms of space, motion and force. Lower-level metaphors that form part of the event structure metaphor are for example STATES ARE LOCATIONS, CHANGES ARE MOVEMENTS, CAUSES ARE FORCES, PURPOSES ARE DESTINATIONS, MEANS ARE PATHS, and LONG TERM PURPOSEFUL ACTIVITIES ARE JOURNEYS (Lakoff 1993: 220-222). Lakoff gives an example of a hierarchy with three levels:

Level 1: The Event Structure Metaphor
Level 2: A PURPOSEFUL LIFE IS A JOURNEY
Level 3: LOVE IS A JOURNEY; A CAREER IS A JOURNEY.
(Lakoff 1993: 222)

In other words, it is possible to regard metaphorical expressions such as ‘I don’t think this relationship is *going anywhere*’ and ‘This relationship is a *dead-end street*’ (Lakoff and Johnson cited in Kövecses 2002: 5) as linguistic realisations of the LOVE IS A JOURNEY metaphor, as well as of the PURPOSEFUL LIFE IS A JOURNEY and the Event Structure Metaphor.

2.4 Comments on Lakoff and Johnson and CMT

We have now seen how Lakoff and Johnson describe metaphors, and how they use lists of expressions to support their theory. However, they have received some criticism for their use of elicited material as evidence for conceptual metaphors. The critics call attention to an important distinction as concerns metaphor: the one between linguistic and conceptual metaphor. This issue will also be a central issue in section 5.

This section starts with an explanation to why many linguists felt the need to distinguish between linguistic and conceptual metaphor. Then, the following subsections provide an outline of definitions and descriptions of metaphor that have been proposed by linguists who have used CMT as a framework for their studies, but who have also seen the need to discuss and modify Lakoff’s terminology to some extent. These additions to, or adjustments of, the Lakovian definition of metaphor are all particularly relevant because they are motivated by a focus on linguistic metaphor.

Since the current study does indeed use linguistic material as the point of departure for metaphor research, such adjustments are highly relevant. Besides, this section serves as a discussion of the terminology used in the thesis.

2.4.1 Linguistic metaphor versus conceptual metaphor

Semino gives the following comment on the CMT and its treatment of linguistic and conceptual metaphor:

(...) CMT is primarily concerned with *conceptual* metaphors, while metaphorical expressions in language are seen as secondary. This results in a lack of consideration for the textual manifestations of metaphor and for the authenticity of the linguistic data that is adduced as evidence. The main proponents of CMT mostly relied on artificially constructed examples to support their claims, and did not develop an explicit methodology for the extrapolation of conceptual metaphors from linguistic data. This casts doubts on the reliability of claims about conventional conceptual metaphors, and the exhaustiveness of the CMT account of metaphor in language.
(Semino 2008: 10)

What Semino describes as a primary concern for conceptual metaphors and ‘lack of consideration for the textual manifestations of metaphor’ is reflected in Lakoff’s terminology. Lakoff announces, ‘the locus of metaphor is not in language at all’ (1993: 203). To Lakoff, ‘metaphor’ is primarily a cognitive process: ‘the word *metaphor* (...) has come to mean *a cross-domain mapping in the conceptual system*’, while a metaphorically used word or phrase is a ‘metaphorical expression’ and ‘the surface realization of such a cross-domain mapping (...)’ (Lakoff 1993: 203).

All of the linguists described below maintain the CMT or the ‘Lakovian/Lakoffian’ definitions of linguistic and conceptual metaphor as the very basic definition of metaphor. That is, they regard conceptual metaphor as a mental phenomenon, while they regard metaphorical expressions as linguistic expressions. Importantly, linguistic expressions are only seen as *potentially* being realisations of conceptual metaphors, and not as *necessarily* being so. As will become evident very soon, they also share the view that metaphor is to a large extent a pragmatic phenomenon.

The next subsection, then, is an account of other linguists' descriptions and definitions of linguistic and conceptual metaphor. This will be used to (i) approach a clearer definition of both linguistic and conceptual metaphor, (ii) regard other features of metaphor, which become important the moment we use 'linguistic realisations', or *utterances*, as the point of departure in order to do metaphor research, and, finally, (iii) to establish a terminology for discussing these different aspects.

I start by giving an account of some of Goatly's work on metaphor, then I move on to Charteris-Black, and, lastly, I give an account of Semino's work. I have chosen these three linguists' work because they represent critical views on CMT, especially as concerns the difference between linguistic and conceptual metaphor. Each of them provides important contributions to metaphor theory and also to metaphor research methodology. Charteris-Black and Semino represents two of the most recent contributions to critical metaphor research, and both suggest approaches to investigating the ways of thinking that may underlie metaphor use.

2.4.2 Goatly

Goatly is a linguist who has made valuable contributions to metaphor description, especially through his book *The Language of Metaphors* (1997). He defines metaphor in the following way:

Metaphor occurs when a unit of discourse is used to refer unconventionally to an object, process or concept, or colligates in an unconventional way. And when this unconventional act of reference or colligation is understood on the basis of similarity, matching or analogy involving the conventional referent or colligates of the unit and the actual unconventional referent or colligates.
(Goatly 1997: 8)

Goatly uses the following terms corresponding to certain phrases in this definition: *Vehicle* is the conventional referent of the unit, *Topic* is the unconventional referent and *Grounds* are the similarities involved. Thus, Goatly's terms correspond more or less to Lakoff and Johnson's terms Target, Source and Groundings, respectively (see section 2.3.3). However, Goatly's definition and terms are coined to describe linguistic metaphor, while Lakoff and Johnson's focus is on conceptual metaphor.

Central to Goatly's account of metaphor is that he regards metaphor largely as a pragmatic matter, i.e. as a matter of 'the study of meaning as communicated by a speaker (or writer) and interpreted by a listener (or reader)' (Yule 2007: 3). Or, as Goatly puts it: 'what a sentence means (its decoded sense) is the domain of semantics, and what a speaker means by uttering it in context is the domain of pragmatics' (1997: 35). He points out that metaphors may demand 'considerable interpretative work' that involves semantic decoding as well as 'mental processes beyond those of decoding' (1997: 137).

For the sake of clarity: in describing pragmatic issues below, I will primarily use 'speaker' and 'hearer', but switch to 'writer' and 'reader' when this seems more appropriate.

Goatly uses Sperber and Wilson's relevance theory to explain metaphor. Sperber and Wilson point out that utterances are very often only approximative (cited in Goatly 1997: 17). That is, what we say usually only resembles our thoughts, and does not necessarily match them exactly. Communication is often approximative because the standard of communication is not truth but relevance (Sperber and Wilson cited in Goatly 1997: 141). Sperber and Wilson claim that we follow 'the cognitive principle of relevance' when communicating: 'the search for relevance is a basic feature of human communication' (Wilson and Sperber 2004: 608). Now, what is relevance? In short, an utterance is relevant to a hearer if it connects to background knowledge that is already available to her, and if it enables her to draw conclusions that matter to her (Wilson and Sperber 2004: 608).

Goatly illustrates the approximative nature of communication by means of 'a simple model of linguistic communication' (reproduced as Figure 1 below).

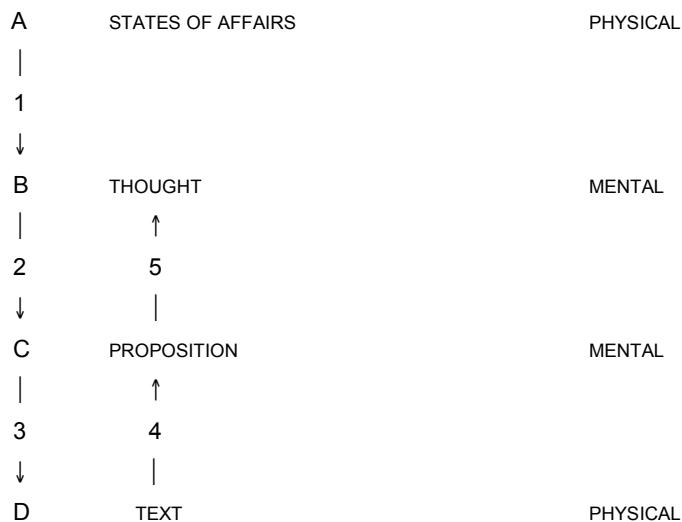


Figure 1: 'Simple model for linguistic communication' (adapted from Goatly 1997: 14, fig.1.1).

Presuming that there is a speaker and a hearer, the figure is supposed to describe the following: communication starts with a physically observable state of affairs (A), which is observed by the speaker by means of perception and cognition (1). The observation results in a thought (B) in the speaker's mind. B is not directly accessible to anyone except the speaker, but the speaker can try to express B by forming a mental proposition (C). C will *approximate* B to a greater or lesser extent. The speaker can use conventional linguistic signs (3) to compose and perform a text in physical forms; i.e. an utterance (D) that a hearer can perceive, decode and fill out (4) in order to convey a full proposition (C). Lastly, the hearer interprets C (5). The hearer's interpretation of D (5) will also more or less approximate B (Goatly 1997: 14-15). Thus, assuming that communication is basically approximative in nature, there will always be a gap between mental propositions and utterances, as well as between the intended meaning of the speaker and the meaning as interpreted by the hearer.

Now, what does all this have to do with metaphor? Considering that metaphorical utterances involve what was called 'non-literalness' above (see section 2.1), metaphor actually serves to illustrate that language is approximative. We say something else than we mean when we say for example 'Forests are carbon storehouses'. We do not mean to say that forests are indeed storehouses, only that they are somewhat like storehouses. We say what is approximately what we think. Considering that the

processing of metaphorical language on the part of the hearer involves trying to infer what is the most relevant meaning of an utterance, metaphor also serves to illustrate the relevance theory as described above.

Goatly says ‘The larger the gap between the proposition expressed and the meaning intended, the more metaphorical the utterance will be’, and vice versa: the smaller the gap, the more literal the utterance will be (1997: 15). And in other words, Goatly claims that the distinction between literal and metaphorical is a matter of degree: an utterance can be more or less metaphorical. Goatly uses the term *metaphoricity* to refer to the varying degree to which utterances can be metaphorical. He suggests that metaphoricity can vary along the following five clines: (1) degrees of approximation, (2) degrees of conventionality, (3) degrees of marking, (4) degrees of contradictoriness and (5) degrees of explicitness, as shown in Figure 2 below.

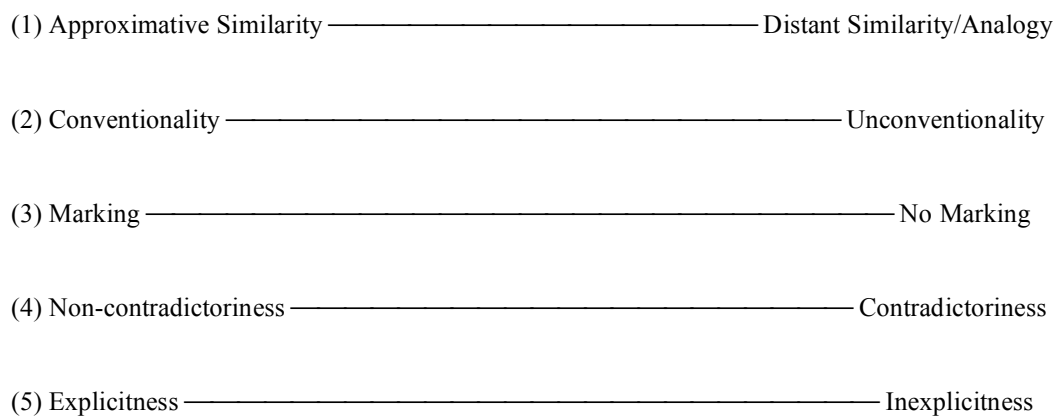


Figure 2: ‘Five metaphorical clines’ (adapted from Goatly 1997: 38, fig.1.4)

The cline of metaphoricity in terms of (1) degrees of approximation was discussed to some extent above. It deals with the semantic distance between Topic and Vehicle, or target domain and source domain (see diagram in Figure 3).

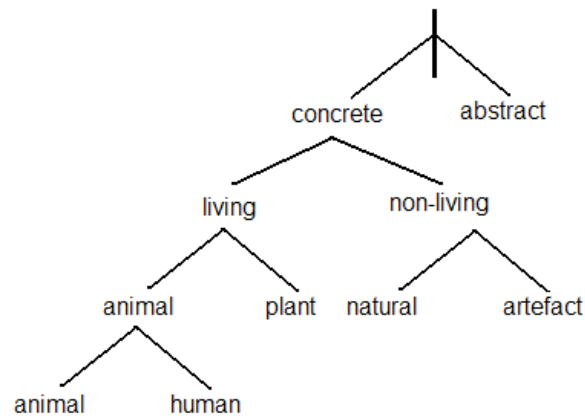


Figure 3: 'A diagram of semantic distance' (adapted from Goatly 1997: 39, fig.1.5)

In short, metaphors are *Approximative* when the distance between topic and vehicle is small, and *Transfer metaphors* when the distance is great. We can describe them as close or distant approximative/transfer metaphors. Thus, ex.2, '*Forests are carbon sinks*' could be described as a quite distant transfer metaphor, since *forests* and *sinks* are in the same semantic field for 'concrete', but there is some distance between 'plant' and 'non-living'. Goatly gives the metaphor '*Life is like a box of chocolates*' as an example of a very distant transfer, as this metaphor involves going through the top node, from concrete artefact to abstract (Goatly 1997: 39). The diagram presents a quite schematic approach to semantic distance, but can nevertheless be useful in order to discuss linguistic metaphors.

The second cline deals with the degree of conventionality. Goatly distinguishes between *Dead*, *Dead and Buried*, *Sleeping*, *Tired* and *Active* metaphors (1997: 32), which are increasingly unconventional with the order of mentioning. In essence, the cline follows this rule: the more unconventional, the more metaphorical, while the more conventional, the more literal. I will not go further into Goatly's terminology as concerns conventionality, as I have chosen to employ Semino's and Charteris-Black accounts of conventionality (see sections 2.4.3, 2.4.4 and 6.3).

The third cline deals with the signalling of metaphors by markers, such as *like*, *as*, *metaphorically*, *literally*, *practically* and a range of others. In Table 6.4 in his book, Goatly provides a table that shows how different markers have different effect for reducing or enhancing the metaphor (see Goatly 1997: 174-175).

The fourth cline describes the tension between Topic and Vehicle (Goatly 1997: 118); however, Goatly does not give a very unitary account of this cline. The way I understand it, contradictoriness is quite similar to approximation. That is, the more distant the Topic is from the Vehicle in terms of semantic categories, as in Figure 3, the more contradictory it is. The cline of contradictoriness will not be central to my discussion.

Lastly, there is the cline of explicitness. A metaphor that clearly expresses what the topic, vehicle and grounds are, like the metaphor in ex.2 above, is an explicit metaphor (Goatly 1997: 40). A metaphor that only provides the Vehicle, however, is much less explicit. Goatly gives the example '*Vancouver is a cold city*', in which *cold* is not given any explanation as concerns the Topic and Grounds. However, it is nevertheless quite easy to understand, because *cold* is conventionally used to mean 'unfriendly', says Goatly. In other words, explicit metaphors are often easier to interpret than less explicit ones, but conventionality and marking can contribute to making the meaning quite clear nonetheless.

I will use Goatly's classification of metaphors as presented above to some extent in my discussion of the findings. Now, let us have a look at Charteris-Black contributions to metaphor theory.

2.4.3 Charteris-Black

Charteris-Black gives separate definitions of linguistic and conceptual metaphor. And like Goatly, he considers metaphor a pragmatic issue.

According to Charteris-Black, definitions of metaphor should include linguistic, cognitive and pragmatic criteria because metaphor is a phenomenon that cannot be explained by means of only semantic, cognitive linguistic or pragmatic theory (2004: 20). In order to sum up these criteria, I allow myself to suggest some examples.

The linguistic criteria that Charteris-Black give for defining a metaphor is that there is semantic tension caused by (1) *Reification*: a term that conventionally refers to

something that is concrete is used to refer to something that is abstract, while the target domain is abstract, as in ‘The path to a sustainable future’, in which the different efforts made to achieve a sustainable future is talked of in terms of a physical entity, namely *the path*; (2) *Personification*: a term that is conventionally used to refer to something that is animate is used to describe something that is inanimate, as in ‘Climate change threatens everyone’, in which the inanimate event CLIMATE CHANGE is talked of as an animate entity that is capable of threatening; and (3) *Depersonification*: a term that is conventionally used to refer to something that is inanimate is used to describe something that is animate, as in ‘She is the sun’, in which a person is talked of in terms of something inanimate (2004: 21).

The cognitive criterion is basically that a metaphor is caused by (and may cause) a shift in the *conceptual system*, which is a result of a psychological association between the source domain and the target domain (2004: 21).

The pragmatic criterion is that a metaphor is ‘an incongruous linguistic representation that has the underlying purpose of influencing opinions and judgements by persuasion’ (2004: 21). Referring to Sadock, Charteris-Black says that ‘metaphor is beyond the scope of semantics because it is inherently indirect and relies on a conflict between what is said and what is meant’. Metaphors lead the hearer to search for a relevant interpretation that can reconcile this conflict (Charteris-Black 2004: 10). Thus, Charteris-Black seems to share Goatly’s view that metaphor is a matter of pragmatics, although he does not refer to Sperber and Wilson’s Relevance theory. As will become evident in the Methodology section (section 5), Charteris-Black believes that *critical metaphor analysis* can reveal the underlying opinions and attitudes of speakers and writers.

Charteris-Black gives separate definitions for conventional and novel metaphors. In short, he says that conventional metaphors are metaphors that are frequently used, and that we are therefore usually not aware of the semantic tension they involve. Novel metaphors, on the other hand, are metaphors that have not become part of a language community, and we are therefore more aware of their semantic tension (2004: 21-22).

In discussing conceptual metaphors, Charteris-Black claims that they are ‘the reverse of linguistic metaphors’ (2004: 16). While linguistic metaphors *cause* semantic tension, conceptual metaphors *resolve* this tension. In Charteris-Black’s terminology, a *conceptual metaphor* is a statement, such as ARGUMENT IS WAR or ENVIRONMENTALISM IS WAR that serves to ‘resolve the semantic tension of a set of metaphors by showing them to be related’. He also uses the term *conceptual key*, which is a statement that serves to ‘resolve the semantic tension of a set of conceptual metaphors by showing them to be related’ (2004: 21-22). Charteris-Black sees conceptual metaphors and conceptual keys as valuable notions for describing and classifying figurative language, and for explaining the motivations for using particular linguistic metaphors (2004: 16). As will become evident in the sections 5 and 6, Charteris-Black’s description of metaphor and the methodology he proposes, i.e. critical metaphor analysis, are central to this thesis.

Soon, we shall go on to have a look at the persuasive effects of metaphor, but before we do so, let us examine Semino’s account of metaphor.

2.4.4 Semino

Taking the quote from Semino (given in section 2.4.1) into consideration, it is quite clear that she regards the distinction between linguistic and conceptual metaphor to be crucial, particularly when doing metaphor research based on linguistic material (as opposed to doing psychological experiments, by for example testing on-line metaphor comprehension in a group of people).

Semino gives definitions of conceptual and linguistic metaphor similar in content to those given by Goatly and Charteris-Black, and her definitions will therefore not be reproduced here.

However, she makes a comment on her definitions that I find valuable. Semino emphasises that she defines metaphor in language ‘at the “theory” level, rather than at the “processing” or “neural” levels’. Although a particular word in a particular context can be analysed as being used metaphorically, this does not mean that the speaker or writer necessarily intended it as such, or that the hearer/reader will process

it as such. The word merely has ‘the *potential* to be recognized and processed as metaphorical’ (2008: 13). This view will be the valid one in this thesis as well, and the reasons for this will be accounted for in section 5.

Referring to Goatly, Semino also sees metaphor as a matter of degree. However, she concentrates primarily on conventionality. For the purposes of her analysis, she chooses to operate with a broad distinction between conventional and novel metaphorical expressions. She regards metaphorical expressions as ‘conventionalised when the relevant metaphorical meaning has become lexicalised, so that it is normally included in dictionaries alongside nonmetaphorical (basic) meanings’, and as ‘novel, creative or innovative when the relevant metaphorical meaning has not become lexicalised and is therefore not included in dictionaries’ (2008: 19). These descriptions are quite similar to those given by Charteris-Black, but Semino’s descriptions are somewhat firmer, since she lets the distinction rely on dictionary meanings. For this reason, Semino’s description of conventional and novel metaphor will be adopted in this thesis.

Like Charteris-Black, Semino recognises the use of metaphorical language as a persuasive or rhetorical device. She refers to Cameron’s distinction between three types of ‘systematicity’ of metaphorical expressions as useful for discussing the varying ‘ideological implications of particular patterns of metaphorical expressions’ (2008: 34).

In Cameron’s terms, ‘global systematicity’ applies to the use of particular metaphors across a range of genres and discourses (for example spatial metaphors for time). ‘Discourse systematicity’ applies to the use of particular metaphors within specific ‘discourse communities’, discourses or genres. Finally, ‘local systematicity’ applies when the use of particular linguistic metaphors is restricted to a particular text or discourse event. ‘While all uses of metaphor may have ideological implications, those that are discursively systematic are particularly significant, since they can be seen as the reflection of the shared beliefs and assumptions of the members of particular social groups’, says Semino (2008: 34).

Since this thesis endeavours to discuss any possible ways of thinking reflected in the use of metaphors, cf. Q3i, I consider Cameron's terminology as reported by Semino as relevant to the discussion of the findings.

In the next section we will have a closer look at the persuasive effect of metaphor. As mentioned in section 1.3, section 3 should provide the basis for discussing the ways of thinking that possibly underlie the metaphors used in climate change discourse, as well as effects of the use of such metaphors, cf. Q3i and Q3ii. It focuses particularly on the persuasive effect of metaphor and can be seen as an introduction to the critical view that this thesis aims to have.

3 The persuasive effect of metaphor

As mentioned above, Semino (2008) and Charteris-Black (2004), as well as Goatly (1997), emphasise the pragmatic effects of metaphor. In this section, we will have a look at some descriptions of the persuasive force of metaphor.

Persuasion necessarily involves speaker intention as well as hearer interpretation, and is thus a pragmatic phenomenon. In Goodall's terms, the use of metaphor is an invitation to the hearer to evaluate the intentions, motives, goals, and so forth, of the speaker (reported in Mio 1997: 123). Similarly, Charteris-Black suggests 'when employing metaphor, the speaker invites the hearer to participate in an interpretative act'. If the hearer succeeds in overcoming the tension between what is said and what is meant, it means the speaker and the hearer have engaged in 'a joint activity of meaning creation' (2004: 12).

As hinted in section 2.3.3 above, what Lakoff and Johnson call the 'highlighting and hiding' effect of metaphor (2003: 10-13) has something to do with the persuasive effects of metaphor. Other ways of describing the 'highlighting and hiding' characteristic of metaphor is to say that metaphors are searchlights that illuminate only certain parts of the terrain, while leaving other parts in the dark (Fill and Mühlhäusler 2001: 3), that metaphor provides 'a perspective from which to gain understanding of that which is metaphorically portrayed' (Kittay 1987: 13), and that:

Metaphor is a solar eclipse. It hides the object of the study and at the same time it reveals some of its most salient and interesting characteristics when viewed through the right telescope. (Paivio cited in Mio 1997: 113)

Whether one chooses to call it ‘highlighting and hiding’ or ‘providing a perspective’ is perhaps not of great importance. But what all these different ways of describing this particular effect of metaphor attempt to underline is that one of the reasons that we talk about *something* in terms of *something else* is that it enables us to emphasise certain aspects or qualities of that something. What further effect or function does this have? Or, put in a different way: Why do we use metaphors?

Because metaphors have the effect or characteristic of highlighting and hiding, they are seldom neutral, Semino points out (2008: 32-33). Talking about a particular issue in terms of something else necessarily portrays that particular issue in a certain way. Metaphors enable us to communicate specific opinions and attitudes.

That is, if I believe that arguments share some similarities with war, I could describe arguments with the same terms as those occurring in Lakoff and Johnson’s list (see section 2.3.3 above). Now, consider the following example taken from the material.

- 3 Both declarations recognize the urgency of combating climate change through the Kyoto Protocol and through nationally appropriate mitigation actions. (G 8)

Then consider example 4, which has been constructed by me.

- 4 Both declarations recognize the urgency of cooperating to prevent climate change through the Kyoto Protocol and through nationally appropriate mitigation actions.

In the example from the material, the effort required to reduce or prevent future climate change is talked about as combating. Ex.4 is a different version of the sentence in ex.3, in which *cooperating to prevent* substitutes *combating*. Suppose that I believed there were certain similarities between the various kinds of efforts than can be made to prevent climate change and a physical fight. If I choose *combating* instead of *cooperating to prevent*, this would serve to emphasise my view. The message

would be slightly different using one or the other expression. In this context, *combating* is metaphorical, and involves talking about environmentalism in terms of physical fight.

Besides claiming that linguistic metaphors are realisations and possible evidence of underlying conceptual metaphors, and thus that they may reveal something about how we think, Lakoff and Johnson also claim that metaphors can *affect* how we think. Metaphors ‘play a central role in the construction of social and political reality’ (Lakoff and Johnson 2003: 159). Accordingly, talking about arguments or environmentalism in terms of war can possibly affect our way of thinking about arguments and environmentalism. Let us turn to Mio (1997) in order to consider the persuasive effects that metaphors can have.

Mio uses a cognitive psychology information-processing model to explain the force of metaphor (1997: 117). The model suggests that people’s ability to process information is limited, and that we therefore depend on some cognitive heuristic to handle the task. Metaphor can function as such a cognitive heuristic, a ‘rule-of-thumb’ that does not take all pieces of information into account (1997: 117), or an ‘information-processing tool’ that can contribute to simplify decision-making (1997: 130). Also Harré, Brockmeier and Mühlhäusler claim that metaphor functions as ‘one of the most powerful tools in the generation of new knowledge’, that can help us advance the knowledge and understanding of environmental matters (1999: 99-114). How can metaphor have such effects?

Many concepts are so complex that we cannot fully understand them, and it is possible to imagine that having only certain aspects of them highlighted (and other aspects hidden) by a metaphor can help us understand them better. On the other hand, ‘a metaphorical concept can keep us from focusing on other aspects of that concept that is inconsistent with that metaphor’ (Lakoff and Johnson 2003: 10). In short, what is not highlighted, we will not pay attention to. In other words, metaphorical language can distract us, and perhaps even manipulate us. Thus, judging the highlighting and hiding effects of a metaphor can tell us something about ‘how’ persuasive it is, or in which direction the metaphor possibly persuades us. That is, considering the

highlighting and hiding effects of a metaphor can make us more aware of the persuasive effect of the metaphor.

Moreover, metaphors can justify courses of political action, and can thus play a significant role during times of heightened public anxiety. Examples of successful metaphors used in politics are President Roosevelt's governmental program New Deal and the Cold War metaphor, according to Edelman (reported in Mio 1997: 118). Such metaphors make political issues understandable to the public, and can thus contribute to making the public feel a part of the political process and supportive of political decisions.

Mio also gives an account of what the persuasive effects of metaphors are like on a more psychological level. What happens in our minds when we are persuaded? Considering their functioning as cognitive heuristics, persuasion might involve what Freud called relief tension (reported in Mio 1997: 121). If you do not understand a certain issue, and a metaphor helps you understand it, you will experience a relief from tension, and this will in turn result in a feeling of enlightenment, or persuasion (Mio 1997: 121-122).

Furthermore, some assign to metaphor the ability to stir emotions, and see this as contributory to persuasion. For example, MacCormac suggests that one of the principal functions of metaphor is to express emotion, and that the effect that particular metaphors may have on a hearer will vary across individuals and contexts (cited in Goatly 1997: 158). Secondly, Jamieson sees metaphor's ability to stir emotions as a matter of combining the rational with the irrational: 'Metaphors provide a good example of the possible intertwining of the rational and the nonrational, they permit a vagueness which enables them to carry cognitive and emotive potential within the framework' (cited in Mio 1997: 123).

Charteris-Black proposes a method for doing *critical metaphor analysis*. In short, the method aims to reveal the intentions of language users. Critical metaphor analysis constitutes a central part of the method used in this study, and I pay more attention to it below, in sections 5 and 6. For now, I will only say that conceptual metaphors have an important role to play in critical method analysis. Therefore, the following section

includes an outline of which conceptual metaphors were found in earlier studies considered relevant to this study. This is crucial in order to provide some answers to Q3i and Q3ii, i.e. in order to say something about whether the metaphors possibly reflect any particular ways of thinking about climate change and to what extent the metaphors are persuasive.

4 Climate Change Discourse

As stated at the very beginning of this thesis, and also as expressed through the research questions, the overarching aim of this thesis is to give a critical analysis of climate change discourse with special focus on metaphorical language, in order to eventually say something about how climate change is talked of in the media and about how we as readers of news stories might be persuaded to think about climate change. However, what is climate change discourse? It is time to consider what climate change discourse and climate change is. As argued in section 1.3, section 4 is important for discussing Q3i and Q3ii, since it provides information about the larger context in which the linguistic metaphors occur. This is essential in order to provide explanations to the motivations and effects of the metaphors used in the material. As suggested above (section 1.3): if we believe that climate change will influence our way of living in a significant way, then this can help explain why we use certain metaphors to talk about climate change. Thus, in order to see the primary findings in a broader perspective, we need to have a clear idea of what climate change really is and what its status as a political issue is.

Firstly, let us consider what *discourse* is. According to Cook, ‘discourse’ is simply ‘stretches of language perceived to be meaningful, unified, and purposive’ (2006: 156). Additionally, Semino says that the meaning of *discourse* as a non-count noun (without plural) is ‘naturally occurring language use in authentic situations’ (2008: 227), while the meaning of *discourse* as a count noun (with ‘discourses’ as plural), is ‘ways of speaking or writing about particular topics (e.g. medical discourse) or in particular settings (e.g. classroom discourse), usually from different perspectives’ (2008: 29).

In other words, the first two definitions of discourse given above can be represented by a variety of different genres, for example text books, scientific articles, news stories, literature, radio shows, speeches, conversations, poems and song lyrics, and the discourse in the third sense, i.e. in the sense ‘ways of speaking and writing’ can be studied by looking at different kinds of text.

So, in order to study ways of talking about climate change, i.e. in order to study climate change discourse, one may investigate any kind of text that treats the topic of climate change. It is also possible to focus on a certain aspect of the discourse, for example metaphorical language, as in this thesis.

Considering Lakoff and Johnson’s assumption that metaphor is pervasive in human language, it seems reasonable to expect that there is metaphorical language in climate change discourse, just as in any other type of discourse. Importantly, however, it also seems reasonable to assume that climate change discourse material not only contains metaphors used about climate change, but also metaphors used about other topics. Hence, in order to be able to do a focused metaphor analysis of climate change discourse material I need to be careful about the following questions: Which metaphors are relevant when investigating climate change discourse? Which metaphors describe issues that have to do with climate change? What issues have to do with climate change? It seems necessary to give climate change discourse, climate change and environmentalism a closer look. What is climate change discourse about? And what is climate change?

The following subsections give a description of climate change discourse, climate change in itself, i.e. how it can be defined, and a description of climate change as a political issue. This also includes the definition of environmentalism that is valid for this thesis. Then, the next subsections present some of the findings made in earlier research done on environmental discourse, cf. the last paragraph of the previous section.

4.1 Climate change discourse and environmental discourse

Firstly, I regard climate change discourse as part of environmental discourse, since climate change is an environmental issue. Accordingly, I suggest we take a step back in order to consider what the superordinate categories of ‘environmental discourse’, and also ‘environmentalism’, are.

Firstly, what issues are regarded environmental issues? In order to say something more specific about this, I draw on Dryzek (2005).

Environmental issues are, first of all, very complex. As Dryzek puts it, they ‘do not present themselves in well-defined boxes labelled radiation, national parks, pandas, coral reefs, rainforest, heavy metal pollution, and the like. Instead they are interconnected in all kinds of ways’ (2005: 8). Dryzek uses the very issue of climate change as an example to illustrate how interconnected and multidimensional environmental issues often are:

issues of global climate change due to buildup of carbon dioxide in the atmosphere from burning fossil fuels relate to air pollution in more local contexts, and so to issues in transportation policy. These issues also relate to destruction of the ecosystems (such as tropical forests) which act as carbon sinks, absorbing carbon dioxide from the atmosphere; and to issues of fossil fuel reliance and exhaustion; and so to problems related to alternative sources of energy such as nuclear power. (Dryzek 2005: 8)

I would like to point out that my reporting of Dryzek’s views on these specific interconnections does not necessarily reflect my own views on these issues. The quote should merely serve the same purpose as it does as a part of Dryzek’s own account, namely the purpose of illustrating how complex environmental discourse can be.

However, I do believe it is possible to regard some of the interconnections described in the quote to be generally true. That is, environmental issues necessarily deal with natural phenomena such as ecosystems and the climate, and these are in themselves very complex. Furthermore, environmental issues often turn political issues, and political issues are also complex issues.

In correspondence with the definitions of discourse given above, environmental discourse is text material that treats a diverse range of complex environmental issues as described above. This thesis focuses on the environmental issue of climate change. This includes a focus on not only climate change in itself, but also on climate change as a political issue, and thus on environmental politics dealing with climate change. In other words, this thesis focuses on metaphors used for example about environmental policies dealing with climate change and climate change initiatives. This can tell us something about how we experience with climate change and about how we cope it.

We will now have a look at some definitions of climate change in order to gain a clearer picture of which issues are relevant. The next section provides a description of climate change and a description of climate change as a political issue as of today.

4.2 Climate change

4.2.1 Climate change

Firstly, ‘climate’ can be described in the following way:

Condition of the atmosphere at a particular location over a long period of time (from one month to many millions of years, but generally 30 years). Climate is the sum of atmospheric elements (and their variations): solar radiation, temperature, humidity, clouds and precipitation (type, frequency, and amount), atmospheric pressure, and wind (speed and direction). To the nonspecialist, climate means expected or habitual weather at a particular place and time of year. To the specialist, climate also denotes the degree of variability of weather, and it includes not only the atmosphere but also the hydrosphere, lithosphere, biosphere, and such extraterrestrial factors as the sun. (*Britannica Concise Encyclopaedia* 2006)

The same encyclopaedia defines *the atmosphere* as the gaseous cover that surrounds the earth, and says that nitrogen, oxygen and carbon dioxide, as well as some other gases, for example ozone, make up this cover. The composition of the gases in the atmosphere is determines the greenhouse effect, which can be described like this:

The warming of the atmosphere as some of its gases absorb the heat given out by the earth. Short-wave radiation from the sun warms the earth during daylight hours, but this heat is balanced by outgoing long-wave radiation over the entire 24-hour period. Much of this radiation is absorbed by atmospheric gases, most notably water vapour, carbon dioxide, and ozone, but also by methane and chloro-fluorocarbons. All of these may be called greenhouse gases. Without this absorption, which is also known as counter-radiation, the temperature of the atmosphere would fall by 30-40 °C. (*Geography dictionary* 2009)

It seems worth pointing out that according to the definition above, it is water vapour, carbon dioxide and ozone that to a higher extent than the other gases contribute to the greenhouse effect.

In sum, the *climate* is a very complex issue that depends on a range of factors. As concerns the term *climate change*, the Intergovernmental Panel on Climate Change (IPCC) gives the following definition:

Climate change in IPCC usage refers to a change in the state of the climate that can be identified (e.g. by using statistical tests) by changes in the mean and/or variability of its properties, and that persists for an extended period, typically decades or longer. It refers to any change in the climate over time, whether due to natural variability or as a result of human activity. (...) (IPCC 2007: 30)

The human activity relevant to climate change is primarily our use of fossil fuels and the consequent emission of carbon dioxide, or CO₂.

I believe these definitions suffice in order to make the following points: that the climate is a complex issue that involves the whole earth and thus all of what we call *nature*. Further, changes in the climate are results of natural variations in solar radiation, wind, temperature, precipitation and composition of gases in the atmosphere, and it also seems to be influenced by human activity.

The next section describes the most important aspects of the status of climate change as a current political issue.

4.2.2 Climate change as a political issue

Climate change has become an important political issue in many countries because of the serious impacts that climate change may have on a broad range of socio-economic matters. Presumably, all societies rely on a certain level of stability in the climate of the region in which they reside. Consequently, all societies are affected in some way by prospective changes in the climate.

Scientists forecast that the climate will change considerably during the next century, and that this will affect the living conditions for human beings in many ways. For example, climate change can result in more floods, droughts and wildfires that in turn can disturb ecosystems. Freshwater availability can be drastically reduced for millions of people as a consequence of climate change. In Africa, crop yields can be reduced by as much as 50%. The health status of millions of people can be affected through for example increases of malnutrition and diseases (IPCC 2007).

Yet, how can we know when the climate is changing? Or how much it is changing? Today, disagreement about how the dynamics of the climate of the Earth actually works revolves primarily around the following two issues; (i) the actual scale and impact of current climate change, and (ii) the extent to which human activity has influenced the climate.

The first issue generates questions such as: How can we know exactly 'how much' the climate has changed over the last 100 years? Has the mean global temperature increased or decreased during the last century? And what consequences will future climate change have on agriculture, on industry, on the economy as a whole, and, ultimately, on our civilisation?

The second issue generates questions like: Has the emissions of CO₂ from industry and cars resulted in higher temperatures? To which extent has such emissions influenced the climate? It also involves the question of whether we are to do something to prevent further climate change, and possibly what or how much.

These questions are central to current environmental politics. As explained in the preceding section, climate change is a complex issue. Firstly, it is complex in its nature, because it includes the atmosphere, the various kinds of ecosystems, as well as elements in outer space, such as the sun. Secondly, the climate is a complex issue because it is crucial to how human beings may live: to human civilisation. Climate change politics often revolve around *what kind* of solutions we should choose in order to deal with climate change, and also, to some extent, *how much* effort we should put into preventing climate change.

I restrict the presentation of different views on climate change to a short presentation of two views, namely the view held by the Intergovernmental Panel on Climate Change (IPCC) and the view held by James Lovelock, i.e. the Gaia theory. The first one seems to be the dominating one, at least in Western politics. The second one is by many regarded a somewhat extreme view, and is somewhat contrasting to the IPCC view. Presenting these two views will hopefully serve to provide some perspective to climate change as a political issue.

In January 2001, the *Inter-Government Panel on Climatic Change* reported that

An increasing body of observations gives a collective picture of a warming world and other changes in the climate system (...) Emissions of greenhouse gases and aerosols due to human activities continue to alter the atmosphere in ways that are expected to affect the climate (...) There is new and stronger evidence that most of the warming observed over the last 50 years is attributable to human activities. (IPCC 2001)

This view has been endorsed by most national and international science academies and professional societies. Consequently, this affects the global political debate on climate change and climate change discourse in general. To many, the view that human activity is a major cause of current and future climate change entails that we should take responsibility and do what we can in order to prevent climate change, especially taking into consideration that future generations will ‘inherit’ the earth in the condition in which current generations leave it.

The Gaia theory, as presented by James Lovelock (2006), also acknowledges the view that current and future climate change is a result of human activity, and that we

should try to prevent it. However, the theory also offers a somewhat different, and to some, extreme, perspective, that the earth is a self-regulating system (2006: 162), and that it is fighting back (2006: cover of book). Lovelock personifies the earth; he calls it by the name of the Greek goddess Gaia, assuming that this will contribute to ‘the widespread understanding of the true nature of the Earth’ (2006: 147).

Are any of these views of climate change reflected in climate change discourse, through the use of metaphor? Besides, may the metaphors used in climate change discourse possibly reflect any other views? These are questions that will be part of the analysis, cf. Q3i.

In the following sections we will see what views on nature, climate change and the earth have been revealed by earlier studies on environmental discourse.

4.3 Earlier research on metaphor in environmental discourse

This section presents earlier research that has been done on metaphor in environmental discourse.

4.3.1 Romaine: ‘War and peace in the global greenhouse’

Romaine examined ‘the role metaphorical thought plays in the scientific as well as popular discussion of key environmental issues such as global warming and loss of biodiversity’. She calls this discourse ‘Greenspeak’ (1996: 175). Her article is a discussion of the use of different conceptual metaphors used in environmental discourse, and how they are ideologically loaded (1996: 176).

The study is based on media reports as well as on scientific discourse about the environment. She draws on the international Earth Summit in Rio de Janeiro in particular. Unfortunately, Romaine does not give any specific account of what kind of method she used for identifying linguistic nor conceptual metaphors, and she does not provide any systematic overview of her findings.

In the first part of the article, Romaine 'lays out the central metaphorical systems used in reasoning about the state of the environment'. She claims that 'War, in particular, acts as the prime source domain' in metaphors used about the environment (1996: 175). Romaine identifies the conceptual metaphor ENVIRONMENTAL DEGRADATION IS WAR in an article in *The Sunday Observer*, and proposes that it relies on the interaction of the conceptual metaphors ARGUMENT IS WAR, POLITICS IS WAR and SPORTS IS WAR (1996: 178)

Further, Romaine discusses the use of the words *rape* and *robbery* to describe the practices of foreign logging companies in headlines in local and international newspapers. She concludes that the conceptual metaphor WAR IS VIOLENT CRIME is invoked by the use of these words (1996: 179).

One of the problems with using war metaphors in environmental discourse, Romaine comments, is that although war metaphors are used by the different participants in the discourse, there is not necessarily agreement on who the enemies or victims are, or even what the objectives of the 'war on the environment' are.

In the second part of the article, Romaine discusses the use of the EARTH IS A GREENHOUSE metaphor. She points out that if the earth is our home, we must protect it from invasion and harm, and keep it clean, safe and comfortable (1996: 181). Thus, in combination with the source domain of war, the 'earth as a greenhouse' model presents earth as the 'battlefield' of 'the war on the environment' (1996: 176). Besides, she claims that the greenhouse model of the earth can be used to emphasise the fragility of the environment.

Romaine continues by considering different ways of personifying the earth and nature. For example, in James Lovelock's Gaia theory, the earth is personified as the goddess Gaia. Romaine claims that one of the implications of the personification of the earth, or nature, is that human beings can do bodily harm to nature, and that nature can become 'sick'.

A number of accounting metaphors that conceptualise nature as a resource that can be used, squandered, saved, and so forth are also present in environmental discourse,

according to Romaine. An example is talking of ‘carbon dioxide budgets’, ‘natural capital’ and ‘ecological treasures’. Apparently, she sees the conceptual metaphor WORLD IS A GLOBAL CASINO as part of such economic metaphors (Romaine 1996: 185-186).

Furthermore, Romaine sees the notion of ‘sustainable growth’ as linked to the conceptual metaphor LIFE IS A JOURNEY, as in ‘road map to sustainable development’ (*Business Week*, cited in Romaine 1996: 187).

Finally, Romaine also comments on the relation between environmentalism and moral issues. ‘Greenspeak and its issues are often charged with moral significance’ (Romaine 1996: 189). For example, being ‘clean’ and ‘green’ is synonymous with being moral, as in the slogan ‘Green is good’ (1996: 176). Romaine does not report where exactly this slogan is taken from.

4.3.2 Harré, Brockmeier and Mühlhäusler: *Greenspeak*

Harré, Brockmeier and Mühlhäusler also use the term ‘Greenspeak’ to talk about environmental discourse in their book *Greenspeak* (1999). They use ‘Greenspeak’ as ‘a catch-all term for the ways in which issues of the environment are presented, be it in written, spoken or pictorial form’ (1990: vii). Further, they say that it ‘has become a worldwide cluster of dialects’.

One of the aims of the book *Greenspeak* is to raise the critical awareness of the way environmental matters are presented (1999: 2). This is particularly important because the environmental crisis of our times is assumed to be ‘at root a discursive phenomenon’ (1999: 3). The authors of *Greenspeak* have used material from reports of the Rio Summit of 1992, the Manifesto of the British Green Party, scientific papers from journals such as *Scientific American*, etc. in order to explore environmental discourse (1999: viii). However, like Romaine, they too fail to give a thorough description of their research methods.

Like Goatly, Harré, Brockmeier and Mühlhäusler believe that metaphor is a matter of degree. They assume that ‘The boundary between the literal and the metaphorical uses

of language is group and culture specific' (1999: 92). The knowledge a community or society holds or embraces at a certain point in time will affect metaphorical use of language. They give the example that the sentence 'Human beings are apes' will probably be understood more literally if an evolutionary biologist utters it, and more metaphorically if a person from Jehovah's Witnesses utters it.

Further, Harré, Brockmeier and Mühlhäusler believe that metaphor is a matter of knowledge and beliefs (1999: 92-93). They seem to agree with Mio (see section 3) that metaphors can function as cognitive heuristics. They report Mills' proposal of three core metaphors of nature that Western societies have pursued during the last millennium (1999: 93), namely: (i) in the Middle Ages, nature was seen as a book written by God, (ii) in the Renaissance, nature was seen as a reflection of the human body, (iii) from the Enlightenment onward, the world is seen as a machine: first a clock, then as a kind of steam engine and more recently as a computer.

Of these, the Enlightenment idea of the world as a machine has dominated the most basic and wide-spread metaphors in the linguistic representation of ecological processes and the relationship between humans and their environment, according to Harré, Brockmeier and Mühlhäusler (1999: 7). The machine metaphor involves seeing nature as possible to manipulate by human beings, and it seems also to involve the human desire of controlling nature and of improving nature (1999: 94), to make it a 'better machine'.

4.3.3 Meisner: 'Old vinegar in new bottles'

Other metaphors used about nature are 'nature as economy', 'nature as home', 'nature as music', 'nature as an agricultural crop', 'nature as living being' and 'nature as miracle' (Meisner 1995: 11-12). Meisner (1995: 13) seems to suggest that metaphors may constitute a kind of paradigm. For example, he claims that Descartes and Newton were victims of the clockwork universe (1995: 13).

Meisner aims to consider how we might judge the value of metaphors of nature, from an ecocentric perspective. He suggests two principal lines along which we should be able to make such judgements. Firstly, we should consider what sort of conceptual

relationships the metaphor suggests for nature's internal organisation, and what sort of relationship humans have to nature. Does the metaphor depict nature as an integrated whole or as an assemblage of parts? And does it depict humans as part of or separate from nature? Is the metaphor dualistic? Does it depict humans as in the center of nature; is it anthropocentric? Secondly, says Meisner, we should consider what sorts of feelings towards nature the metaphor evokes. Does it evoke a positive and caring attitude, or indifference and fear? (Meisner 1995: 14).

The 'nature as home' metaphor may be seen as anthropocentric, as it depicts nature as something that was made for human beings, and also potentially dualistic, as it depicts nature as a physical structure that humans are not actually part of, Meisner comments.

4.3.4 Political metaphors

Considering that environmental discourse to a large extent revolves around environmental politics, it seems reasonable to take some more general 'political metaphors' into account as well. I will give a short presentation of the accounts of metaphor in politics given by Semino (2008), Charteris-Black (2004), Kövecses (1999) and Semino and Masci (1996).

Semino (2008) claims that the following elements or aspects of the political domain that are often described metaphorically, i.e. function as target domains:

- The current state of affairs, and particularly the problems that needs to be solved;
 - Causes and solutions to problems;
 - Plans and policies;
 - Future states of affairs, including positive scenarios (resulting from one's policies), and negative scenarios (resulting from opponent's policies);
 - Various types of participants and entities in the political domains (including private citizens, parties, organizations, institutions, states);
 - The 'in-group' (oneself, one's party, government, social group, nation or race), as opposed to the 'out-group' (other individuals, other parties, social groups, nations or races);
 - Politics and political action themselves.
- (Semino 2008: 91)

The reason is that most of these entities and phenomena are rather complex, consisting of many interconnected individuals, elements and relations, and they are also rather abstract, since they can neither be perceived directly nor be clearly defined. This makes them good candidates for being talked about metaphorically (2008: 91-92).

Some source domains are particularly popular for talking about politics, at least in Western politics. These are for example the domains of PATH/JOURNEY, CONTAINERS, SPORTS, WAR and PEOPLE (i.e. personification). They are applicable to a range of other target domains as well, but each of them have particular applications in the domain of politics (2008: 92).

5 Methodology in metaphor research

As mentioned above, Lakoff and Johnson has received substantial criticism for using decontextualised sentences as evidence for underlying conceptual metaphors, cf. the quote from Semino above (see section 2.4.1). In this section, we will have a look at what implications such objections have had for current metaphor research.

5.1 Method and metaphor

Steen says the following about Lakoff and Johnson's use of examples: 'these clear cases serve the purpose of demonstration; they have not been systematically and exhaustively collected from large stretches of discourse, but they have been selected for their persuasive power' (1999: 57).

According to Cienki, research methodology remained an unmentioned subject in research on conceptual metaphors for many years. It followed the Chomskian tradition (see section 2.3.1) of relying on intuition for evidence, because this was the dominant field of linguistics in North America and much of Europe (2004: 4).

Deignan (2005: 95) illustrates that using elicited material in metaphor research may result in somewhat erroneous identification of metaphorical expressions. She

compared some examples of metaphorical expressions used in a particular study to concordances from the 524 million word corpus The Bank of English, and found that several of the linguistic metaphors that had been identified through mere intuition turned out not to be present in the Bank of English.

Gibbs gives a firm criticism of metaphor research specifically, as well as of linguistic research more generally, in the article ‘Why cognitive linguists should care more about empirical methods’ (2007). He is impressed with cognitive linguists’ research on the one hand, but sceptical on the other, as he puts a question to that introspection is used so widely by cognitive linguists. ‘How does one even establish that a given word or expression in context expresses metaphorical meaning?’ Gibbs asks. He criticises cognitive linguists for not explaining sufficiently the methods employed in linguistic analyses, and says that very few writings on methods in cognitive linguistics have been published (2007: 6-7).

Gibbs concludes that cognitive linguists should continue doing what they are good at, namely conducting systematic analyses, and not try to become experimental psychologists or computer scientists. They should, however, try to conduct their research in a more empirical way, to better share their knowledge (2007: 17).

Thus, Gibbs is strongly recommending any metaphor researcher to be explicit about which methods she uses, as well as to remain conscious about the difference between linguistic and psychological research, although cognitive linguistics is on the borderline between the two.

One step towards a more empirical way of doing research on metaphor is to use natural-occurring language instead of elicited material. After all, CMT is based on the assumption that metaphor is ubiquitous in *normal, every-day* language use, so should it not be tested against normal, every-day language? This point is emphasised by Goatly (2002: 72) and also by the Pragglez Group¹, which says that exploring

¹ The original members of Pragglez were Peter Crisp, Raymond Gibbs, Alice Deignan, Graham Low, Gerard Steen, Lynne Cameron, Elena Semino, Joe Grady, Alan Cienki and Zoltan Kövecses (Group 2007: 37)

‘metaphor in the wild’ is necessary to make claims about the ubiquity of metaphoric language (Group 2007: 1).

The following sections present linguistic research methods and also definitions of linguistic and conceptual metaphor that are compatible with the criticism of metaphor research as presented above. That is, the methods presented below are based on the investigation of natural-occurring language and for doing research on linguistic metaphor. More specifically, we will now have a look at corpus linguistics, critical discourse analysis and metaphor identification procedures.

5.2 *Corpus linguistics and discourse analysis*

As recognised by a number of linguists (see for example Semino 2008, Wikberg 2008, Charteris-Black 2004, Deignan 2005), the use of naturally occurring language has become increasingly important in metaphor research.

Basing language studies on naturally occurring language is seen as more scientific than basing them on material derived from intuition. Using naturally occurring language is the very central idea of both of the two methodologies corpus linguistics and critical discourse analysis.

In short, a corpus is a finite collection of texts; or of *discourse*. Accordingly, discourse analysis can be the analysis of a corpus. That is, corpus linguistics and discourse analysis are two compatible methodologies, as recognised by for example Charteris-Black (2004, 2006), Semino (2008, 1996) and Deignan (2005).

As concerns discourse analysis, I have decided to focus on critical discourse analysis, since this is the type of discourse analysis that is relevant to this thesis.

5.2.1 *Corpus linguistics*

A corpus may be defined more or less broadly. In principle, says McEnery and Wilson, ‘any collection of more than one authentic text’ can be called a corpus (2001: 29). Today, however, a corpus is usually machine-readable, of finite size and sampled

in order to be maximally representative of the language variety under consideration (2001:32).

There are various types of corpora in the form of databases in order to allow for different kinds of language studies. These differ in terms of composition, i.e. for example in size, language, genre, or which period the texts are from. They may consist of only written or only oral material, or a mix, and they may for example contain only newspaper articles or a mix of several genres. The British National Corpus (BNC), consists of 100 million words of late-twentieth century British English and contains oral as well as written material, and includes a variety of genres. The International Corpus of Learner English (ICLE), on the other hand, is a corpus of essays on different topics written by advanced learners of English.

Already available corpora, such as those mentioned above, may allow for language research within grammatical studies, lexicography, sociolinguistics, historical linguistics, as well as within contrastive analysis and language acquisition (Meyer 2002: 11-28). It is possible to carry out quantitative as well as qualitative analyses.

Most corpora have been annotated, meaning that each word in the corpus has been marked with information about word class, etc. Thus, corpus methods nowadays usually involve using software programmes in order to make for example a concordance list. This involves searching for a certain word you are interested in, say, 'climate', in order to look at which words occur immediately before and after it.

Thanks to the general development in computer technology in the last two decades, corpus linguistics has become very important in language studies. It has become easier to store large quantities of digital and machine-readable texts, as well as to create effective software programmes for corpus searches.

5.2.2 Critical discourse analysis

As already mentioned above, the focus of discourse analysis is on actual instances of language use. In 'traditional' discourse analysis, the focus is primarily on how meanings are established between utterances (Charteris-Black 2004: 30).

In critical discourse analysis (CDA), however, the focus is on ‘the *selections* that are made in constructing texts, on the factors that constrain and determine these selections (i.e. their cause), and on their effect’ (Charteris-Black 2004: 30). CDA aims to make explicit underlying political and ideological motivations of language use. In order to do this, the methodology combines linguistic approaches with sociology, politics, history and psychology, and thus places texts within a social context (Charteris-Black 2004: 29-30).

According to Charteris-Black, analysis of metaphor is one way of doing CDA. This is further explained in section 5.4.4, ‘Charteris-Black: Critical metaphor analysis’.

5.3 Metaphor research and corpus linguistics

In recent years, corpus linguistics has had a major influence on metaphor research (Wikberg 2008: 33). The Pragglejaz Group (2007: 1) calls the use of real discourse in metaphor research ‘one of the major developments in metaphor research the last several years’. The role of corpora in metaphor research is also evident in for example Charteris-Black (2004), Deignan (2005) and Semino (2008).

The main advantage that corpus linguistics brings to the study of metaphor is the very central idea behind the methodology: that the use of real language makes linguistic study more scientific. Corpus methods allow for descriptive linguistics as opposed to prescriptive linguistics; for describing the way language is actually used by people, rather than aiming to establish strict rules for national standard languages.

There have been attempts to create software for the automatic identification of metaphorical expressions, but no reliable automatic method has yet been established (Semino 2008: 197). Deignan (2005: 93) suggests three ways in which corpora can be employed in order to carry out metaphor research.

The first method involves starting with the assumption that linguistic realisations of a certain conceptual metaphor, for example HAPPY IS UP, may be found in a certain corpus. One can make a list of lexical items that are used to express happiness and/or

‘upwardness’ in order to retrieve concordance lines, and then manually decide whether each use may be claimed to be a linguistic realisation of HAPPY IS UP. A second method involves combining a small and a large corpus (see Cameron and Deignan 2003). Most, or all, linguistic metaphors can be identified manually in the small corpus, and then concordanced from the larger corpus to make more generalisable observations. The third way involves working with lexicographers and asking them to flag metaphorical uses on their database; however, such opportunities occur only rarely.

Computer programmes can organise language data, but they cannot identify and describe grammatical patterns, meaning and pragmatic use (Deignan 2005: 92). Only a human analyst can do this, so a metaphor researcher must to a large extent depend on manual analysis and ‘informed intuition’ (Deignan 1999: 180). Deignan points out that in corpus linguistics, the direction of investigation is from linguistic form through meaning (2005: 92). In other words:

It is not possible to work the other way around; that is, there is no automatic way of discovering the linguistic realisations of any conceptual metaphor, because a computer cannot tell the researcher anything about speaker meaning. (Deignan 1999: 180)

In other words, a metaphor researcher investigating linguistic metaphors needs a procedure for identifying and interpreting linguistic metaphors that can ensure some degree of reliability. That is, a procedure that can at least to some extent ensure that other researchers will make the same decisions. And, of course the procedure must be designed for investigating linguistic material: to go from linguistic form through meaning.

Several linguists have proposed procedures for identifying metaphors in real discourse. We will now have a look at these, and how they deal with the questions concerning linguistic versus conceptual metaphor. Finally we will go on to have a closer look at critical metaphor analysis.

5.4 Metaphor identification procedures

Lakoff and Johnson's idea of metaphor is 'understanding and experiencing one kind of thing in terms of another' (2003: 5). However, they do not actually provide a sufficient definition of metaphor for identifying linguistic metaphors in real discourse.

Steen comments:

It is ironic that cognitive linguists are going out of their way to show that linguistic metaphor is fundamentally conceptual, but that in doing so, they have neglected the method for showing how they get from linguistic metaphor to conceptual metaphor in the first place. (Steen 1999: 58)

The quote is from the article 'From Linguistic to Conceptual Metaphor in Five Steps' (1999: 57-77), in which he proposes a conceptual metaphor identification procedure, and thereby attempts to build a bridge between linguistic and conceptual metaphor. This section provides a presentation of Steen's procedure, as well as a review of it, done by Semino *et al.* (2004), followed by a presentation of the Pragglejaz Group's 'metaphor identification procedure', and, lastly, I present Charteris-Black's 'critical metaphor analysis'.

5.4.1 Steen: 'From linguistic to conceptual metaphor in five steps'

Steen calls his procedure 'a logical reconstruction' of the assumptions that lead linguists to arrive at mappings such as CHANGE IS MOVEMENT. 'How does the cognitive linguist get from linguistic metaphor to conceptual metaphor?' he asks (1999: 57), in accord with the problem presented in section 5.1 above. In other words, how should we go about deriving conceptual metaphors from linguistic metaphors encountered in discourse?

'It has sometimes remained an act of faith that particular metaphors in language reflect particular metaphors in thought', Steen says (1999: 57), thereby addressing the problem concerning linguistic versus conceptual metaphor and the need to use real discourse in metaphor research. He emphasises that he is dealing with metaphor analysis, not metaphor understanding (1999: 59). According to him, metaphorical correspondences between domains such as those presented by Lakoff and Johnson (e.g. CHANGE AS MOVEMENT) are 'at best the output of the last step' of the procedure

he intends to suggest, and they would ‘probably hold only in ideal cases’ (1999: 58). However, Steen does believe that metaphor analysis can make use of theories of metaphor understanding for the identification of different stages in the analytical procedure.

The five steps of Steen’s procedure are based on the Lakovian definition of metaphor (see section 2.3.3), and can be summed up in the following way:

The first step deals with ‘*metaphor focus identification*’. The ‘*focus*’ of a metaphor is ‘the linguistic expression used non-literally in the discourse’ (1999: 60-61).

Step 2 is ‘*metaphorical idea identification*’, and involves identifying what Steen calls ‘metaphorical idea’ (which corresponds to what Lakoff and Johnson call ‘target’, and what Goatly calls ‘topic’ (see sections 2.3.3 and 2.4.2)). It also involves identifying the relationship between the metaphorical idea and the focus (1999: 62).

The next step, ‘*nonliteral comparison identification*’, involves identifying the underlying comparison between the metaphorical focus and the metaphorical idea (1999: 66-68). This seems to correspond to the ‘grounds’ or ‘groundings’ in Lakoff and Johnson’s and Goatly’s terminology respectively (again, see sections 2.3.3 and 2.4.2).

Step 4, ‘*nonliteral analogy identification*’, involves interpretation of the focus and the identification of the vehicle (this is the term that Steen uses). This step is ‘highly interpretative’ and Steen underlines that ‘interpretation must be kept on the leash’ (1999: 68-69). Focus interpretation involves finding a literal equivalent for the metaphorical expression. While the focus interpretation is richly constrained by the context of the metaphor, vehicle identification has to rely on ‘prototypical or default knowledge about the source domain’. Vehicle identification is difficult because more than one source domain can possibly be associated with the vehicle (1999: 71).

Lastly, there is step 5, ‘*nonliteral mapping identification*’, which involves ‘filling out the conceptual structure of the two sides of the literal analogy, the source and the target domain’. The result of step 5 should allow the analyst to derive sets of

correspondences between the two domains. In fact, step 4 can be seen as a summary of these correspondences, so steps 4 and 5 may possibly be reversed, says Steen (1999: 72).

The five-step procedure that Steen proposes is for the purpose of examining the systematic relations between metaphors. Are they systematic or one-shot metaphors? Methodologically speaking, the linguist has no a priori knowledge about this, says Steen. She has to identify metaphorical expressions first, and then determine the ‘conceptual nature’ of each expression. Only then is it possible to make a decision about ‘one-shot conceptual metaphoricity’ versus ‘systematic conceptual metaphoricity’, i.e., to decide whether the metaphorical expression has any relation to other metaphorical concepts that have been collected from discourse analysis ‘in the same fashion’ (Steen 1999: 59). In order to establish more or less systematic groups of metaphorical concepts, a sixth step involving the comparison of the output of the first five steps must be added to the procedure, ‘saying that the output of the first five steps is to be compared across large numbers of metaphors’ (1999: 58). If it does not seem to fit into a system, it is a one-shot metaphor. As described in section 2.3.3, Lakoff emphasises systematicity as an important characteristic of metaphor. Steen, however, regards one-shot metaphors as well as systematic metaphors as conceptual (1999: 58-59).

5.4.2 Semino *et al.* ‘Methodological problems in the analysis of metaphors in a corpus of conversations about cancer’

Semino *et al.* also aim to contribute to the establishment of a reliable methodology for the analysis of metaphors based on a cognitive linguistic approach (2004: 1272). They wish to ‘point out the need to recognise and make more explicit the interpretative decisions involved in moving from particular linguistic metaphors to conceptual (and possibly conventional) metaphors’ (2004: 1274). They test Steen’s above-mentioned method by employing it to identify metaphors in conversations on cancer.

Semino *et al.* point out that Steen’s step 1, ‘metaphor focus identification’, or the identification of metaphorical expressions, is often not a straightforward matter (1277-1280). In some cases it may be difficult to decide what concepts are referred to

by particular linguistic expressions, and also whether or not certain concepts apply literally to other concepts. In their corpus of conversations about cancer, one ambiguous instance was *gone* in the following example:

D if it's spread into the glands which it has there's always
P mm
D a question mark about has it **gone** anywhere else
P yes

(Semino *et al.* 2004: 1279, my emphasis)

Arguably, *gone* normally implies that an agent has left one location and moved to another, while in this context, in which *it* refers to 'cancer', *gone* must most probably mean that the disease is still found in the original location plus having spread to another. Thus, it is possible to argue that the use of *gone* in this case is metaphorical, not literal (Semino *et al.* 2004: 1279).

However, Semino *et al.* add, the verb *go* is probably one of the most neutral and general ways of referring to movement, and it is commonly used about cancer. So, can it legitimately be seen as a cross-domain mapping; a metaphor (2004: 1280)? Decisions about conventionality needs to be part of a fully developed procedure for metaphor analysis, claim Semino *et al.* (2004: 1277).

On the whole, Semino *et al.* see steps 1-3 as 'relatively straight forward' (2004: 1282), while most of the difficulties they encountered were in relation to steps 4 and 5 (2004: 1280). In order to demonstrate these difficulties, Semino *et al.* apply Steen's procedure to the analysis of the instances of *galloping away*, *erupt* and *dormant* from their own material along different 'routes'. Route no.1 is rather mechanical, while route no.2 is more critical and cautious. For the sake of brevity, I will concentrate on their analysis of *galloping away* in order to give an account of their demonstration. Hence, here is a reproduction of one of the sequences of their corpus in which *galloping away* is used in reference to the development of cancer:

P so I mentioned this to him last time I went; I said come on that's nearly double, galloping away; he said oh no it's the way they measured it

(Semino *et al.* 2004: 1281)

In step 4, Semino *et al.* suggest *develop fast* as the literal counterpart of *gallop away*, yet they underline that *develop out of control*, *grow unchecked* or *spread very fast* are possible alternatives as well. Further, they choose HORSE as the default agent, or default literal associate, of *galloping away*, which, they comment, seems fairly unproblematic. In step 5, there is the question of whether CANCER OR DEVELOPMENT OF CANCER should be regarded the target domain. Either way, however, the answer to one of their research questions, ‘How is cancer conceptualised within this metaphor?’, would be that cancer is conceptualised as a horse running around in the body (2004: 1283).

In analysing *galloping away* along route no.2, Semino *et al.* start by questioning their choice of HORSE as the default literal associates of GALLOP AWAY. They point out that *gallop away* is a polyseme that can be used to talk about for example inflation as well as horses or cancer. That is, it is conventionally used about a range of other domains than the ‘prototypical’ or ‘default’ domain. Therefore, Semino *et al.* argue that although intuition should indeed play a central role in identifying of prototypical associates of words, metaphor researchers should use corpora and dictionaries as test-beds for their own intuition. Moreover, researchers should be open-minded as concerns conventional literal associates (2004: 1286-1288).

Semino *et al.* go on to revisit the analysis of *galloping away* in step 5 (and 6). Can concepts like HORSE be mapped directly onto the concept of CANCER? At the end of their analysis along route no.1, Semino *et al.* comment that they accept the conceptual mappings that correspond directly with the linguistic metaphors, as in the correspondence between CANCER DEVELOPING FAST and GALLOPING as valid without difficulty, but that they see it as somewhat problematic to map concepts like HORSE directly onto cancer itself (2004: 1286). Instead, they choose to go by Steen’s step 6, i.e. to consider whether the use of *galloping away* in their material fit into a larger metaphor system.

Thus, they suggest that as concerns step 5, GALLOPING can be seen as MODE OF TRAVEL, and CANCER as the TRAVELLER. Considering step 6, they see their ‘galloping

examples' not as a realisation of an individual conventional metaphor where cancer is seen as a horse, but as part of broader and more complex patterns of the metaphor system of English. More specifically, they suggest that they can be seen as part of the DEVELOPMENT OF CANCER IS JOURNEY, rather than as a CANCER IS HORSE metaphor (2004: 1289-1292).

5.4.3 The Pragglejaz Group: 'MIP: A method for identifying metaphorically used words in discourse'

The Pragglejaz Group (2007) provides another and more recent contribution to the establishment of a reliable method for metaphor identification. The group, consisting of ten metaphor scholars from a variety of academic disciplines (see footnote section 5.1), has developed the 'Metaphor Identification Procedure' (MIP), in order to provide metaphor scholars with a tool 'that may be flexibly applied to many research contexts', and that is also 'relatively simple to use and flexible for adaptation by scholars interested in the metaphorical content of natural discourse' (Group 2007: 1-2). They point out that researchers often make different interpretations about metaphorical use of words or phrases, and, moreover, that researchers rarely provide criteria for their interpretations. There is a lack of agreed criteria for metaphor identification, the group says (Group 2007: 2), and MIP is their contribution.

MIP should help the researcher deciding whether a word in a particular context is used metaphorically or not, by means of dictionaries and intuition. The procedure is as follows:

1. Read the entire text–discourse to establish a general understanding of the meaning.
2. Determine the lexical units in the text–discourse
3. (a) For each lexical unit in the text, establish its meaning in context, that is, how it applies to an entity, relation, or attribute in the situation evoked by the text (contextual meaning). Take into account what comes before and after the lexical unit.
(b) For each lexical unit, determine if it has a more basic contemporary meaning in other contexts than the one in the given context. For our purposes, basic meanings tend to be
 - More concrete [what they evoke is easier to imagine, see, hear, feel, smell, and taste];
 - Related to bodily action;

—More precise (as opposed to vague);

—Historically older;

Basic meanings are not necessarily the most frequent meanings of the lexical unit.

(c) If the lexical unit has a more basic current–contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it.

4. If yes, mark the lexical unit as metaphorical.

(Group 2007: 3)

MIP requires that a *clear decision* be made about whether a word in a particular context is used metaphorically or not. However, the procedure allows for a maximal approach, implying that a wide range of words may be judged to be metaphorical, while also recognising that the degree to which a particular use of a word is metaphorical may vary. Finally, MIP is not intended to enable a researcher to make any claims about whether actual writers intended any metaphorical meanings (Group 2007: 2).

In their illustration of how to apply MIP, the Pragglejaz Group say that ‘Decisions about the contextual meaning, the basic meaning, and the relationship between any basic meanings and the contextual meaning were done on an intuitive basis by individual researchers’ (2007: 17), however, difficult cases were checked against the meaning descriptions in the dictionary. The dictionaries they used were *Macmillan English Dictionary for Advanced Learners* and *Shorter Oxford English Dictionary on Historical Principles*. The linguists also tested their decisions against each other (2007: 16).

5.4.4 Charteris-Black: Critical metaphor analysis

Critical metaphor analysis aims to reveal the covert and possibly unconscious intentions of language users (Charteris-Black 2004: 34). It is a means to revealing underlying ideologies, attitudes and beliefs (Charteris-Black 2004: 42). Charteris-Black uses Cameron and Low’s description of a methodology for metaphor analysis as a basis for his own methodology.

The methodology of metaphor analysis typically proceeds by collecting examples of linguistic metaphors used to talk about the topic... generalising from them to the conceptual metaphors they exemplify, and using the results to suggest understandings or thought patterns which construct or constrain people's beliefs or actions. (Cameron and Low cited in Charteris-Black 2004: 34)

Charteris-Black suggests how this can be done, by identifying metaphors, interpreting them and explaining them in three different steps (see section 2.4.3 for his definition of metaphor). He claims that conventional metaphors are particularly interesting 'because these are likely to contain more covert types of evaluation' (2004: 35-36).

The first step, 'metaphor identification', has two stages. The first stage is 'a close reading of a sample of texts with the aim of identifying candidate metaphors', and the evaluation of these *candidate metaphors* in terms of whether they are metaphorical or not, according to Charteris-Black's definition of metaphor. Is there semantic tension at either a linguistic, pragmatic or cognitive level? If there is, and if the candidate metaphors are commonly used metaphorically, they are classified as *metaphor keywords*. Thus, this first stage is basically qualitative, but the occurrence of these in the corpus can be counted. The second stage is another qualitative phase and involves determining whether each occurrence of a metaphor keyword is metaphorical or not. Metaphor keywords are words that are often used metaphorically, yet not always: this would make it impossible for them to function metaphorically in the first place (2004: 35-37).

The next step, 'metaphor interpretation' is about forming an opinion about how the metaphors relate to the cognitive and pragmatic factors that determine them, and about identifying *conceptual metaphors* and *conceptual keys* (see section 2.4.3). Besides, at this stage, it is possible to consider whether the choices of metaphor are 'pro-active in constructing a socially important representation' (2004: 37-38).

Finally, the third step, 'metaphor explanation', is about considering the social context in which the metaphors are produced and their role in persuading. In accord with his definition of metaphor, Charteris-Black says 'The formation of conceptual metaphors and conceptual keys and illustration of the typical evaluation of metaphors will assist in explaining why they can be persuasive.' He adds 'it is identifying the discourse

function of metaphors that permits us to establish their ideological and rhetorical motivation' (2004: 39).

5.4.5 Steen's procedure, MIP, critical metaphor analysis and the aims of this thesis

As expressed in section 1.2, the aims of this thesis are to identify linguistic metaphors, to identify possible underlying conceptual metaphors, and to consider whether the metaphors found possibly reflect any particular ways of thinking about climate change. Besides, this thesis has CMT as its basis for the understanding of metaphor. Are the procedures outlined above applicable in relation to the aims and assumptions of this thesis?

All of the three procedures presented above give suggestions to how linguistic metaphors can be identified in a corpus. Steen and Charteris-Black also suggest how a researcher may identify conceptual metaphors.

Steen explicitly says that the starting point for his procedure is the Lakovian definition of metaphor. As Semino points out, although MIP does not explicitly refer to CMT or any other theory of metaphor, step 3 of MIP can be rephrased in terms of CMT (2008: 13), because what step 3 of MIP basically says is that the contextual and basic meanings of a metaphorical expression belong to different conceptual domains. This is in accord with the cognitive linguistic assumption that semantic structure is conceptual structure; that the semantic meanings of words are concepts in the mind (see section 2.3.2). Thus, step 3 opens up the opportunity to look for correspondences between the two domains, cf. step 5 of Steen's procedure. Moreover, step 3 is clearly based on the CMT assumption that we usually conceptualise the abstract in terms of the physical (see section 2.3.3). CMT is also the basis for Charteris-Black's procedure (Charteris-Black 2004: chapter 1). In other words, Steen's procedure, MIP and Charteris-Black's procedure are compatible.

MIP enables the identification of linguistic metaphors, and involves identifying the basic as well as the contextual meaning of a certain metaphor. Steen's procedure can accompany the MIP in order to make assumptions about the conceptual metaphors

that the different linguistic metaphors potentially reflect. Critical metaphor analysis can be used to remain a critical view on the findings. All the time, CMT can be used as a framework.

The following section provides a detailed description of how I employed Steen's procedure, MIP and critical metaphor analysis for analysing and also for discussing the material.

6 Method and working definitions

Firstly, I chose to only use a small corpus, and not to combine a small and a large corpus, as suggested by Deignan (see section 5.3). Since I wanted to look specifically at metaphors occurring in climate change discourse, it was difficult to find an already composed corpus, small or large. Both composing a corpus and analysing a corpus for metaphors are time-consuming businesses. Due to time restrictions on the thesis, I chose to compose and analyse a smaller corpus of about 100,000 words. The different aspects of the composition of the corpus are described in section 7, i.e. how I composed it and descriptions of the sources.

Secondly, I have done a *corpus-driven*, as opposed to *corpus-based* analysis. This means I have started with a clean slate, without any assumptions about what will be found, and that I have placed the corpus at the center of the process and allowed new categories to emerge from the study (Deignan 2005: 89).

In short, I have used MIP as the very basis, but the method is indeed a combination of Steen's procedure, including the comments to this given by Semino *et al.*, MIP and Charteris-Black's method, all as described in section 6.

I present the method in 4 'rounds'. Round 1 and 2 basically explain the analysis, while round 3 and round 4 explain the course of the discussion. During the presentation of these steps, the working definitions of metaphor will be stated clearly.

6.1 Round 1: Identification of linguistic metaphors: Which linguistic metaphors are used in climate change discourse?

Round 1 is a combination of Charteris-Black's method and MIP, and deals with the identification of linguistic metaphors in natural discourse.

1. Read the whole article.
2. Scrutinise the article in order to identify 'metaphor candidates' that are relevant to the particular discourse in focus (i.e. 'climate change discourse' in this thesis).
3. Test metaphor candidates by means of MIP Steps 3-4.
 - a. The result is either a 'non-metaphor' or a 'metaphor keyword'.
 - i. All keywords are registered in an alphabetical list.
4. Determine whether the individual occurrence of each keyword is metaphorical or not, by examining the context. (Each metaphor keyword may occur more than once in the material). This can be done by
 - a. Making concordance lists by means of a concordance program for each keyword, in combination with
 - b. Testing/evaluating keywords by means of MIP steps 3-4.
 - i. Every metaphorical use is registered, i.e. counted.

In other words, I use MIP steps 3-4 as my working definition of a linguistic metaphor: if there is semantic tension between the contemporary-basic meaning of a word and the contextual meaning of the word, and the contextual meaning can be understood in terms of the contemporary-basic meaning, then the contextual use of the word represents a linguistic metaphor (see section 5.4.3). This definition is also very similar to Semino, Goatly, as well as Charteris-Black's definitions (see section 2.4). I will also use Charteris-Black's definitions of reification, personification and depersonification, to comment on the metaphors as well as to classify them.

Importantly, I need a working definition for 'lexical unit'. In this thesis, I will follow Semino's working definition, and thus generally assume that decisions about metaphorical use can be made on the level of individual words. When analysing

written texts, she applies the term ‘word’ graphologically, that is, to strings of characters that has spaces on either side. However, she makes an exception for some multiword expressions, however, for example for ‘of course’, ‘all right’ and ‘at least’, since these are cases where ‘the meaning of the whole expression cannot be retrieved from the meanings of the words that compose it’ (Semino 2008: 12).

In order to ‘pick out’ metaphor candidates in step 2, I had to rely on knowledge about what metaphorical language is and my working definition of linguistic metaphor in the back of my mind, or ‘informed intuition’ in Deignan’s terms (1999: 180).

In making decisions during steps 3 and 4, I relied on dictionary meanings. I chose to use the same type of dictionary as the Pragglejaz Group and Semino, namely the *Macmillan English Dictionary for Advanced Learners* (2008), henceforth referred to as the ‘MED’. The MED is based on a corpus of 200 million words, the World English Corpus (MED 2009), and is regularly updated. It offers contemporary definitions of about 7,500 words. As the aim of this thesis is to identify metaphor in contemporary texts, this is a great advantage. Additionally, the MED claims it offers ‘a unique treatment of metaphor’, by showing how many ordinary words have metaphorical meanings.

For supplementary consultation on ‘historically older’ meanings (cf. MIP step 3), I used the online version of Oxford English Dictionary (OED).

Some final comments on round 1: In step 4b I included the registration of the article in which the metaphorical use of the keyword occurred. For step 4a, I used the concordance program AntConc 3.2.1, which is downloadable for free from the Internet (see section 9.2).

The outcome of round 1 is a list of all linguistic metaphors found in the material. Thus, round 1 provides answers to Q1. Henceforth, this list will be referred to as ‘primary findings’.

6.2 Round 2: Classification: Conceptual metaphors and conceptual keys

Round 2 is about classifying the primary findings; about suggesting a conceptual metaphors that a certain linguistic metaphor might be a realisation of. It builds on parts of Charteris-Black's 'metaphor interpretation' step, and Steen's steps 5 and 6. Thus, round 2 provides an answer to Q2; 'What are the possible underlying conceptual metaphors?'

5. For each linguistic metaphor, try to decide on a conceptual metaphor that may help to explain the linguistic metaphor, or to 'resolve the semantic tension'. This implies making a decision about what the target domain is, and what the source domain is, cf. Steen's step 2, 3, 4 and 5. The result is a conceptual metaphor in the formula A IS B. (E.g. the tentative conceptual metaphor made by Semino *et al.*: 'CANCER DEVELOPMENT IS GALLOPING HORSE' / 'CANCER IS HORSE').
6. Try to decide on conceptual keys, i.e. to see larger connections between the assumed conceptual metaphors. Which higher-level metaphors may they belong to?
7. Some linguistic metaphors do not fit into any larger groups, i.e. conceptual keys, at least not in the current study. Following Steen's terminology, these are 'one-shot conceptual metaphors' (see section 5.4.1). In such cases, it is still possible to suggest a conceptual metaphor on the lower level (as in step 5 above).

Step 5 can actually be done more or less in parallel with steps 3 and 4 of round 1. That is, in the process of identifying a metaphor it is practical to consider which conceptual metaphor it could belong to, because making a decision about what the basic meaning is makes it possible to make a decision about what the source domain is. For example, if the basic meaning has to do with war, then the source domain is war.

As concerns the working definitions for conceptual metaphor, I stick to the CMT view that conceptual metaphors are mental phenomena. However, I am also

convinced that it is hard, or impossible, to say anything certain about the existence of conceptual metaphor purely on the basis of the analysis of written texts, cf. the critique of CMT (as reported in section 5). Rather, in accord with Semino's definition of metaphor at the 'theory level' (see section 2.4.4), one of the assumptions underlying the classification in this thesis is that we *know* neither if metaphors are intended as such by the writer, nor if they are indeed processed as such by the reader. That is, I cannot claim that the conceptual metaphors and conceptual keys that I suggest are indeed present in the minds of either the reader or the writer; I can only claim that they are *potentially* intended and/or processed as such.

The way I see it, Charteris-Black's definitions of conceptual metaphor are compatible with this view. In fact, although he does use CMT as the basis for his work, his definitions of conceptual metaphors (or conceptual keys) does not describe them as mental phenomena. To repeat a little, Charteris-Black regards conceptual metaphors and conceptual keys as valuable tools for *classifying and describing linguistic metaphors*. In other words, conceptual metaphors and conceptual keys may be used as categories. Put in yet another way, the formula A IS B can be used as a tool for establishing categories for linguistic metaphors. As Charteris-Black puts it, conceptual metaphors (and conceptual keys) are *statements that resolve the semantic tension* of a set of linguistic (or conceptual) metaphors by showing them to be related (see section 2.4.3). Charteris-Black's definitions of conceptual metaphor and conceptual key are the working definitions for my classification. Besides, I sometimes use Lakoff's terms higher-level and lower-level metaphors (see section 2.3.3) to talk about conceptual keys and conceptual metaphors, respectively.

Furthermore, as my step 7 reveals, I adopt Steen's view that systematicity is not necessarily a criterion for claiming the presence of a conceptual metaphor. I use his term *one-shot conceptual metaphor*, or, simply, *one-shot*, to describe those linguistic metaphors that appear in my material as single realisations of a possible conceptual metaphor.

6.3 Round 3: ‘Ways of thinking’ expressed metaphorically and the persuasive effect of metaphor.

Round 3 deals primarily with considering the results from the previous two rounds, i.e. the primary findings and the classification of them, with regard to possible underlying ways of thinking and to what extent the metaphors are persuasive. In other words, round 3 is primarily based on critical metaphor analysis, and it provides answers to Q3i; ‘Do the metaphors possibly reflect any particular ways of thinking about climate change?’, and to Q3ii; ‘To what extent are the metaphors persuasive?’

Round 3 consists of the following four steps:

8. Consider which aspects of the target domain are highlighted and which aspects are hidden.
9. Consider to which extent the linguistic (or conceptual) metaphor is conventional.
10. Try to decide on which ‘ways of thinking’, attitudes, beliefs or ideologies that may underlie the linguistic (or conceptual) metaphor.
11. Consider whether the linguistic (or conceptual) metaphor possibly work as a cognitive heuristic.

To a large extent, the answers to steps 8-9 provide the basis for steps 10-11.

Steps 8 and 9 can be seen as a more finely adjusted version of MIP step 3c. While MIP step 3c is the final step in identifying a metaphor, it can also be used as a starting point for my round 3. For the sake of clarity, I will repeat MIP Step 3c: ‘If the lexical unit has a more basic current–contemporary meaning in other contexts than the given context, decide whether the contextual meaning contrasts with the basic meaning but can be understood in comparison with it’ (see also section 5.4.3). Steps 8 and 9 also deal with deciding on how the contextual meaning contrasts with the basic meaning, and on how the contextual meaning can be understood by means of the basic meaning. The way I see it, aspects of the identification process required in MIP step 3c are precisely about considering the highlighting and hiding effects of a particular metaphor. Deciding whether the contextual meaning of a word contrasts with the basic meaning of it, and considering whether the contextual meaning of the word can

be understood in comparison with the basic meaning of it, are mental processes that do, in my opinion, necessarily involve looking for highlighted and hidden aspects of the target domain, at least if your theoretical basis is CMT.

As concerns step 9, considering the degree to which the metaphorical expression in question is conventional can also be seen as related to the contrast between contextual and basic meaning: the more conventional, the lesser the contrast.

As discussed in section 3, the highlighting and hiding effects of a metaphor are central to the persuasive effects of the metaphor. It was pointed out that metaphors are rarely neutral; they make us focus on certain aspects of the target, while other aspects remain hidden. Hence, considering which aspects of the target domain are highlighted and which aspects are hidden by the source domain can tell us something about which ways of thinking about the target that possibly underlie the utterance (see examples 3 and 4 in section 3). In accord with what Lakoff and Johnson say about highlighting and hiding (see section 2.3.3), I believe it is especially important to point out which aspects of the target domain remain hidden. While some metaphors function as cognitive heuristics, others may distract us and manipulate us, in that they make us omit, or even forget, to look for the aspects of the target that remain hidden. By looking for, or reminding ourselves of the hidden aspects, we become more aware of the force of metaphor.

Conventionality is also central to an evaluation of the persuasiveness of metaphors. As mentioned above (see section 5.4.4), Charteris-Black believes that conventional metaphors are particularly interesting, because they may contain more covert evaluation than more unconventional metaphors. He also comments ‘Metaphors that have become conventionalised, both in the media and in academic discourse, are potentially important because they provide excellent examples of these socially poignant representations’ (2004: 29).

Hence, considering the degree to which particular linguistic metaphors are conventional will be part of the discussion of the possible underlying motivation for using the metaphors. I will discuss the conventionality of the particular linguistic metaphors according to (i) how conventional their contextual meaning is and (ii) how

conventional the conceptual metaphor that it seems to realise is. I will support my decisions about conventionality primarily on the descriptions of the basic meanings given in the dictionaries MED and OED. Is the contextual meaning given in any of the dictionaries? If it is, this is a sign of that the contextual meaning has become a conventional meaning. If it is not given in the dictionary, it may be seen as a novel metaphor, cf. Semino's definitions of conventional and novel metaphors (see section 2.4.4), which I will follow here. As concerns point (ii), I will compare the conceptual metaphors that I suggest to earlier findings, i.e. to relevant metaphor systems in the English language, i.e. to work done by Lakoff and Johnson (2003), Kövecses (2002) and Deignan (1995).

Step 11 involves considering whether any of the linguistic metaphors possibly function as heuristic devices. That is, does the linguistic metaphor possibly make certain things or phenomena easier to understand by simplifying them? Does it possibly function as 'rule of thumb' or 'information-processing tool'? Examples of such heuristic devices given above were the Cold War metaphor (section 3) and seeing the world as a machine or as a computer (section 4.3.2).

Finally, it seems worth mentioning that Charteris-Black's notions *conceptual metaphor* and *conceptual key* are relevant in this round as well, since he claims that conceptual metaphors and conceptual keys can be used not only to classify, but also to *describe* linguistic metaphors. Conceptual metaphors and conceptual keys can be used to resolve the semantic tension of linguistic metaphors, and for *explaining the motivation for particular linguistic metaphors* (see section 2.4.3).

6.4 Round 4: Are there differences in the occurrence of metaphors between newspaper and organisation material?

The material, or corpus, is a collection of articles from two newspapers and two special interest organisations (see section 7). Round 4 is about looking for possible differences between the two kinds of sources. If such differences are found, the possible reasons for this are discussed.

Both the newspaper articles as well as the special interest organisation articles are written with the purpose of expressing opinions and also of influencing opinions. However, the organisations have a more explicit political agenda, namely to work for the benefit of the environment. Greenpeace and WWF attempt, to a larger extent than the newspapers, to influence people's attitudes. These organisations were established because on the basis of a profound commitment to environmental issues, and the desire to spread an ideology. This difference in the newspaper's versus the environmental organisations agendas constitutes the background for posing Q4; 'Are there any differences in which linguistic and/or conceptual metaphors are used in newspaper articles versus press articles of environmental organisations?'

That is, does the fact that newspapers and special interest organisations have different agendas affect their use of metaphors? Do the special interest organisations use more metaphors in order to persuade people of their political views? Do the organisations and newspapers use different kinds of metaphors, for example metaphors from different source domains? These are some of the questions that form part of the discussion of Q4. Importantly, if there are indeed differences, then this will support that the assumption that linguistic expressions can tell us something about our ways of thinking.

7 Material

The sample of climate change discourse investigated in this paper is a collection of articles that treat the climate change issue. The articles have been taken from the web sites of two American newspapers, namely *The New York Times* and *The Washington Post*, and from two environmental organisations, namely Greenpeace and World Wildlife Fund (henceforth WWF). The following subsections provide information about the background for the collection and composition and about some of the practical aspects of collecting the material.

7.1 Background for collection and composition

As mentioned in section 1.1 above, the mass media seem to play an important role in the shaping of public opinion. It was mentioned that the public, including policy makers, learn about scientific issues through the mass media.

All of the four sources were selected at least partly because of their size. *The New York Times* and *The Washington Post* are two of the newspapers with the highest circulation among the American newspapers (BurrellesLuce 2008). They are well known internationally, and read by people all over the world. Greenpeace and WWF are two of the biggest and most well known environmental organisations in the world.

As a mass medium, the Internet has become an increasingly more important source of news stories. The website 'The state of news in the media' says 'The Web in 2008 became a regular and even primary news destination for more and more Americans' (The state of news in the media 2009). Although this statement concerns Americans in specific, it is not unthinkable that the Internet functions as an increasingly important source of news for people in other countries too.

All of the articles in the material may be considered news stories, as being available to the general public and as representing influential institutions as concerns the creation of public opinion. It is also probable that they have a certain influence on other agents in the media.

Possibly, more people read newspaper articles than the news stories of Greenpeace and WWF, but I thought it would be interesting to compose a somewhat varied corpus; in order to make it somewhat more representative as concerns the two genres, and also in order to see whether there is any difference between the use of metaphors in the two types of sources, i.e. newspapers and special interest organisations (cf. Q4/section 6.4).

7.2 Collection and composition

In order to collect the material, I searched for the clue ‘climate change’ on the respective web sites of each of the newspapers/organisations. I only included articles that were written within the time frame of last 12 months. A list of all of the articles including URLs can be found in the Appendices.

I skimmed each article to ensure that they were indeed about climate change, and then I did a copy/paste procedure from the web sites to Microsoft Word with those articles that really were relevant. Besides, I also saved all the articles in plain text format, so that they could be used in the concordance program.

In total, the material constitutes almost 100.000 words, i.e. about 25.000 words per newspaper/organisation, as shown in Table 1. The table also shows that the number of articles per source is more or less even.

	<i>Publication</i>				
	<i>The New York Times</i>	<i>The Washington Post</i>	<i>World Wildlife Fund</i>	<i>Greenpeace</i>	<i>Total</i>
<i>Number of articles per publication</i>	25,176	24,939	24,815	24,895	99,825
<i>Number of words per publication</i>	33	36	48	43	160

Table 1. Number of words and articles, per publication.

8 Findings and Discussion

In this section, the results of the analysis are presented in tables and in examples, alongside the discussion of them. Thus, this section should provide answers to all of the research questions Q1 through Q4. Due to time and space restrictions, however, section 8 does not offer an exhaustive presentation of the entire analysis, but it should give the reader an idea of how the analysis of the material was carried through and, not least, an overview of the findings.

8.1 Outline of section 8

While the course of the analysis, as presented section 6, more or less followed the order of the research questions, I find it purposeful to abandon this course to some extent when I now go on to present the results of the analysis. This is primarily because I find it suitable to present the linguistic metaphors found in the material category for category, i.e. according to the conceptual keys I assume they might be realisations of.

Section 8.2 is a discussion of some of the aspects related to round 1, i.e. the identification of the linguistic metaphors.

Section 8.3 is a presentation of my classification of the linguistic metaphors including some arguments for why I chose to classify the linguistic metaphors in the way that I did. Why did I choose to establish the categories I established? Were some of the linguistic metaphors difficult to classify? If so, how did I choose to classify them? Thus, I start by providing some answers to Q2; ‘What are the possible underlying conceptual metaphors?’ My idea is that presenting this part of the analysis first will provide the reader with an overview of the subsequent subsections.

In subsections 8.4-8.15, I move on to presenting the linguistic metaphors according to the conceptual keys they possibly represent. That is, each subsection is a presentation of the linguistic metaphors that were classified as realisations of one particular conceptual key. For example, subsection 8.2.1 is a presentation of the linguistic metaphors thought to realise the conceptual key *CLIMATE CHANGE IS MOVEMENT*, while the next subsection, subsection 8.2.2, presents the linguistic metaphors that are classified as belonging to the conceptual key *ENVIRONMENTALISM IS MOVEMENT*. In each subsection, the linguistic metaphors of the respective conceptual key are presented in a table that also shows the number of times each of the linguistic metaphors were realised. These tables thus present the primary findings, i.e. the answers to Q1; ‘Which linguistic metaphors are used in climate change discourse?’.

In addition, each of the subsections 8.4-8.15 present a discussion of the findings, along the lines presented in 6.2 and 6.3. However, as mentioned above, these

subsections do not offer a discussion of all of the findings, due to the time and space restrictions of the thesis. Only some examples of linguistic metaphors are shown in context, i.e. as extracts from the material. I have included as much of the context as I have seen necessary in order for the reader to follow my discussion.

The examples work as the basis for the discussion. According to my working definition of a conceptual key (see section 6.2), all of the linguistic metaphors classified under one specific conceptual key share the same target and source domain, at least according to some generalisation. Thus, the linguistic metaphors that are presented in context and discussed in sections 8.4-8.15 should serve to illustrate some features that are general for the whole category. More specifically, the discussion of them involves the evaluation of which aspects that are highlighted and hidden in the metaphors and of the conventionality of the metaphors (cf. round 3, step 8 and 9). Further, this evaluation serves as the basis for the discussion of whether the findings possibly reflect any particular ways of thinking about climate change issues, of the extent to which the findings seem to be persuasive and of whether they possibly function as cognitive heuristics (cf. and round 3, step 10 and 11). The subsections 8.4-8.15 provide answers to the questions Q3i; ‘Do the metaphors possibly reflect any particular ways of thinking about climate change?’ and Q3ii; ‘To what extent are the metaphors persuasive?’.

Lastly, section 8.16 presents the differences between the sources and the discussion of the possible reasons for this, and thus provides the answers to Q4.

8.2 The identification of linguistic metaphors

In the next section, Table 2 shows that a total of 1,652 linguistic metaphors were found in the material. This means that of about 100,000 words, almost 2% of them were used metaphorically to describe climate change issues.

In identifying linguistic metaphors in the material, I have, as explained in section 6.1, followed my ‘informed intuition’ and my working definition of linguistic metaphor. My working definition is quite strict: as soon as the contextual meaning of a word deviates only a bit from its most basic-contemporary meaning, I call it a metaphor, cf.

the MIP. Nonetheless, it was sometimes hard to decide whether a word was used metaphorically or not. Take a look at the following examples:

- 3 Scientists have repeatedly warned that Southeast Asia is among the most vulnerable and least prepared areas to cope with the **impacts** of global warming. (G 8)
- 4 Many countries that signed the **accord** lagged far behind their targets in **curbing** carbon dioxide emissions. (N 21)

In ex.3, *impacts* first appeared to me as a candidate metaphor, because my intuition told me that the basic meaning was something like ‘a mark produced on a surface by pressure’. However, I discovered that this was not a contemporary meaning of *impact*, at least it is not according to my choice of dictionary, i.e. MED. Similarly, in ex.4, I first marked *accord* as a candidate metaphor, as I thought its more basic meaning had to do with music, and I also marked *curbing*, primarily because I was unfamiliar with its meaning. Yet in both of these cases and in similar ones, it was basically my lack of knowledge of the etymology of the words that resulted in miss-hits, and such cases proved that using a dictionary to support my intuition was necessary.

Another thing that distracted me to some extent during round 1 was that certain ways of thinking about climate change issues were often expressed without any linguistic metaphors necessarily being involved, as in example 4:

- 5 Climate change is the greatest **threat** the world has ever known, its effects are already killing 150,000 people a year, with millions more displaced and hungry. (G 25)
- 6 Former vice president Al Gore urged lawmakers yesterday to adopt a binding carbon cap and push for a new international climate pact by the end of this year in order to avert **catastrophic** global warming. (W 44)
- 7 There's more money at NASA for space-based monitoring of greenhouse gases, expanded support at the Energy Department for finding ways to economically capture carbon emissions from coal-burning power plants, and more money for

the Interior Department to **mitigate** the impact of climate change on public lands and wildlife. (W 25)

At first glance, *threat*, *catastrophic* and *mitigate* might seem like metaphor candidates. At least they did to me when I was tuned into a ‘metaphor identification’ mode. These and similar words, for example *calamitous*, *crisis*, *dangerous*, *disastrous*, *menace* and *risk* were used to describe climate change issues in the material, and there is no doubt that they were used in order to depict climate change in a certain way, or to express a certain way of thinking of climate change; i.e. as a threat. But can these words be considered linguistic metaphors? Consider the meanings of *threat* as given by MED:

- 1 [countable/uncountable] a situation or an activity that could cause harm or danger
- 2 [countable] an occasion when someone says that they will cause you harm or problems, especially if you do not do what they tell you to do

Do any of these meanings (which seem equally ‘basic-contemporary’ in MIP terms) contrast with the contextual meaning in ex.5? If you disagree with the statement in ex.5 and do not regard climate change a threat, you would perhaps argue that calling climate change a threat is to talk about climate change *in terms of something else*. Thus, you could argue that the statement is metaphorical, according to the CMT description of metaphor (see section 2.3.3). If you agree with the statement, however, and you think that climate change does represent a threat, you would not think of the use of *threat* in ex.5 as being metaphorical. Either way, it becomes problematic to claim that the contextual meaning of *threat* (or of similar words, like those mentioned above) contrasts with its basic meaning. It seems more like a matter of different opinions. Thus, I have judged them not to be linguistic metaphors.

Finally, it was sometimes difficult to decide whether a particular linguistic metaphor belonged to the domain of WAR or the domain of SPORTS. For example, what is the difference between a target and a goal? I found that the most basic-contemporary meaning of goal is ‘the net or structure that you try to get the ball into (...)’ (MED), and I thus decided it must be regarded a SPORTS metaphor. The most basic meaning of *target* on the other hand, is ‘a person, building, or area that someone intends to attack’

(MED). The MED also gives a SPORT meaning of *target*; however, the WAR meaning is historically older, and therefore I count this as the most basic. I find support in Semino, who comments that the WAR domain is closely related to the SPORTS domain (2008: 100).

Now, let us go on to look at the classification. How did I establish the different categories, i.e. the conceptual metaphors and conceptual keys? Were any of the linguistic metaphors difficult to categorise?

8.3 Classification: conceptual metaphors and conceptual keys

Table 2 provides an overview of my classification of the primary findings into different conceptual metaphors.

Source domain	Target domain							Total
	ENVIRON- MENTALISM	EARTH	CLIMATE CHANGE	CO ₂	PRODUCTION OF ENV.- FRIENDLY ENERGY	FOSSIL FUEL	'One- shots'	
MOVEMENT	211	-	72	-	-	-	-	283
WAR	241	-	-	-	-	-	-	241
HOUSE	-	203	-	-	-	-	-	203
JOURNEY	192	-	-	-	-	-	-	192
CLEANING	132	-	-	-	-	-	-	132
CONSTRUCTION	111	-	-	-	-	-	-	111
SPORTS	104	-	-	-	-	-	-	104
PERSON	-	-	18	50	-	4	-	72
PERSONAL RELATIONSHIP	20	-	-	-	-	-	-	20
FARMING	-	-	-	-	16	-	-	16
GAME	5	-	-	-	-	-	-	5
MUSIC	2	-	-	-	-	-	-	2
Other	-	-	-	-	-	-	271	271
Total	1,018	203	90	50	16	4	271	1,652

Table 2. Number of linguistic metaphors per conceptual domain.

For the sake of clarity: by combining the name of a column and a row, you arrive at the name of a conceptual metaphor. For example, by combining the first column with the first row, you arrive at the conceptual metaphor ENVIRONMENTALISM IS MOVEMENT. Moreover, in the cells you find the number of linguistic metaphors that I have classified as possibly being realisations of this conceptual metaphor.

The listing of the conceptual metaphors in Table 2 might be a bit misleading in that this does not say anything about the diversity of the linguistic metaphors within each conceptual metaphor. For example, the ENVIRONMENTALISM AS MOVEMENT was realised by use of 46 different lexical items that in total were used 403 times. However, *lead* was used 99 times, and thus represents almost 25% of the linguistic metaphors seen as possibly being realisations of this conceptual metaphor. This kind of information becomes evident in the tables 3-18 given at the beginning of subsections 8.4-8.15. Now, let us turn to the focus of this subsection: how did I arrive at this classification?

I will use the establishment of the largest category, namely ENVIRONMENTALISM IS MOVEMENT as an example to illustrate some of the problems encountered during the classification process. The linguistic metaphors belonging to this conceptual key all describe some aspect of the concept MOVEMENT. However, some of the linguistic metaphors can be seen as more specifically belonging to the domain of journey. For example, the word *journey* obviously belongs to this category. Other candidates are *road*, *road map*, *halfway* and *track*. But what about *progress* and *backwards*? In the end, I decided to divide the ENVIRONMENTALISM IS MOVEMENT metaphors into the two categories ENVIRONMENTALISM IS MOVEMENT and ENVIRONMENTALISM IS JOURNEY (see Tables 4 and 5). It was sometimes difficult to decide whether a linguistic metaphor was a journey metaphor or not, but I picked out those linguistic metaphors that to a higher extent than the others can be associated with the concept JOURNEY, and left the remaining ones in the more general ENVIRONMENTALISM IS MOVEMENT category.

8.4 Climate change is movement: Moving slowly or runaway?

In the material, words that describe movement, such as *reverse*, *start*, *stop*, *slow* and *fast*, were used to describe climate change. Table 3 offers a complete list of these words.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
stop	-	-	-	13	13
drive	2	-	4	4	10
slow	1	3	2	-	6
where	2	-	1	2	5
pace	1	4	-	-	5
rapid	1	2	2	-	5
runaway	-	-	-	5	5
reverse	2	-	1	-	3
fast	-	1	1	1	3
start	1	1	1	-	3
accelerate	1	1	1	-	3
irreversible	-	-	2	-	2
speed	-	-	1	1	2
come	-	-	2	-	2
rush	-	1	-	-	1
track	-	1	-	-	1
spin	-	-	1	-	1
cross	-	1	-	-	1
approach	-	-	1	-	1
<i>Total</i>	11	15	20	26	72

Table 3. Number of lexical items from the domain of MOVEMENT used to describe CLIMATE CHANGE, per publication.

Why are words for movement used to talk about climate change? What effect does it have to talk about climate change in terms of movement? In order to give an answer to Q3 as concerns the CLIMATE CHANGE IS MOVEMENT metaphors and say something about the ways of thinking that are possibly reflected by these metaphors and whether they are persuasive, I will start by considering the contrast between the basic and the contextual meanings in of the lexical item used in the linguistic metaphor. As explained in section 6.2, this can tell us something about what the source domain is, and, as explained in section 6.3, enable an analysis of what aspects of the target is highlighted and hidden.

Now, in what way have the ‘movement words’ in the Table 3 been used to talk about climate change? Consider the examples from the material below:

- 3 (...) international efforts to stem the **pace** of climate change, according to senior U.N. officials and delegates. (N 13)
- 4 "Down the road, probably sooner than we think, we are facing major environmental changes. These changes have **started** to occur and are **moving** relatively **slowly**, but the **pace** of change will **accelerate** in our lifetime." (W 29)

- 5 This programme sets an example of how nations can work together now to cut emissions, but a much bigger deal is needed urgently to **stop runaway** climate change. (G 7)
- 6 And: It "could completely end human civilization, and it is **rushing** at us with such **speed** and force." (W 42)

Let us have a look at how these 'movement words' create a semantic tension in the context they are used.

Dictionaries tell you that each of the words *start*, *move*, *slow*, *pace*, *accelerate*, *stop*, *runaway*, *rush* and *speed* can be used, contemporarily, to describe the movement of physical entities. Certainly, these words have several meanings, but according to MIP, the meanings having to do with movement may be considered more basic meanings than meanings having to do with for example development. In short, since climate change is not a physical entity, a semantic tension occurs when movement words are used to describe climate change. In what way can we understand the contextual meaning in terms of the basic meaning? How can we understand climate change in terms of the concepts PACES, ACCELERATION and so on? Does it make sense to talk about climate change in terms of movement in the first place?

Change in general does not necessarily involve movement. The kinds of changes that climate change involves generally do not include movement, such as a rise in the global mean surface temperature or changes in precipitation patterns. That is, as the climate changes, it does not really take paces or move: it is not an animal or a vehicle that is able to actually, or literally, accelerate, gain speed and rush at us.

Movement, on the other hand, very often involves some kind of change. When we move around, we often experience some kind of change: if you take paces, or walk, from A to B, you will, for example, notice that the landscape is different in place A than in place B. Moving a leg or an arm results in a change of body position. It seems reasonable to assume that since change is such an obligatory result of any movement; since movement always causes some kind of change, it becomes possible, and

perhaps natural, for us humans to understand change *in terms of* movement, and to talk about *the pace of climate change, runaway climate change, etc.*

Some of the movement metaphors used to describe climate change, namely *pace, started* and *moving* seem quite neutral, supposing that it is commonly acknowledged that the climate does change continuously; that change is a part of its nature. The other ones, however, namely *slowly, accelerate, stop, runaway, rushing* and *speed* describe the *manner* in which the climate is changing. Taking into consideration what was said about climate change as a political issue in section 4.2.2, the manner in which the climate changes is a more controversial issue. Let us have a closer look at some of these last-mentioned metaphors in order to see what effect they might have.

Firstly, let us briefly consider the relation between speed of movement and change. It is possible to reason that during a certain amount of time, you may get longer on the way if you move fast, and you would probably also experience a greater change, than if you move slowly. That is, if you only move really slowly, the change will probably seem less. Accordingly, there is a mutual relationship between speed and change: the way we experience change is relative to time, and the more speed, the more change. Or, ‘translated’ into metaphor: the more change, the more speed.

Words that are used to talk about ways of moving can be used metaphorically to talk about the state of development of different things, says Deignan (1995: 201). Lakoff says that ‘manner of action is manner of motion’ is an entailment of the event structure metaphor (1993: 221). Thus, if you believe that the climate is changing considerably, if you for example judge that the average global temperature has increased substantially the last decade, you could describe it as ‘*rushing* at us’ as in ex.6. Likewise, if you judge the temperature not to have changed substantially the last decade, you could describe climate change as ‘*moving* relatively *slowly*’, as in ex.4.

Now, let us look a little closer at ex.5 above, which contains the adjective *runaway*. *Runaway* has the following contemporary meanings, according to MED:

- 1 a runaway vehicle or animal is moving fast without anyone controlling it
- 2 increasing more quickly than expected

runaway success/inflation/growth

- 3 a runaway person has left their home or has escaped from somewhere

Sticking to MIP, meanings 1 and 3 seem to be more basic than meaning 2. However, meaning 3 is somewhat older historically according to the OED, and can therefore be considered the most basic of the three. Since the 16th century, it has been used about persons:

1. a. One who runs away; a fugitive, a deserter. (OED)

Obviously, climate change is a complex phenomenon that cannot be literally runaway. So, what might be the motivation for using *runaway* to describe climate change? Or, on the side of the reader, how can we understand climate change in terms of escape? Which aspects of RUNAWAY serve to highlight something about CLIMATE CHANGE? At least part of the answer to this question can be found by looking at other conventional, metaphorical meanings of *runaway*, for example MED meaning 2, which says that *runaway* can be used about success, inflation and growth. The OED reports that since the 20th century, *runaway* has been used to describe systems that are out of control or equilibrium.

It seems probable that the ‘out of control’ aspect of the concept RUNAWAY is used to highlight something about climate change, too. Are there more aspects of RUNAWAY that are mapped onto CLIMATE CHANGE?

The concept RUNAWAY is closely associated with escape and capture, and possibly with crime. If you tell me that someone is a runaway, I would think that that person had recently been captive, that he or she was supposed to still be so, and that the person who had kept them captive would want to capture them again, i.e. *gain control* again. Typically, the runaway person, or fugitive, would be a criminal escaping from prison, and the police would try to capture that person again. Besides, being runaway would be illegal, and it would be rightful to try to recapture the runaway. Considering these connotations of RUNAWAY, I suggest that one of the possible pragmatic or persuasive effects of calling climate ‘runaway’ is that it justifies that we should try to control climate change, i.e. to prevent it, since being runaway is illegal.

Besides, in a situation where someone has runaway and someone else is trying to recapture this person, there is typically an element of authority: the capturer has some kind of authority over the captive. Is this an aspect of the source domain RUNAWAY that is possibly mapped onto the target domain of CLIMATE CHANGE in ex.4? Does calling climate change ‘runaway’ imply that we should try to gain control over it?

Importantly, in ex.3, the verb *stop* occurs in front of *runaway*. The whole utterance seems to be a sort of suggestion that ‘a much bigger deal’ be prepared ‘urgently’ in order to ‘stop runaway climate change’. Implicitly, nations, in other words, people, i.e. human beings, should collaborate in order to achieve such a deal. Further, suggesting that we *should* stop climate change implies that there is indeed a chance that we are capable of doing so; that we have some kind of authority over nature. Presumably, some would say that the idea that we are able to stop or prevent climate change represents a somewhat anthropocentric way of thinking about climate change issues.

It is quite conventional to talk about change in terms of movement. As reported in section 2.3.3, Lakoff considers CHANGES ARE MOVEMENTS a conventional conceptual metaphor, and part of the event structure metaphor. Besides, in terms of my working definitions of conventional metaphor, all of the linguistic metaphors categorised as CLIMATE CHANGE IS MOVEMENT metaphors are conventional metaphors, since it is possible to find the contextual meanings of all of the respective words in the dictionary. In other words, the meaning with which they are used in the material is well established.

In Cameron’s terms, the use of movement metaphors in newspaper articles about climate change could probably be considered an instance of ‘Global’ systematicity, as it occurs across many genres and discourses.

In sum, describing climate change as *moving slowly*, *accelerating* and as having *speed* represents the conventional use of movement words to talk about change. Recalling what Charteris-Black says about conventional metaphors, movement metaphors may therefore contain covert types of evaluation. Conventional metaphors are less

conspicuous than novel metaphors, and we may therefore be persuaded without really noticing that we are. As argued above, saying that climate change is *runaway* can be a way of implying that climate change is out of control, and, possibly, it is a way of justifying that we should try to stop it. This idea of climate change may seem scaring to some people, and persuade them of that climate change is something that we should work against.

The next subsections present the discussion of the categories and conceptual keys ENVIRONMENTALISM IS MOVEMENT and ENVIRONMENTALISM IS JOURNEY.

8.5 Environmentalism is movement

I start to discuss ENVIRONMENTALISM IS MOVEMENT metaphors more generally, and then I go on to discuss the journey metaphors.

8.5.1 Environmentalism is movement: Moving rapidly or sleepwalking?

Does it make any sense to talk about environmentalism in terms of movement? Let us look a little closer at a few examples.

- 7 "We need to **move rapidly** for a clean energy future," said Charlie Garlow, of Silver Spring, Md., who was dressed as a smokestack. (W 16)
- 8 However, on the whole, the industry been **sleepwalking toward** a low-carbon economy. 2009 will see **rapid progress**. (G 5)
- 9 And in the EU and New Zealand we have seen some good **movement** on renewable energy targets. (G 30)

In all of the examples above, the linguistic metaphor describes the achievement of an environmental goal, i.e. either the desired, expected or actual achievement of an environmental goal. As in the examples discussed in section 8.4, the semantic tension in the linguistic metaphors is due to the source domain being movement and the target domain being something that cannot actually move; in this case ENVIRONMENTALISM.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
move	7	6	9	6	28
approach	16	5	5	-	26
meet	8	7	4	5	24
progress	3	1	5	9	18
push	5	5	1	4	15
shift	1	7	4	1	13
start	5	2	4	1	12
toward	1	2	5	4	12
movement	1	1	1	5	8
reverse	6	1	-	-	7
block	1	1	2	1	5
quick	-	2	2	1	5
leave	3	1	1	-	5
away from	2	-	-	2	4
obstruct	-	-	1	3	4
spur	1	2	-	1	4
sleepwalk	-	-	-	2	2
rapid	-	-	-	2	2
back away	2	-	-	-	2
backtrack	-	-	1	1	2
slow	1	-	-	1	2
accelerate	1	-	-	1	2
barrier	-	-	2	-	2
pedal	-	-	-	1	1
speed	-	-	1	-	1
fast	-	-	-	1	1
headway	-	1	-	-	1
backwards	-	-	-	1	1
climb	1	-	-	-	1
motion	-	1	-	-	1
Total	65	45	48	53	211

Table 4. Number of lexical items from the domain of MOVEMENT used to describe ENVIRONMENTALISM, per publication.

In ex.7, the verb *move* and the adjective *rapidly* are used to suggest how the environmentalist goal of ‘a clean energy future’ should be obtained. It is imaginable that the speaker meant to use *move* in its literal meaning; e.g. to suggest that ‘we’ should move quickly in the corridors in order to talk to the right people. However, it seems more probable that he meant to suggest that ‘we’ need to do certain things, for example establish policies that favour a ‘clean energy future’, as soon as possible.

In ex.8, the verb *sleepwalk* and the preposition *toward* are used to talk about how the industry is dealing with the goal of achieving a low-carbon economy, i.e. the goal of becoming more environmentally-friendly. Now, what could this mean?

For the sake of clarity, there seems to be a typing error in the example: the modal auxiliary *has* seems to be missing in front of ‘been sleepwalking’. It is nevertheless

clear that we are dealing with the verb *to sleepwalk*. The MED gives the meaning of the verb as a derived form of the noun *sleepwalking*:

the action of walking and sometimes doing things while you are still sleeping

DERIVED WORDS

sleepwalk VERB [INTRANSITIVE]

The contextual meaning of *sleepwalking* in ex.8 seems to be something like ‘lacking the motivation to achieve’ a low carbon economy. Now, how does the concept of SLEEPWALKING serve to highlight something about the way the industries are attempting to achieve a low-carbon economy?

Adding some intuition to the MED definition of *sleepwalking*, a person who is sleepwalking is typically unconscious, and walking slowly, without necessarily having any specific goal. This is probably the part of the concept SLEEPWALKING that is used to highlight something about the behaviour of the industries mentioned in ex.8. It is possible to understand the contextual meaning of ‘lacking the motivation to achieving’ in terms of ‘unconsciousness’, because MOTIVATION includes the opposite of unconsciousness, namely determinedness.

Toward expresses direction of movement, and serves to underline that ‘a low carbon economy’ is a purpose. It may be regarded a realisation of PURPOSES ARE DESTINATIONS, another conventional conceptual metaphor that is part of what Lakoff calls the event structure metaphor (Lakoff 1993: 220).

In sum, the ENVIRONMENTALISM IS MOVEMENT metaphors may be regarded a reification of the target domain. ENVIRONMENTALISM, like most political issues and phenomena, is complex and abstract. MOVEMENT, on the other hand, is a more concrete concept that is easier to relate to. As Semino points out, this may contribute to explain the motivation for this kind of metaphor (2008: 92). It seems reasonable to assume that such metaphors may function as a cognitive heuristic for the reader, as they make it easier for the reader to understand the target issue, which in this case is the climate change issue as a political issue.

8.5.2 Environmentalism is a journey: Following the road map

The next section focuses on the movement metaphors that are used about environmentalism that can more specifically be regarded *journey* metaphors.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
lead	13	10	27	49	99
step	8	8	8	5	29
reach	3	3	8	6	20
road map	5	-	3	-	8
follow	-	-	4	2	6
guide	2	1	2	-	5
path	2	-	1	2	5
road	1	1	1	2	5
green light	-	-	4	-	4
track	2	-	2	-	4
journey	-	-	2	-	2
pace	1	-	-	-	1
midpoint	1	-	-	-	1
halfway	-	-	-	1	1
U-turn	-	-	1	-	1
exodus	-	1	-	-	1
Total	38	24	63	67	192

Table 5. Number of lexical items from the domain of JOURNEY used describe ENVIRONMENTALISM, per publication.

In what way can environmentalism be talked of as a journey? The following examples illustrate some of the ways in which it can.

- 10 “This is the first important **step** on a long **journey** to reduce both countries’ greenhouse gas emissions. (...) (WWF 7)
- 11 One report, “A **Roadmap** for U.S.-China Cooperation on Energy and Climate Change,” is a joint project of the Asia Society and the Pew Center on Global Climate Change, both based in the United States. (N 41)
- 12 Most importantly, it is the year in which the international community, meeting in Copenhagen in December, must agree on urgent and dramatic action to avert the looming climate disaster and define the **path** toward a more sustainable, more survivable future. (G 16)

A real journey is about moving from one place to another physically, for example afoot or by means of some kind of vehicle, in order to reach a destination, or a goal, while in ex. 10, the word *journey* is used to talk about all the efforts and planning that needs to be done in order to reach the environmental goal of reducing greenhouse gas

emissions. Further, a real roadmap shows the roads and topography of a certain area, while in ex.11 *roadmap* is used to talk about a plan on how to cooperate on energy and climate change. Lastly, a real path exists in the real world, across real landscape, for example in a forest or across a hillside, while in ex.12 *path* is used to talk about the political decisions that needs to be made in order to secure ‘a more sustainable future’.

Semino suggests that we typically think of journeys as being composed of the following elements: starting point, a destination, a path connecting the two, and a direction of movement. She presents the source domain of JOURNEY as a dominant source domain within Western politics. However, she also mentions, referring to Kövecses, that it is a wide-scope source domain that can be used about a large variety of issues (2008: 92). According to Lakoff, LONG-TERM, PURPOSEFUL ACTIVITIES ARE JOURNEYS is a conventional metaphor (reported in Kövecses 2002: 135).

What effect might it have to talk about the political issue of climate change in terms of a journey? Firstly, since journey metaphors are also movement metaphors, the same point that was made about movement metaphors above is also valid for journey metaphors; that they serve to reify the target domain. Journeys are more concrete than environmental politics. To most people, it is easier to imagine being on a path and moving towards a certain destination than to imagine all of the political decisions and efforts that must be made to achieve a certain aim. Besides, journeys are something that many people think of as something positive. Reaching the final destination may be associated with relief, a feeling of success and excitement. Thus, talking about climate change politics in terms of journeys may help people understand the issue as well as perhaps encourage them to contribute to reaching the goal.

8.6 Environmentalism is war: Fighting, combating and battling climate change

Fight, combat, strategy, task force and *superpower* are examples of lexical items that have been used metaphorically in the material to talk about different environmental issues. Table 6 shows a complete list of the linguistic metaphors used about environmentalism that were classified as war metaphors.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
target	9	10	48	39	106
fight	4	1	9	17	31
combat	6	4	6	5	21
strategy	7	6	6	1	20
aim	2	5	5	2	14
revolution	-	-	5	7	12
task force	7	1	-	1	9
battle	4	1	1	1	7
deploy	-	1	2	1	4
ally	2	-	1	-	3
confront	1	1	-	-	2
struggle	2	-	-	-	2
three-pronged	1	-	-	-	1
cavalry	1	-	-	-	1
rank	1	-	-	-	1
adversary	-	-	-	1	1
kill	1	-	-	-	1
pummel	-	1	-	-	1
war	-	1	-	-	1
superpower	-	-	1	-	1
mobilise	-	-	1	-	1
silver bullet	-	-	1	-	1
<i>Total</i>	48	32	86	75	241

Table 6. Number of lexical items from the domain of WAR used to describe ENVIRONMENTALISM, per publication.

We cannot literally fight climate change. It is simply not a physical entity that is possible to actually fight. So, why are WAR metaphors used in climate change discourse? How can WAR be used about environmentalism, i.e. to describe ways to protect our environment?

Let us have a look at some examples:

- 13 Dealing with climate change will require a much broader **strategy**, even larger federal investments in clean-energy technologies and an effort to put a price on greenhouse gas emissions to unlock private investment on an enormous scale. (N 9)
- 14 Both declarations recognize the urgency of **combating** climate change through the Kyoto Protocol and through nationally appropriate mitigation actions. (G 8)
- 15 The Network will take a **targeted**, localized approach to climate change adaptation (...) (WWF 8)

16 Now the Times, a trumpet that never sounds retreat in today's war against warming (...) (W 23)

The most basic-contemporary meaning of *strategy* given by MED has to do with war. A *strategy* is the planning of how to achieve something in war, and this typically involves planning of how to attack, which weapons to use, etc. In ex.13 *strategy* is used to talk about a plan for dealing with climate change. It does not say anything about the possible use of tanks and bombs. Rather, such a plan could involve for example 'larger federal investments in clean-energy technologies' and 'an effort to put a price on greenhouse gas emissions to unlock the private investment in an enormous scale', and probably other kinds of political arrangements too. What is highlighted about the 'how to prevent further climate change' issue by talking about it in terms of a strategy is that it is a complex and politically important issue that depends on collaboration between a range of sectors in society in order to be carried through.

Examples 13-16 also illustrate how climate change has been talked about in terms of war. In ex.14, *combating* is used to describe the efforts that are needed to prevent climate change. In a real, or 'literal', combat, you fight in a war. In ex.15 *targeted* is used to suggest a determined approach to climate change adaptation. If you literally take a targeted approach to something, you intend to try to attack it. Ex.16 makes its own statement, I believe. Now, let us take a closer look at the possible reasons why the environmentalist purpose of preventing climate change is frequently described in terms of war. What is highlighted about environmentalism by describing it in terms of war? What may the effects be?

The WAR domain can be used metaphorically to describe any domain of experience that involves difficulties, danger, effort and uncertain outcomes (Semino 2008: 100). Examples are the domains of ARGUMENTS, which was mentioned in section 2.3.3, and BUSINESS MERGERS AND ACQUISITIONS (Koller 2002). Another example is POLITICS.

According to Semino, the WAR source domain has a wide scope in Anglo-American English. In politics, WAR metaphors can be used to talk about conflicts between individuals, groups, parties or governments that are not necessarily war situations

(2008: 100). Kövecses claims that POLITICS IS WAR is a conceptual metaphor that contributes to structuring American politics. Entailments of this metaphor are that different groups of society can be seen as armies, political leaders can be seen as leaders of armies, ideas and policies can be seen as weapons and the objective of the war is some political aim, and so on (2002: 62). Is it possible to see any of these entailments expressed in the findings of this thesis?

Firstly, the political goal of most climate change environmentalism is to prevent further climate change. Regarding environmentalism a kind of war thus implies regarding the prevention of climate change as the objective of the war. Groups of people that share the same views on climate change can be seen as an army, a cavalry, or ranks of green power. Nations can be allies.

- 17 “Everybody is waiting for the U.S. **cavalry** to come over the ridge”, he said. (N 15)
- 18 And any nation that’s willing to join the cause of **combating** climate change will have an **ally** in the United States of America. (N 11)
- 19 Nevertheless, the industry sees clean coal technologies as its best hope for joining the **ranks** of green power. (N 2)

The weapons, i.e. the ideas, policies, initiatives, etc. that are suggested to carry out the ‘strategy’ and to achieve the objective of the ‘war’ against climate change are many.

- 20 Domestically, the person said, the administration is looking toward a **three-pronged** approach. First there is a stimulus package that will include “green” initiatives like retrofitting buildings with better insulation. Then there is an energy bill that will include components like new fuel standards and tax breaks for investments in environmental technology and renewable energy. (N 15)
- 21 They have also failed to offer a concrete package to facilitate **deployment** of clean technologies in developing countries (...) (WWF 3)

In ex.20, there is actually reference to a weapon, namely a spear. How do you attack climate change with a spear, or ‘a three-pronged approach’? Apparently, you do it by means of ‘green initiatives’ and energy bills.

Finally, a country may employ a task force in order to protect itself from climate change, and if a country succeeds in the deployment of the various ‘weapons’, it can become a superpower.

22 The projections developed by the NPCC will be used by our **Adaptation Task Force** to create a plan to protect the City’s critical infrastructure and will inform other City efforts to adapt to climate change. Planning for climate change today is less expensive than rebuilding an entire network after a catastrophe. We cannot wait until after our infrastructure has been compromised to begin to plan for the effects of climate change now. (N 3)

23 In what could be described as a race to be the “green **superpower**,” the two countries have been ramping up investments in energy efficiency and clean energy technology, using economic stimulus packages to focus resources in those targeted areas. (WWF 7)

Now, with a critical perspective on the usage of war metaphors in climate change discourse: to what extent is it reasonable to talk of war, or even a conflict? What is the enemy like? The ‘war’ on climate change does not really involve any physical opponent, that is, an enemy to be in conflict with and to wage war against. Climate change cannot really be attacked with a three-pronged anything, and it would doubtfully be intimidated by a U.S. cavalry. Arguably, it is we, human beings, that represent a threat, or an enemy, to the climate.

However, many see climate change and the many possible consequences of it as a serious problem. According to Semino, metaphors can be used to emphasise the gravity of the problem and the importance of making an effort to solve it (2008:100). I suggest that war metaphors can in turn contribute to scaring people into action, or perhaps to encouraging them to fight. Either way, such metaphors may contribute to making people want to help prevent climate change. Also, perhaps one of the effects of using war metaphors to depict climate change as an enemy may be that we start

thinking of an ‘us’ against climate change. If so, war metaphors in climate change discourse could possibly also contribute to people feeling more united, e.g. on a societal or national level, since climate change is a possible threat to the whole society.

8.7 Environmentalism is sports: Who is the front-runner?

Table 7 shows the linguistic metaphors that may be seen as evidence for the underlying conceptual metaphor ENVIRONMENTALISM IS SPORTS.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
goal	14	9	10	2	35
tackle	7	3	6	8	24
player	-	4	2	8	14
win	2	-	1	2	5
team	4	-	-	-	4
round	3	1	-	-	4
tactics	-	-	1	2	3
race	-	1	2	-	3
hurdle	-	1	-	1	2
lead	1	-	-	-	1
heavyweight	-	-	-	1	1
vault	1	-	-	-	1
ping pong	-	-	-	1	1
wrestle	1	-	-	-	1
fray	1	-	-	-	1
ball	1	-	-	-	1
front-runner	1	-	-	-	1
cheerlead	1	-	-	-	1
nonstarter	1	-	-	-	1
Total	38	19	22	25	104

Table 7. Number of lexical items from the domain of SPORTS used to describe ENVIRONMENTALISM, per publication.

How have the lexical items in Table 7 been used to describe environmental issues?

How can environmentalism be described in terms of SPORTS? Here are some of the lexical items presented in Table 5 in context:

- 24 China must be a key **player** in the global fight against climate change (...) (G 11)
- 25 James L. Connaughton, the chairman of the White House Council on Environmental Quality, said the Bush administration climate **team** was

committed to keeping all options open for the incoming Obama administration (...) (N 15)

In ex.24, *player* is used to refer to China as a contributor to the environmental cause of counteracting climate change, while in ex.25, *team* is used to refer to a delegation for the United Nations Framework Convention on Climate Change. These are sports terms that are general for many types of sports. Let us have a look at some other examples that include more specific kinds of sports, and what implications this may have. After this, the effect of using SPORTS metaphors in general is discussed. Have a look at these examples:

- 26 Now we need to get the industry's **heavyweights** onto their feet and **into the ring**, so they help us fight the causes of climate change! (G 5)
- 27 But the most aggressive proponents of action on global warming, such as Miliband, focused on the argument that the United States cannot afford to opt out of what he called the "low-carbon race" other nations have already started. (W 8)
- 28 "Right now Alaska is really **the front-runner** in wind-diesel applications," said Ms. Dabo of the Alaska Energy Authority. (N 32)
- 29 A cap-and-trade system establishes a clear environmental **goal** by setting an upper limit on emissions (...) (N 7)

SPORTS metaphors are commonly used to talk about political issues. Different sports can be used as source domains to highlight different aspects of the target domain, however. Although all sports share some of the same qualities, for example that they are all primarily a matter of competition, they are of course also somewhat different as concerns certain aspects. For example, the nature of boxing is different from that of running or that of football.

Let us start by considering the source domain of boxing. Although boxing is a matter of competition, there are many aspects of boxing that are similar to aspects of violence and conflict. Thus, I believe that the use of the BOXING metaphors *heavyweight* and *into the ring* in ex.26, as well as the use of *wrestle* and *tackle* (listed

in Table 7), depict environmentalism as a conflict. Thus, the ENVIRONMENTALISM IS BOXING metaphor may have some of the same effects as the ENVIRONMENTALISM IS WAR metaphor.

Races and running, on the other hand, are sports that are perhaps more purely a matter of competition. In ex.27 and ex.28, *race* and *front-runner* describe efforts made by countries or states to become more environmentally friendly. Being ahead of another runner or possibly race car in the track can be seen as corresponding to emitting a little less carbon dioxide or producing energy by means of ‘wind-diesel applications’.

Goals are used in sports such as football and basketball; sports in which the main purpose is putting the ball into the goal. In ex. 29, *goal* is used to talk about the purpose of limiting emissions. Using the word *goal* metaphorically to talk about something that a person, organisation or a country wants to achieve is quite conventional, as pointed out by Deignan (1995: 96), and this is also evident from the meanings of *goal* given by the MED.

Which particular sports are used as source domain may depend on the cultural context as well as the particular situation they are used to describe. In American politics, American football, baseball and boxing dominate. Semino reports that a range of studies show that football metaphors were used to justify the First Gulf War to the general public, while boxing metaphors are more appropriate when discussing confrontations between prominent politicians. According to one of her own studies, the Italian media tycoon Silvio Berlusconi ascended to power in 1994 partly thanks to football (soccer) metaphors (2008: 98).

Now, what are the implications of talking about environmentalism in terms of sports? Semino and Masci make the following comment on the use of SPORT metaphors in political discourse:

Within sports metaphors, the complexities of ideological and ethical issues are backgrounded and politics is presented as a relatively simple domain with clear participants (the party ‘teams’), unproblematic goals (winning) and unambiguous outcomes (victory or defeat). (Semino and Masci 1996: 250)

Semino and Masci claim that the use of SPORT metaphors simplifies the target issue, and that it can possibly bring ‘warmth and excitement’ to a domain that can be perceived by many as ‘distant and alien’ (1996: 251).

Thus, SPORTS metaphors possibly function as a kind of cognitive heuristic in climate change discourse. Since SPORTS is a domain that practically everyone has some kind of basic knowledge about and personal experience from, it seems reasonable that it can ‘simplify’ the target issue by making it easier for people to understand.

Considering what was said about cognitive heuristics and persuasion in section 3, SPORTS metaphors may therefore have a certain persuasive force on the reader.

8.8 Environmentalism is construction: Fixing, maintaining and repairing the climate

Do the concepts ENVIRONMENTALISM and CONSTRUCTION share any qualities? It may seem like they do, considering that words like *regulate*, *blueprint* and *tool* were used to describe climate change issues in the material.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
regulate	39	14	1	3	57
mechanism	4	-	6	14	24
blueprint	-	-	1	6	7
build	-	1	3	1	5
fix	2	-	1	1	4
tool	1	-	3	-	4
maintenance	-	-	3	-	3
instrument	-	-	2	-	2
restore	-	-	1	1	2
repair	-	-	1	-	1
maintain	-	-	1	-	1
architect	-	-	1	-	1
Total	46	15	24	26	111

Table 8. Number of lexical items from the domain of CONSTRUCTION used to describe ENVIRONMENTALISM, per publication.

In examples 30-32, some of the linguistic metaphors categorised as ENVIRONMENTALISM AS CONSTRUCTION metaphors are presented in context.

- 30 The **blueprint** for a clean energy future shows how the EU can reduce its carbon footprint through phasing out nuclear power and coal, and instead investing in clean energy. (G 40)
- 31 Of the Clean Development **Mechanism**, a United Nations program that helps poor countries battle global warming, he said, “Things like the CDM are unfortunately very small, marginal **tools**.” (N 16)
- 32 Siberian larch forests, under threat from the hydro-electric dam project, play a crucial role in carbon balance **maintenance** and global climate change control. (WWF 20)

In the material, *blueprint* has been used to talk about different plans for how to prevent climate change, for example by reducing carbon emissions, through phasing out nuclear power and coal, as in ex.30. According to the MED, the most basic meaning of *blueprint* is ‘a drawing that shows how to build something such as a building or a machine, often printed with white lines on blue paper’. Further, *tools* as used in ex.31, and *maintenance* as used in ex.32 are linguistic metaphors that involve talking about CLIMATE CHANGE INITIATIVES in terms of CONSTRUCTION. Can we understand plans for preventing climate change in terms of a blueprint? And can we understand climate change initiatives in terms of tools and maintenance?

Making a blueprint for a building or a machine involves making a number of decisions, for example about which functions the building should have, the materials that should be used, which tools are most suitable to use; and possibly, some of these decision are made by several people, perhaps on various levels in a bureaucracy. These are aspects of a blueprint, or of the construction of a building or a machine that are mapped onto the target domain of planning how to prevent climate change.

Kövecses presents ABSTRACT COMPLEX SYSTEMS AS BUILDINGS as a conventional conceptual metaphor. He suggests that CREATING A WELL-STRUCTURED AND LASTING ABSTRACT COMPLEX SYSTEM IS MAKING A WELL-STRUCTURED, STRONG BUILDING is a lower-level conceptual metaphor below of this, and that at an even lower level, there is for example a metaphor he calls CREATING AN ABSTRACT COMPLEX SYSTEM IS

BUILDING (2002: 130-131). The linguistic metaphors given in the examples above can be understood as related to these conceptual keys.

Besides, the ENVIRONMENTALISM IS CONSTRUCTION metaphors are reifying metaphors, and examples of 'typical' metaphors, since the non-physical is conceptualised in terms of the physical (see section 2.3.3).

Several of the lexical items used are conventional in the sense that their contextual meaning has been lexicalised. For example, *fix* is used conventionally about any kind of problem, and *tool* has the conventional meaning 'something that you use in order to perform a job or to achieve an aim', which can be used about many issues.

From a critical point of view, the construction metaphors may be seen as expressing the view that we are capable of controlling nature. Construction of buildings and machines are not only complex matters, they are matters that are unquestionably human businesses. It involves that we, human beings, are in control; that we are the ones who decide what is going to happen, for example as concerns which materials to use, the function of the building/machine, etc. As mentioned above, Harré, Brockmeier and Mühlhäusler claim that machine metaphors used about nature involve the human desire of controlling and improving nature; to make nature a 'better machine' (see section 4.3.2). Thus, ENVIRONMENTALISM IS CONSTRUCTION may seem somewhat anthropocentric. Certainly, it is a convenient idea that we may be able to be in control and be in charge of the maintenance of the climate just like we are in control as concerns the buildings and machines that we construct, but if we really can is a different matter.

Considering what was said about climate change as a political issue in section 4.2.2, it makes sense that we talk about climate change in ways that express that we can control the climate to a certain extent. As explained in section 4.2.2, there is a scientific consensus that human activity has very likely played a central role in causing the global mean temperature to rise. However, it may seem like the construction metaphors, in highlighting the aspect of human control, fail to communicate that we are only capable of influencing, and not necessarily of

controlling climate change. These are aspects of climate change politics that are hidden by using the source domain of CONSTRUCTION.

Some of the pragmatic effects that ENVIRONMENTALISM IS CONSTRUCTION metaphors may have is that they may encourage people to think that we can indeed influence climate change, by convincing people that we do have tools to fix it and repair it.

8.9 Environmentalism is a game: Gambits and cards

Is environmentalism like a game in any sense? Table 9 gives an overview of the linguistic metaphors that suggest that it is.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
card	1	1	-	-	2
gambit	-	-	2	-	2
game	-	-	-	1	1
<i>Total</i>	1	1	2	1	5

Table 9. Number of lexical items from the domain of GAME used to describe ENVIRONMENTALISM, per publication.

Games are somewhat like sports, since they, like sports, emerged for the purpose of entertainment and pleasure, and also because they, too, often involve competition. However, in games the participants typically sit around a table and hold cards in their hands or move pieces around on a board. Thus, the physical qualities of the participants typically do not count as much as their mental capacities. During a chess game or a card game, the participants of the game do not make any significant physical effort in order to reach a finishing line or to put a ball in a goal, as in some sports.

Often, however, chance and luck determines the course of the game. You cannot control how the dice fall, or which cards are handed to you. Consequently, a very central characteristic of games is unpredictability. Finally, games involve a certain element of manipulation. Each of the players can be seen as having their own agenda, and as trying to gain advantages. A player may play the game in a way that serves to manipulate, or influence, the other participants' moves.

Now, let us consider examples 33-34

- 33 The targets being proposed by the EU, despite being one of the better **gambits** on the table, show a worrying reality gap. (WWF 3)
- 34 One of the biggest **wild cards** is the environment. (W 35)

In ex.33, *gambits* describe ‘the targets being proposed by the EU’, or more specifically, the aim of cutting emissions of carbon dioxide. The most basic meaning of gambit given by the MED is ‘a series of moves that you can make at the beginning of a game of chess’. Now, what effect might it have to talk of environmentalism in terms of a game?

Considering the findings, game metaphors in climate change discourse can serve to emphasise that we are in fact not one hundred percent sure of what we should do in order to prevent climate change. That is, environmentalism is a somewhat unpredictable enterprise: the outcomes of the efforts made to prevent climate change are not sure. Environmental policies and other types of efforts to prevent climate change are based on science, and thus on probability measures. In other words, we do not base ourselves on *knowing for sure*, but on doing what is most probably the best solution. In order to achieve environmental goals, we need to trust in our skills to make the best decisions.

Moreover, game metaphors may serve to emphasise that each country will try to protect its own interests, and possibly try to affect other countries’ decisions to their own advantage.

I assume game metaphors may have many of the same effects as SPORTS metaphors, such as that of making it easier for people to understand a complex matter. Comparing the use of game metaphors in the material to the use of SPORTS metaphors, however, GAME metaphors seem to put less focus on competition.

8.10 Environmentalism is a personal relationship: Embracing climate change initiatives

Table 10 presents lexical items that are used to describe environmentalism and that were classified as PERSONAL RELATIONSHIP metaphors.

Lemma	Publication				Total
	NY Times	Washington Post	WWF	Greenpeace	
Friendly	-	3	5	4	12
Embrace	1	2	-	3	6
Attractive	2	-	-	-	2
Total	3	5	5	7	20

Table 10. Number of lexical items from the domain of PERSONAL RELATIONSHIP used to describe ENVIRONMENTALISM, per publication.

Let us look at some of the linguistic expressions of the conceptual key ENVIRONMENTALISM IS PERSONAL RELATIONSHIP in context.

- 35 While Pelosi focused on calls for expanded health care, environmentally **friendlier** energy policy and improved education, Republicans saw higher taxes, soaring government spending and record federal deficits in the budget released Thursday. (W 22)
- 36 The objective is to transform Boracay into a climate-**friendly** destination through the implementation of energy-efficiency measures, zero waste management, and responsible tourism. (G 36)
- 37 industrialized and developing countries alike have **embraced** the idea of curtailing emissions linked to climate change. (W 8)

Environmentally friendly is a well-established term that deserves some attention. It means ‘not harmful to the environment’. I included both examples 35 and 36 to show that *friendly* is used to describe both in combination with *climate* as well as *environmentally*. However, I would claim that in both cases, the meaning of *friendly* is more or less that of the established term, i.e. ‘not harmful to’.

According to MED, the most basic-contemporary meaning of *friendly* is used to describe relationships between human beings. Similarly, *embracing* is something you can do in order to express love or friendship, while *attractive* is used literally to

describe something that is pleasant to look at, and perhaps also sexually desirable. Hence, the environment or the climate cannot literally be friends with, be embraced by, or be attractive to energy policies, Boracay and ideas of curtailing emissions. So, what may the motivation for talking about environmentalism in terms of personal relationships be?

Firstly, let us consider what is highlighted about environmentalism through the use of these linguistic metaphors. A common feature of personal relationships is that both parts care about each other and want each other to be happy, safe and healthy, and to succeed and develop. This is probably an aspect of ENVIRONMENTALISM that is highlighted by talking about it in terms of friendship, but it can hardly be a mutual relationship. That is, human beings can have a feeling of caring about the environment, but the environment cannot return these feelings, or respond to them at all.

Romaine believes that the pressure group Friends of the Earth ‘exists by virtue of its metaphorical opposition to those perceived as earth’s enemies’. She says that talking about environmentalism in terms of friendship is a way of talking about environmentalism in terms of war, since who the friends are and who the enemies are is a matter of political opinion (1996: 177-178).

8.11 Production of environmentally friendly energy is farming: Fertile ground for wind farms.

The lexical items in Table 11 were used to talk about production of environmentally friendly energy in terms of farming.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
Farm	7	2	4	2	15
Fertile	1	-	-	-	1
<i>Total</i>	8	2	4	2	16

Table 11. Number of lexical items from the domain of FARMING used to describe PRODUCTION OF ENVIRONMENTALLY FRIENDLY ENERGY, per publication.

In what ways have *farm* and *fertile* been used to talk about production of environmentally friendly energy? Consider these examples:

- 38 Iowa's Interstate Power and Light dropped a 630 megawatt plant as it pursues a 200 megawatt wind **farm**. (W 5)
- 39 One of the nation's harshest landscapes, it turns out, is becoming **fertile** ground for green power.

Farm and *fertile* are words that have basic meanings dealing with agriculture, but in examples 38 and 39 they are used to talk about the production of environmentally friendly energy.

What the source domain FARMING highlights in the target domain PRODUCTION OF ENVIRONMENTALLY FRIENDLY ENERGY is primarily that production of environmentally friendly energy is precisely environmentally friendly. This is a quality that is very closely associated with farming and agriculture. Furthermore, FARMING highlights the aspect of production. Just like farming involves producing crops, arranging for the generation of electric energy from wind power involve producing electric energy. Moreover, both deal with the production of something that is essential for any modern household, namely food and electricity.

What are the effects of talking about production of environmentally friendly energy in terms of farming? Perhaps it simply serves to emphasise that it is indeed environmentally friendly.

8.12 Environmentally friendly is clean and pollution is dirty: Can coal be squeaky-clean?

The next group of metaphors to be discussed are linguistic metaphors of the category ENVIRONMENTALLY FRIENDLY IS CLEAN and POLLUTION IS DIRTY. These linguistic metaphors have been used to talk about the extent to which something is environmentally friendly or not in terms of cleanness.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
<i>clean</i>	56	22	-	31	109
<i>dirty</i>	2	2	11	-	15
<i>greenwash</i>	-	-	-	4	4
<i>squeaky-clean</i>	1	-	-	-	1
<i>sordid</i>	-	-	-	1	1
<i>black</i>	-	-	-	1	1
<i>refresh</i>	1	-	-	-	1
<i>Total</i>	60	24	11	37	132

Table 12. Number of lexical items from the domain of CLEAN/DIRTY used to describe ENVIRONMENTALISM, per publication.

As is obvious from the Table 12, the category is dominated by one lexical item, namely *clean*. Again, let us have a look at some of the linguistic metaphors in context.

- 40 They show, yet again, that “clean coal” is a contradiction in terms. The last few weeks have highlighted coal ash as yet another drastic example of why coal is always dirty. (G 25)

In the material *clean* has been used to talk about coal, as is evident from examples 40, but it has also been used about other energy sources, such as wind, the sun and biomass.

Firstly, let us establish the most basic meaning of *clean*. MED gives the following explanation to *clean*:

- 1 not dirty
 a. clean air or water has no dirty or dangerous substances in it
 b. clean machines and processes do not create a lot of pollution

All of these descriptions of the meaning of *clean* are quite vague. However, I argue that meaning 1a is the most basic meaning of *clean*, since this meaning is easier to imagine, and also somewhat more precise (cf. MIP step 3) than meaning 1b. Consequently, I have identified ‘clean’ as a linguistic metaphor when used to describe coal. Coal cannot be literally clean, since it is, in many ways, a ‘dangerous substance’. However, talking about coal in terms of cleanness serves to highlight something about the type of coal described. That is, only some kinds of coal can be called *clean*, and the reason they can is that they pollute less than other kinds.

There have been made some protests against calling coal ‘clean’. An excerpt from one of the Greenpeace articles from the material can serve to illustrate this kind of protests. The article is about leakage of toxic coal ash from a coal-fired power plant into a river, for the second time in less than three weeks:

Both disasters are indeed a “black eye” for the clean coal lobby. They show, yet again, that “clean coal” is a contradiction in terms. The last few weeks have highlighted coal ash as yet another drastic example of why coal is always dirty. (...) Some coal plants claiming to be “clean” may be controlling air pollution better, but it’s not as though their toxic residues no longer exist – it’s just that now they become solid byproducts, such as fly ash, “stored” in unlined ponds or pits near the plants. With more than 1,300 dumps across the US, production of these “post combustion” wastes has dramatically increased in recent years. But, there has been no proper regulation of coal ash from power plants by the US government. (G 25)

In other words, some people claim that since coal always pollutes when we use it as an energy source, it does not make sense to call it clean at all.

It may be discussed whether *dirty* is used metaphorically when used about coal, as in ex.41 below.

41 On the environmental agenda, some groups are pushing Obama to seek restrictions on tar sands oil, a **dirtier** form of oil that contributes about half of the oil imported into the United States from Canada. (W 32)

The MED simply describes the meaning of *dirty* simply as ‘not clean’. This is a quite vague meaning, and it may seem hard to claim that there is any great contrast between the contextual and the basic meaning. However, I would claim that there is a certain contrast in cases where *dirty* is used about coal, e.g. as in ex.41, since the contextual meaning in such cases is ‘polluting’.

Now, what may the effects of talking about ‘clean’ and ‘dirty’ coal be? Presumably, it can function as a cognitive heuristic to some extent. That is, it may function as a rule of thumb that makes it easier for people to understand that different kinds of coal pollute to different extents. However, talking about coal in terms of cleanness may

also be misleading if it makes people think that ‘clean coal’ really is *clean*, i.e. not polluting or dangerous to the environment at all, because this is not the case.

Moreover, could clean and dirty possibly give the reader any associations to morality? Kövecses comments that MORAL/ETHICAL IS CLEAN is a conceptual metaphor. He says that for example the idioms *have clean hands* and *have blood on one’s hands* are based on the idea that hand can stand for activity and the conceptual metaphor MORAL/ETHICAL IS CLEAN (2002: 210). If one sees it as more ethical to use ‘clean coal’ than ‘dirty coal’, then this would agree with this last-mentioned conceptual metaphor. In that case, the ethical aspect would lie in the fact that ‘clean coal’ is pollutes less, and is thus less environmentally friendly, and, further, that environmentally friendly is more ethical.

Besides, ‘not guilty of anything illegal or wrong’ is a conventional meaning of *clean*. While the basic meaning of *squeaky-clean* is ‘extremely clean’, the word is in fact most frequently used in the meaning ‘always behaving in a completely moral and honest way’. This also bears witness of that CLEANNESS is associated with MORALITY.

In other words, another possible effect of talking about ENVIRONMENTALLY FRIENDLY in terms of CLEAN, besides those mentioned above, is that it may give people associations to ethics and thus contribute to people thinking about environmentally friendly as more ethical.

8.13 Personification in climate change discourse: Is climate change threatening us?

There are several target domains that have been personified in the material, namely CO₂, climate change and fossil fuels, as shown in Tables 13-15.

<i>Publication</i>					
<i>Lemma</i>	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	<i>Total</i>
threaten	-	4	3	1	8
face	-	-	4	1	5
kill	-	-	-	3	3
wait	-	-	-	1	1
<i>Total</i>	-	4	7	6	17

Table 13. Number of lexical items from the domain of PERSON used to describe CLIMATE CHANGE, per publication.

<i>Publication</i>					
<i>Lemma</i>	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	<i>Total</i>
capture	15	10	5	4	34
trap	10	5	1	-	16
<i>Total</i>	25	15	6	4	50

Table 14. Number of lexical items from the domain of PERSON used to describe CO₂, per publication

<i>Publication</i>					
<i>Lemma</i>	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	<i>Total</i>
to rest	-	-	-	1	1
demise	-	1	-	-	1
tyranny	-	1	-	-	1
trail	-	-	-	1	1
<i>Total</i>	-	2	-	2	4

Table 15. Number of lexical items from the domain of PERSON used to describe FOSSIL FUEL, per publication.

Once more, let us start by having a look at some examples from the material:

- 42 Not only is coal the single greatest contributor to the greatest crisis **facing** our planet - climate change; but it is also responsible for air pollution, illnesses, human rights abuses, forced displacement of communities, blowing up mountains, contaminating water, drying up lakes, reducing crop yields and killing people. (G 25)
- 43 Climate change is happening now and **threatens** everyone. (G 31)
- 44 The existing program covers a much wider variety of energy projects, including "advanced nuclear" power plants, plants that "gasify" coal or turn it into liquid form, and plants that **capture** and bury carbon dioxide, a greenhouse gas produced by coal power plants. (W 41)

45 With the nation enduring its deepest economic crisis in decades, he told Energy Department employees earlier this month that energy provisions, including funding in the stimulus bill, would "begin to end the **tyranny** of oil in our time." (W 35)

Firstly, as stated in section 6.1, I use Charteris-Black definition of personification. Thus, when words that have a basic meaning dealing with human or possibly animal behaviour were used to talk about climate change issues, which are inanimate, I identified this as personification.

The basic meaning of *to face* is 'to be opposite someone or something so that your face or front is towards them' (MED), i.e. it is typically persons, and possibly animals, that face something. According to the MED meaning of *threaten*, this verb means to tell someone that you will do them harm. In other words, you need to have the intention of threatening and you also need to know how to threaten in order to actually do it. Only animate things can have intentions of and be in the state of knowing how to threat someone else. Further, the basic meaning of for example *capture* is 'to catch someone so that they become your prisoner' (MED). Thus, 'capturing' typically involves that something animate captures some other animate entity, for example that an animal captures another animal. CO₂ is inanimate, and therefore this use of *capture* was identified as a metaphor. *Tyranny* also necessarily involves such intentional and elaborate action. The basic meaning of *tyranny* really describes a government, but since it is clearly human beings that necessarily make up a government, I regard the use of this word in the context of the sentence in ex.45 as personification, too. Now, what does it imply to personify something? What may the motivation for doing so be?

Lakoff and Johnson say that personification allows us to understand a wide variety of nonhuman things in terms of our own motivations, characteristics and activities (2003: 33). Further, personification may be seen as related to a conceptual metaphor called EVENTS ARE ACTIONS, which involves that we understand external events as actions. That is, we understand events as produced by an active, wilful agent (Lakoff and Turner, reported in Kövecses 2002: 50). Can these explanations to the motivations for personification be used to explain the findings any further? Can they

be used to explain why the specific target domains in the findings have been personified?

Indeed, ‘climate change’ can clearly be seen as a sort of event; as something that happens. Do we see it as a sort of action? When we talk about climate change in terms of a person, or an animal, that can threaten, wait, face us and kill, it seems we understand it as an active, wilful agent. What may the more specific motivations for this be? Cf. the descriptions of climate change in sections 1.1, 4.2.1 and 4.2.2, climate change is an event that may have great implications to our society, or to our way of living today. For example, some say that climate change may result in more droughts and floods, and reduced crops and drinking water availability. Considering these aspects of climate change, it does seem to make sense to talk about it for example as *threatening* us; as a person or animal that intends to cause us harm. That is, talking about climate change as threatening us indicates that we think of ‘the likeliness of climate change causing us harm’ in terms of ‘climate change is threatening us’. Besides, if we think about climate change as threatening us, the war metaphors (as discussed in section 8.6) make more sense.

Now, what about the instances of personification of CO₂? In ex. 42, *capture* is used in the sense ‘to gather’ carbon dioxide. This basic meaning of *to capture* is to catch someone in order to make them your prisoner (MED). Therefore, talking of capturing carbon dioxide implies talking about the gas as a ‘someone’, i.e. as a person.

As explained in section 4.2.1, carbon dioxide, or rather, the increased amount of carbon dioxide in the atmosphere, is the main cause of climate change. It is possible to see the personification of carbon dioxide as related to the higher-level conceptual metaphor EVENT IS ACTION. That is, an increase in the amount of carbon dioxide in the atmosphere can be seen as an event, and this event can be regarded as caused by carbon dioxide, or, metaphorically, the increase in the *amount* of carbon dioxide can be seen as the result of an action performed by carbon dioxide.

This, in addition to the fact that many regard the increase in the amount of carbon dioxide as harmful to us, provides an explanation to the use of *capture* as we see it in ex.42. A primary focus of climate change environmentalism is to prevent that CO₂ is

not released into the atmosphere, or, in other words, to get the emissions of carbon dioxide under control. As argued in section 8.4, the one who captures is typically some kind of authority, and the captive, or the one who should be captured, is typically a criminal.

If the use of *capture* to talk about how we should gain control of CO₂ does indeed give associations to CO₂ being some sort of criminal, or enemy, then the CO₂ IS A PERSON metaphors can also be seen as related to the war metaphors presented in section 8.6. It would make sense to say that we fight a war against climate change by capturing our worst enemy, CO₂. Although this relation is not explicitly expressed in the material, it is possible to claim that the two conceptual keys are related to each other.

8.14 *The Earth is a house: The greenhouse*

This subsection is a presentation of the linguistic metaphors that were used to talk about the THE EARTH in terms of HOUSE.

<i>Lemma</i>	<i>Publication</i>				<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
greenhouse	56	49	43	45	193
thermostat	3	-	-	-	3
floor	-	-	3	-	3
sink	-	-	1	1	2
storehouse	-	-	-	1	1
build	1	-	-	-	1
<i>Total</i>	60	49	47	47	203

Table 16. Number of lexical items from the domain of HOUSE used to describe THE EARTH, per publication.

The following examples show *greenhouse*, *thermostat* and *floor* in context.

Storehouse and *sinks* were shown in context in ex.1 and ex.2, respectively (see section 2.1 and 2.3.3, respectively).

- 46 Monday, Mr. Obama directed the Environmental Protection Agency to consider immediately California's application to set its own rules on **greenhouse-gas** emissions from cars and trucks. (N 12)

- 47 Actually, the case for a tropical **thermostat** was pretty well established about seven years ago when data showed that the outgoing long wave radiation during the 90's was much larger than models said it should have been. (N 13)
- 48 (...) a series of spectacular reefs rising thousands of metres from the sea **floor**. (WWF 42)

In ex.46, *greenhouse-gas emissions* refers to the emission of a variety of gases, though principally CO₂. However, 'greenhouse gases' are, strictly speaking, gases that are emitted from plants in a greenhouse, and not gases that are emitted by cars or factories into the atmosphere. *Greenhouse* is also used to describe *warming*, *pollution* and *emitters* in the material. Elsewhere, it is commonly used in front of *effect*. These uses of *greenhouse* are based on a metaphor, i.e. on thinking about the atmosphere as the glass walls and roof of a greenhouse, or to think about the earth as a greenhouse. Since there are certain similarities between a real greenhouse and the earth, this metaphor makes sense. While the atmosphere that surrounds the earth prevents heat from escaping, the walls and the roof of a greenhouse provide the same effect in a greenhouse. Furthermore, this exact effect promotes life in both of the systems. These aspects are the aspects that are highlighted in the target domain EARTH.

What may the motivations for using EARTH IS A GREENHOUSE metaphors be? Romaine claims that the greenhouse metaphor is a result of a certain higher-level metaphor, namely the EARTH AS A CONTAINER metaphor. Furthermore, she focuses on that the greenhouse is our home: 'Homes provide shelter for people (...), just as the greenhouse provides a protective and carefully controlled environment for plants', and that this may be part of our conceptualisation of earth as a greenhouse (1996: 181).

However, I see it as more probable that one of the main functions of the THE EARTH IS A GREENHOUSE metaphors is that they work primarily as a cognitive heuristic that does not take all the information into account. If it does function in this way, then this could possibly explain the motivation for as well as the effect of using it.

Now, which aspects are hidden in talking about the earth in terms of a greenhouse? One aspect of the atmosphere that is hidden by talking of it in terms of a glass layer is that it is necessarily less stable than a simple glass layer. Another aspect that the greenhouse metaphors fail to highlight is that the amount of life that exists under the atmosphere is very complex, being a dynamic interplay between a diversity of ecosystems. Surely, the ecosystem existing under the glass of an actual greenhouse is a much less complex system. Thirdly, since the greenhouse is a human design, and under human control, the greenhouse metaphor also hides the fact that the earth is not controlled by human beings. Are we possibly misled by the greenhouse metaphors so that we forget about these aspects of the earth? Is that another effect of such metaphors? Considering this third point, linguistic realisations of the EARTH IS A GREENHOUSE metaphor may contribute to readers thinking about the earth, including the climate, as controlled by the human beings. Thus, greenhouse metaphors may be seen as somewhat anthropocentric.

8.15 Other categories

This section primarily presents the one-shot conceptual metaphors found in the material, but also a conceptual key represented by merely two linguistic metaphors in the material, namely ENVIRONMENTALISM IS MUSIC.

The linguistic metaphors presented in Tables 17 and 18 do not represent any dominant group of metaphors in the material, but some of them are used quite frequently, for example *cut*, *summit*, *key* and *footprint*. This part of the discussion concentrates on only a few of the one-shot conceptual metaphors.

Cut has been used primarily to talk about *emissions*, as in example 47.

- 49 Mr. Obama has called climate change “a matter of urgency,” promising to seek legislation to **cut** greenhouse gas emissions sharply and to increase United States participation in global climate initiatives. (N 15)

The basic meaning of *cut* is to use something sharp, such as a knife or a pair of scissors in order to divide something in two or more pieces (MED). The contextual meaning of *cut* in ex.49 contrasts with this meaning, because it involves reducing

greenhouse gas emissions by means of legislation, rather than actually cutting something physically.

<i>Lemma</i>	<i>Publication</i>					<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>		
chorus	1	-	-	-	1	
overture	1	-	-	-	1	
Total	2	-	-	-	2	

Table 17. Number of lexical items from the domain of MUSIC used to describe ENVIRONMENTALISM, per publication.

<i>Lemma</i>	<i>Publication</i>					<i>Total</i>
	<i>NY Times</i>	<i>Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>		
cut	12	3	22	35	72	
summit	3	7	12	10	32	
key	1	7	8	5	21	
footprint	-	6	7	7	20	
scenario	3	1	9	4	17	
vision	1	1	3	9	14	
budget	1	10	-	-	11	
link	6	3	1	-	10	
fossil	-	-	-	10	10	
cap	2	5	-	1	8	
threshold	-	1	6	-	7	
feedback	5	-	1	-	6	
lock	-	1	1	3	5	
Mickey Mouse	-	-	-	3	3	
sacrifice	1	-	1	1	3	
respond	1	1	-	-	2	
harness	-	1	-	1	2	
tipping-point	1	-	-	1	2	
wake	-	1	-	1	2	
inject	2	-	-	-	2	
decouple	-	-	1	-	1	
massive	-	-	1	-	1	
ceiling	1	-	-	-	1	
specter	1	-	-	-	1	
root	-	-	1	-	1	
window	-	-	-	1	1	
wreck	-	-	-	1	1	
pond	-	-	1	-	1	
climb	-	1	-	-	1	
spew	1	-	-	-	1	
crazy	1	-	-	-	1	
fight	1	-	-	-	1	
cure	1	-	-	-	1	
tap	-	1	-	-	1	
catalyse	-	-	-	1	1	
nightmare	1	-	-	-	1	
landscape	1	-	-	-	1	
cook	-	-	-	1	1	
boil	-	1	-	-	1	
tongue	-	1	-	-	1	
garden	-	-	1	-	1	
speed	-	1	-	-	1	
Total	47	53	76	95	271	

Table 18. Number of lexical items from the domain of X used to describe Y, per publication; one-shot conceptual metaphors per publication.

The use of *footprint* in the material also involves reification. It is used together with *carbon*, as in ex. 48:

50 If we are going to reduce our carbon **foot print**, people have to drive less.
(G 20)

Why is *footprint* used in this way? Let us have a closer look at what the basic and contextual meanings are, and at which aspect that are highlighted in the target domain. While the basic meaning of *footprint* is an indentation of a human or animal foot on some sort of material, perhaps soil, in ex.50, *footprint* (although it in this case was written with a space between *foot* and *print*) has been used to talk about the carbon emissions of our consumption. Thus, the fact that we may leave marks on the ground as we are walking, depending on the surface material of the ground, is used to talk about the impact that our consumption of various things has on the environment, and on climate change. Making footprints is something we do all the time, without thinking about it. Walking from one place to another we may not be thinking about each step we take, how hard we tread, or how many footprints we make along the way. Usually, we think more about where we are going, i.e our destination. In the metaphorical use of *footprint* in ex.48, these aspects of making real footprints highlight something about our consumption and the extent to which it often involves emission of carbon dioxide.

Possibly, using *footprint* in this way can function as a cognitive heuristic. That is, it may make it easier for people to understand that their consumption may have consequences for the environment, and thereby make them somewhat more conscious about what they consume.

8.16 Differences between the sources

The focus of this last section of the discussion is to look at differences in the usage of metaphors between the sources, and to thereby provide an answer to Q4; ‘Are there any differences in which linguistic and/or conceptual metaphors are used in newspaper articles versus press articles of environmental organisations?’. For example, do the newspapers use other source domains than special interest

organisations when talking about climate change issues metaphorically? Considering that the two types of sources have somewhat different agendas, possible differences in the metaphor use of the sources can serve to support the assumption that metaphors reveal something about what we think, as suggested in section 6.4.

As shown in Table 1 (given in section 7.2), there are about the same number of words and articles from each source. This, and the fact that all of the material treats the same subject, namely climate change, provides the basis for comparing the findings as concerns each source.

In order to make such a comparison, I base myself on the information given in Tables 3-18. That is, I take into consideration the number of linguistic metaphors used per conceptual key, per publication, and I also look more closely at which lexical items were used and the number of times that the particular lexical items have been used metaphorically per publication.

The numbers of how many linguistic metaphors were used per conceptual key per publication are given in the bottom line of Tables 3-18, but Table 19 gives a clear overview of this information, and it also shows the total number of linguistic metaphors found in the four different sources.

Table 19 shows that *The New York Times* and Greenpeace use metaphors to talk about climate change issues somewhat more frequently than the other sources, while *The Washington Post* uses metaphors a little less frequently than the other sources. In sum, however, the total number of linguistic metaphors that each source uses does not vary greatly between the sources.

Now, Table 19 also shows that as concerns the use of source domains, there is some variation between the sources. Let us look a little closer at these differences.

Regarding the category CLIMATE CHANGE IS MOVEMENT, Table 19 shows that out of 72 linguistic metaphors, 26 were used in Greenpeace articles, 20 were used in WWF articles, 15 were used in *The Washington Post* articles, and 11 were used in *The New York Times* articles. Thus, comparing the four different sources, it is the special

interest organisations that use CLIMATE CHANGE IS MOVEMENT metaphors most frequently. Greenpeace uses most this kind of metaphors compared to the other three sources, and WWF is in second place.

Source domain	Publication				Total
	<i>The NY Times</i>	<i>The Washington Post</i>	<i>WWF</i>	<i>Greenpeace</i>	
CLIMATE CHANGE IS MOVEMENT	11	15	20	26	72
ENVIRONMENTALISM IS MOVEMENT	65	45	48	53	211
ENVIRONMENTALISM IS WAR	48	32	86	75	241
THE EARTH IS A HOUSE	60	49	47	47	203
ENVIRONMENTALISM IS JOURNEY	38	24	63	67	192
ENVIRONMENTALISM IS CLEANING	60	24	11	37	132
ENVIRONMENTALISM IS CONSTRUCTION	46	15	24	26	111
ENVIRONMENTALISM IS SPORTS	38	19	22	25	104
CLIMATE CHANGE IS A PERSON	-	5	7	6	18
CO ₂ IS A PERSON	25	15	6	4	50
FOSSIL FUEL IS A PERSON	-	2	-	2	4
ENVIRONMENTALISM IS A PERSONAL RELATIONSHIP	3	5	5	7	20
PRODUCTION OF ENVIRONMENTALLY FRIENDLY ENERGY IS FARMING	8	2	4	2	16
ENVIRONMENTALISM IS GAME	1	1	2	1	5
ENVIRONMENTALISM IS MUSIC	2	-	-	-	2
Other	47	53	76	95	271
Total	452	306	421	473	1,652

Table 19. Number of linguistic metaphors per conceptual key per publication.

Looking a little closer at the numbers, it is only Greenpeace that uses *stop* to talk about climate change. Moreover, this lexical item makes up a large part of the total number of CLIMATE CHANGE MOVEMENT metaphors used by Greenpeace; it is used in 13 of the 26 of these metaphors. The number of articles it is used in is 11, so the linguistic metaphors are spread evenly over several articles, so the use of *stop* is not necessarily related to the specific topic of only a few articles. Now, what may the reason be that Greenpeace uses *stop* more frequently than the other sources? Possibly, the explanation is that Greenpeace more determinedly than the other sources urges people to prevent further climate change from happening.

Moreover, the five times that *runaway* was used metaphorically to describe climate change in the material, it was Greenpeace that used it. As discussed in section 8.4, *runaway* is a potentially powerful movement metaphor, since it can possibly contribute to people thinking about climate change as something that should be

caught and controlled by us human beings, and thus also contribute to people thinking about it as something harmful.

As concerns the ENVIRONMENTALISM IS MOVEMENT metaphors, the total number of linguistic metaphors per publication is quite evenly distributed. However, *The New York Times* uses such metaphors to a somewhat higher extent than the other sources. While *The Washington Post* has used 45 of these metaphors, WWF has used 48 and Greenpeace has used 53, *The New York Times* has used 65. 16 of these are realised by the use of *approach* (see Table 4). Greenpeace does not use this word to talk about climate change issues at all. *Approach* is a word that is commonly used to describe a way of thinking about or dealing with something, and it is often used in politics. A possible reason for that this lexical item was used more times in the *The New York Times* material is that *The New York Times* is a newspaper, and that it to a higher extent focuses on reporting on politics. However, according to this explanation, there should perhaps be a greater difference between the newspapers and the organisations than there is.

In fact, the situation is quite similar as concerns ENVIRONMENTALISM IS CONSTRUCTION, as this was also a conceptual key used predominantly by *The New York Times*, by means of primarily one lexical item (see Table 8). *Regulate* is a word commonly used to describe different kinds of policies, and the reason this word appears most frequently in *The New York Times* is possibly the same as in the case of *approach*; that *The New York Times* predominantly focuses on reporting on politics.

Considering the ENVIRONMENTALISM IS WAR metaphors, the majority of the linguistic metaphors realising this conceptual metaphor were found in the special interest organisation material. Of the total of 241 ENVIRONMENTALISM IS WAR metaphors in the material, Greenpeace and WWF were responsible for 161 (see Table 19). What may the reason for this be? At first, it may seem reasonable to consider this a result of the more extreme views of the special interest organisations. That is, since one of the primary aims of Greenpeace and WWF is to convince people that climate change is an issue that we should regard as serious, it seems reasonable that they use more WAR metaphors than the newspapers. Let us have a closer look at the numbers, however.

The fact that it is the organisations that use most of the ENVIRONMENTALISM IS WAR metaphors is largely the result of the organisations using the word *target* to a higher extent than the newspapers to talk about climate change issues. While the newspapers use *target* 9 and 10 times to talk about a climate change issue, the organisations used *target* 48 and 39 times (see Table 6). Now, *target* is conventionally used to talk about something that one tries to achieve, and people do perhaps not associate it with WAR immediately. It is therefore difficult to say whether the fact that the organisations use this word more often when talking about climate change issues actually has something to do with their more manifest agendas.

On the other hand, *goal* is also conventionally used to talk about something that one tries to achieve. As explained above (see section 8.2), the most basic meaning of *target* is related to WAR, while the most basic meaning of *goal* is related to SPORTS. Comparing the use of *target* and *goal* (see Tables 6 and 7), Greenpeace used *goal* only twice to talk about climate change issues, while *The New York Times* used it 14 times. Further, *The New York Times* used *target* 9 times, while *The Washington Post* used *goal* 9 times, and *target* 10 times. These numbers show two things: one, that the organisations choose to describe the political aims as concerns climate change by means of the more WAR-related word *target* instead of the more SPORTS-related word *goal*, and two, that the newspapers do not seem to prefer any of the lexical items. Thus, in sum, the fact that Greenpeace and WWF choose to use *target* to a larger extent than the newspapers may indicate that the organisations intend to depict environmentalism as a war.

Furthermore, Greenpeace and WWF also use *fight* to a somewhat higher extent than the newspapers. As shown in Table 6, Greenpeace used *fight* 17 times to talk about climate change issues, while WWF used it 9 times, compared to *The New York Times*, which used it 4 times, and *The Washington Post*, which used it only once. *Fight* gives quite direct associations to war, and it may reflect a more persistent attitude to climate change issues.

Now, considering the numbers in Table 12, what may the reason be that *The New York Times* used *clean* more frequently than the other sources did? Table 12 shows that *The New York Times* used *clean* far more frequently than *The Washington Post*:

while the first-mentioned newspaper used *clean* 56 times to talk about climate change issues, the last-mentioned newspaper used it 22 times. In the material, *clean* is used to describe fossil fuels. ‘*Clean coal*’ is regarded as a political solution to climate change. So, in this case, as in the case of *approach* and *regulate*, the explanation to the lexical item being used more frequently by a newspaper may be that the newspapers to a larger extent focus on reporting politics. However, considering that *The New York Times* and *The Washington Post* are both newspapers with more or less the same agenda as concerns climate change, it is difficult to say anything certain about this finding too. On the other hand, could the findings as concerns *approach*, *regulate* and *clean* in sum say something about precisely certain differences in the newspapers’ agendas? It is possible to interpret these findings in this direction.

The New York Times used more CO₂ IS A PERSON metaphors than the other sources, but it is difficult to tell why this is so. As concerns the conceptual keys ENVIRONMENTALISM IS A GAME, ENVIRONMENTALISM IS PERSONAL RELATIONSHIP, ENVIRONMENTALLY FRIENDLY ENERGY IS FARMING, PRODUCTION OF ENVIRONMENTALLY FRIENDLY IS CLEAN/POLLUTION IS DIRTY, CLIMATE CHANGE IS A PERSON and THE EARTH IS A HOUSE, and, the four sources use more or less the same amount of linguistic metaphors (see Tables 9-13 and Table 16).

Finally, Greenpeace used more one-shot conceptual metaphors than the other sources. Greenpeace used 95 one-shot conceptual metaphors, WWF used 76, *The Washington Post* used 53 and *The New York Times* used 47. 35 of the linguistic metaphors used to realise a one-shot metaphor in the Greenpeace material involved the use of the word *cut*. As presented in section 8.15, in the material, *cut* is used to talk about the reduction of the amount of greenhouse gases that companies as well as nations should be allowed to emit. Does the fact that Greenpeace used this lexical item more frequently than the other sources indicate that it to a higher extent than the other sources intends to encourage the reduction of greenhouse gas emissions? This is a possible explanation, but, again, it is difficult to make any firm conclusions.

9 Final remarks

9.1 *Limitations of the study*

The sample of climate change discourse that was used to study metaphors in this thesis consists of 100,000 words, and constitutes only a part of climate change discourse, considering the entire deposit of climate change discourse that has been produced over the years. If I had used the same sources, but included a higher number of words, say, 1 million words, I would possibly have found more and other metaphors. However, it was considered important to compose a corpus that was manageable in order to carry out a manual analysis.

The fact that the 100,000 words were taken from *The New York Times*, *The Washington Post*, World Wildlife Fund and Greenpeace also had certain consequences for the findings that were made. That is, if I had collected the material from other sources, e.g. from other newspapers, other special interest organisations, or from completely different kinds of sources, such as speeches or scientific articles, I would possibly have found other metaphors.

As concerns the analysis, I was the only person involved in identifying the linguistic metaphors. Possibly, a different researcher would have made other decisions. However, the identification of linguistic metaphors had to be carried out manually, since there are currently no computer programmes that can do this – the human analyst must rely on her ‘informed intuition’ (see section 5.4).

9.2 *Summary of findings*

The findings of this study show that source domains as different as MOVEMENT, WAR, PERSONAL RELATIONSHIP and HOUSE are used to talk about climate change issues in real discourse.

Further, the findings show that the great majority of the metaphors used in climate change discourse are used about environmentalism, and not directly to describe

climate change. Regarding source domain, most of the linguistic metaphors used about either climate change or environmentalism are movement metaphors, including journey metaphors.

In section 8.4, CLIMATE CHANGE IS MOVEMENT metaphors were discussed. It was argued that there might be certain differences in the way that the different linguistic metaphors reflect particular ways of thinking. For example, while movement words like *pace* and *move* do not necessarily reflect any particular positive or negative ways of thinking about climate change, movement words that describe the manner in which something moves, such as *slowly*, *rushing* and *runaway* may to a higher extent reflect a certain way of thinking about climate change. As shown in section 8.16, there were some differences between the sources regarding the use of CLIMATE CHANGE IS MOVEMENT metaphors. For example, Greenpeace used this kind of metaphors most frequently.

Section 8.5 presented the ENVIRONMENTALISM IS MOVEMENT metaphors, including the ENVIRONMENTALISM IS JOURNEY metaphors. It was mentioned that movement metaphors are conventionally used about a range of subjects, and the findings of this study show that climate change environmentalism is one of these subjects. Further, movement metaphors serve to reify the target domain, since MOVEMENT is easier to relate to for most people than the more abstract concept of ENVIRONMENTALISM. This may contribute to explaining the use of MOVEMENT metaphors. In discussing the journey metaphors in specific, it was argued that these metaphors possibly give people positive associations to reaching the aim of preventing climate change. Overall, the four different sources used more or less the same amount of movement metaphors, although Greenpeace used certain lexical items expressing a somewhat more extreme attitude.

The ENVIRONMENTALISM IS WAR metaphors make up the second largest group of metaphors after the movement metaphors. The war metaphors were discussed in section 8.6. It was suggested that the motivation for talking about preventing climate change in terms of war is that the possible consequences of climate change are so severe. That is, if climate change can inflict some sort of damage on our society, then it makes sense that we see climate change as a sort of enemy. Further, if we think

about climate change as an enemy, it makes sense to talk about preventing it in terms of fighting and combating. The war metaphors emphasise how serious the possible effects of climate change are, and may thereby motivate people to make an effort to solve it. The organisations used more war metaphors than the newspapers, and this possibly reflects their more manifest aim of engaging people in climate change issues.

In discussing the sports metaphors used about climate change issues in section 8.7, it was pointed out that sports metaphors can be used to simplify the domain of politics, by depicting the complexities and ethical issues that are part of politics as a much more simple affair, namely a competition. Different sports have different effects when used as source domains. For example, the use of boxing metaphors is somewhat similar to war metaphors, because they serve to put focus on conflict and disagreement, while running metaphors put more focus on the aspect of competition. Besides, the kind of sports that is used as a source domain is partly culture-dependent. The sports metaphors were quite evenly distributed between the sources.

Further, in considering the use of ENVIRONMENTALISM IS CONSTRUCTION metaphors in section 8.8, it was argued that these metaphors are very ‘typical’ metaphors that are used to talk about the abstract concept of environmentalism in terms of the physical construction. The decisions and efforts involved in working to prevent climate change can be understood as building a building or a machine. Moreover, it was pointed out that some of the motivation for using CONSTRUCTION as a source domain to talk about ENVIRONMENTALISM is that both are complex affairs. Finally, the conclusion as concerns the effect of such metaphors was that they possibly contribute to people thinking that human beings are capable of controlling nature. It was *The New York Times* that used ENVIRONMENTALISM IS CONSTRUCTION metaphors most frequently, by means of the word *approach*.

Section 8.9 presented the game metaphors that were used in the material. It was pointed out that game metaphors are somewhat similar to sports metaphors in that they can be used to focus on competition. It was argued, however, that game metaphors also put more focus on luck, chance and manipulation, and that they serve to highlight that the parties engaged in environmentalism politics, e.g. different

countries, usually attempt to gain advantages. The four sources used game metaphors only once or twice each (see Table 9).

The ENVIRONMENTALISM IS A PERSONAL RELATIONSHIP metaphors were presented in section 8.10. Referring to Romaine's (1996) remarks, it was pointed out that friendship metaphors can be used to talk about environmentalism in terms of war, i.e. that when friendship metaphors are used to talk about environmentalism they necessarily imply that there is a conflict between someone who are the friends of the environment and those who are the enemies. The ENVIRONMENTALISM IS A PERSONAL RELATIONSHIP metaphors were used to about the same extent by all my sources (see Table 10).

In section 8.11, the PRODUCTION OF ENVIRONMENTALLY FRIENDLY ENERGY IS FARMING metaphors were discussed. The conclusion regarding the effect that these metaphors may have on the reader was that they primarily serve to emphasise that energy sources like wind, sun and water are environmentally friendly. This conceptual key was also used to about the same extent by the four sources.

Further, in section 8.12 it was suggested that the linguistic metaphors expressing the conceptual keys ENVIRONMENTALLY FRIENDLY IS CLEAN and POLLUTION IS DIRTY can function as cognitive heuristics. That is, they may make it easier for people to understand that some energy sources pollute less than others. However, it was also pointed to that the use of *clean* to describe a type of coal that pollutes less may possibly also be misleading, i.e. if it makes people believe that this type of coal does not pollute at all; that it is 'not dirty' at all. Finally, it was suggested that the CLEAN and DIRTY metaphors can give associations to MORALITY. *The New York Times* used *clean* more frequently than the other sources.

Section 8.13 presented a discussion of the personification metaphors. It was mentioned that such metaphors allows us to understand a range of different subjects in terms of ourselves. Further, it was suggested that several personification metaphors can be seen as related to the conceptual metaphor EVENT IS ACTION, i.e. that events can be seen as created by wilful agents, although they are really not, as in the case of

climate change. The sources used personification to about the same extent, though *The New York Times* used it somewhat more frequently.

In the discussion of the THE EARTH IS A GREENHOUSE metaphors in section 8.14, it was pointed out that such metaphors may function as a cognitive heuristic and help people understand the great influence that the atmosphere has on the climate of the earth. However, it was also argued that greenhouse metaphors may be somewhat misleading, since they also hide important features of THE EARTH, for example that the atmosphere is less stable than a glass roof and that the earth is not controlled by human beings in the way a greenhouse is. The four types of sources used greenhouse metaphors equally frequently.

Finally, in section 8.15, the use of *cut* and *footprint* was discussed, as two examples of one-shot conceptual metaphors. It was argued that both involve reification, and that *footprint* is used as a cognitive heuristic that makes it easier to understand the influence that our consumption of various commodities and services has on the emission of carbon dioxide into the atmosphere.

9.3 Further studies

This thesis suggests which particular linguistic metaphors are used in climate change discourse, as well as their actual frequency of use. These findings can be used as a starting point for further studies.

One possibility is to use this study for comparative studies. That is, the findings of this study can be compared to another study done on a corpus that is of a similar size, but composed of material from other sources, and possibly also of different genres than the material used in this current study.

Furthermore, this study can be seen as the preparatory study of a larger-scale study on metaphors in climate change discourse. That is, it can be seen as a study on a smaller corpus carried out before concordancing from a large corpus in order to make more generalisable linguistic observations, cf. the method suggested by Deignan (see section 5.3).

10 References

10.1 Literature

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11 Appendices

11.1 The New York Times *material*

Article	Headline + URL	Month/ Year	Word count
N 1	Changing Climate Numbers http://www.nytimes.com/2009/02/21/opinion/21sat3.html?_r=1&scp=15&sq=climate%20change&st=cse	Feb 2009	322
N 2	Is America Ready to Quit Coal? http://www.nytimes.com/2009/02/18/science/earth/18climate.html?_r=1&scp=5&sq=climate%20change&st=cse	Feb 2009	2004
N 3	Report Predicts 'Significant Risks' to City's Climate http://cityroom.blogs.nytimes.com/2009/02/17/report-predicts-significant-risks-to-citys-climate/?scp=3&sq=climate%20change&st=cse	Feb 2009	468
N 4	Clinton Paints China Policy With a Green Hue http://www.nytimes.com/2009/02/22/world/asia/22diplo.html?scp=9&sq=climate%20change&st=cse	Feb 2009	887
N 5	New York Must Prepare for Global Warming, Mayor's Panel Says http://www.nytimes.com/2009/02/18/science/earth/18climate.html?scp=5&sq=climate%20change&st=cse	Feb 2009	542
N 6	Does Funding Carbon Capture Boost Energy Security? http://greeninc.blogs.nytimes.com/2009/02/17/does-funding-carbon-capture-	Feb 2009	575

	boost-energy-security/?scp=6&sq=climate%20change&st=cse		
N 7	Oil Industry Ready to Work on Global Warming http://www.nytimes.com/2009/02/12/science/earth/12oil.html?scp=7&sq=climate%20change&st=cse	Feb 2009	791
N 8	E.P.A. to Consider Rollback of Bush Coal Policy http://greeninc.blogs.nytimes.com/2009/02/17/epa-to-consider-rollback-of-bush-coal-policy/?scp=8&sq=climate%20change&st=cse	Feb 2009	374
N 9	An \$80 Billion Start http://www.nytimes.com/2009/02/18/opinion/18wed1.html?scp=9&sq=climate%20change&st=cse	Feb 2009	516
N 10	Poverty, Climate Change ... and Recession http://greeninc.blogs.nytimes.com/2009/01/29/poverty-climate-change-and-recession/?scp=10&sq=climate%20change&st=cse	Jan 2009	473
N 11	Obama Affirms Climate Change Goals http://www.nytimes.com/2008/11/19/us/politics/19climate.html?scp=11&sq=climate%20change&st=cse	Nov 2008	751
N 12	New Day on Climate Change http://www.nytimes.com/2009/01/27/opinion/27tue1.html?scp=13&sq=climate%20change&st=cse	Jan 2009	458
N 13	Snake Hints at Tropical Resilience to Warming http://dotearth.blogs.nytimes.com/tag/climate-change/?scp=15&sq=climate%20change&st=cse	Feb 2009	642
N 14	Too Much Hot and Cool Hype? http://dotearth.blogs.nytimes.com/2009/02/12/british-climate-office-criticizes-cool-and-hot-hype/?scp=17&sq=climate%20change&st=cse	Feb 2009	529
N 15	U.S. Transition Hampers Talks on Climate Change http://www.nytimes.com/2008/12/11/world/europe/11climate.html?scp=18&sq=climate%20change&st=cse	Nov 2008	1246
N 16	Debate Over Climate Change at Columbia http://greeninc.blogs.nytimes.com/2008/10/09/climate-change/?scp=19&sq=climate%20change&st=cse	Oct 2008	519
N 17	Cutting Costs With Solar Walls http://greeninc.blogs.nytimes.com/2009/02/17/cutting-costs-with-solar-walls/?scp=8&sq=climate%20change%202009&st=cse	Feb 2009	481
N 18	On the Origin (and Fate) of Species http://dotearth.blogs.nytimes.com/2009/02/13/on-the-origin-and-fate-of-species/?scp=6&sq=on%20the%20origin%20of%20species&st=cse	Feb 2009	660
N 19	German Insurance Giant Cites Role of Climate Change in Record Payouts http://greeninc.blogs.nytimes.com/2008/12/31/german-insurance-giant-cites-role-of-climate-change-in-record-payouts/?scp=9&sq=climate%20change&st=cse	Dec 2008	417
N 21	Obama's Backing Raises Hopes for Climate Pact http://www.nytimes.com/2009/03/01/science/earth/01treaty.html?scp=3&sq=climate+change&st=nyt	March 2009	1543
N 23	EPA Urged to Reverse Bush-Era Auto Emission Ruling http://www.nytimes.com/aponline/2009/03/05/washington/AP-EPA-Clean-Cars.html?scp=8&sq=climate+change&st=nyt	March 2009	534
N 25	Obama's Greenhouse Gas Gamble http://www.nytimes.com/2009/02/28/science/earth/28capntrade.html?scp=25	Feb 2009	1087

	&sq=climate+change&st=nyt		
N 26	Economic Crisis Complicates California's Goals on Climate http://www.nytimes.com/2009/02/25/science/earth/25carbon.html?scp=34&sq=climate+change&st=nyt	Feb 2009	1050
N 27	Politics in the Guise of Pure Science http://www.nytimes.com/2009/02/24/science/24tier.html?scp=37&sq=climate+change&st=nyt	Feb 2009	1000
N 28	Europe Considers A Tariff On Biofuels http://www.nytimes.com/2009/02/24/business/global/24biofuel.html?scp=38&sq=climate+change&st=nyt	Feb 2009	481
N 29	Ms. Jackson Makes a Change http://www.nytimes.com/2009/02/23/opinion/23mon3.html?scp=42&sq=climate+change&st=nyt	Feb 2009	380
N 30	British Fight Climate Change With Fish and Chips http://www.nytimes.com/2009/02/22/science/earth/22cook.html?_r=1&scp=46&sq=climate+change&st=nyt	Feb 2009	1293
N 31	E.P.A. Expected to Regulate Carbon Dioxide http://www.nytimes.com/2009/02/19/science/earth/19epa.html?scp=57&sq=climate+change&st=nyt	Feb 2009	1179
N 32	Alaska Is a Frontier for Green Power http://www.nytimes.com/2009/02/18/business/18alaska.html?scp=61&sq=climate+change&st=nyt	Feb 2009	1226
N 34	Big Science Role Is Seen in Global Warming Cure http://www.nytimes.com/2009/02/12/us/politics/12chu.html?scp=83&sq=climate+change&st=nyt	Feb 2009	769
N 36	Environmental Views, Past and Present CLIMATE: The Legacy of Kyoto http://query.nytimes.com/gst/fullpage.html?res=9400E3DB1338F934A35751C0A96F9C8B63&scp=97&sq=climate+change&st=nyt	Feb 2009	586
N 37	Environmental Views, Past and Present http://query.nytimes.com/gst/fullpage.html?res=9802E3DB1338F934A35751C0A96F9C8B63&scp=98&sq=climate+change&st=nyt	Feb 2009	265
N 38	Hurdles (Not Financial Ones) Await Electric Grid Update http://www.nytimes.com/2009/02/07/science/earth/07grid.html?scp=99&sq=climate+change&st=nyt	Feb 2009	1242
N 39	Arctic Sea Partly Closed to Fishing http://www.nytimes.com/2009/02/06/science/earth/06arctic.html?scp=105&sq=climate+change&st=nyt	Feb 2009	344
N 40	Sweden Takes Another Look at Nuclear Power http://www.nytimes.com/2009/02/06/business/worldbusiness/06nuke.html?scp=108&sq=climate+change&st=nyt	Feb 2009	507
N 41	Experts in U.S. and China See a Chance for Cooperation Against Climate Change http://www.nytimes.com/2009/02/05/world/asia/05china.html?scp=121&sq=climate+change&st=nyt	Feb 2009	1093
N 42	A Carbon Keeper: Crop Waste Sunk to the Ocean Deep http://www.nytimes.com/2009/02/03/science/earth/03obcrops.html?scp=134&sq=climate+change&st=nyt	Feb 2009	277
TOTAL NUMBER OF ARTICLES: 33			
TOTAL NUMBER OF WORDS: 25.176			

11.2 The Washington Post material

Article	Headline + URL	Month/ Year	Word count
W 2	Scientists warn seas to rise faster than expected http://www.washingtonpost.com/wp-dyn/content/article/2009/03/10/AR2009031001080.html	March 2009	283
W 5	Coal plants checked by enviro campaigns, costs http://www.washingtonpost.com/wp-dyn/content/article/2009/03/07/AR2009030700930.html	March 2009	1066
W 6	Clinton: US has been negligent on climate change http://www.washingtonpost.com/wp-dyn/content/article/2009/03/06/AR2009030600903.html	March 2009	137
W 7	Obama invites U.N.'s Ban to White House next week http://www.washingtonpost.com/wp-dyn/content/article/2009/03/06/AR2009030602651.html	March 2009	228
W 8	Europe Advises U.S. Officials on Climate http://www.washingtonpost.com/wp-dyn/content/article/2009/03/05/AR2009030503293.html	March 2009	952
W 10	US urged to lead in cutting greenhouse emissions http://www.washingtonpost.com/wp-dyn/content/article/2009/03/04/AR2009030400285.html	March 2009	675
W 11	Tough Test Emerges as Administration Aims to Bolster Automakers, Cut Pollution http://www.washingtonpost.com/wp-dyn/content/article/2009/03/03/AR2009030303735.html	March 2009	926
W 12	Obama Reverses Bush on Species Protection Measure http://www.washingtonpost.com/wp-dyn/content/article/2009/03/03/AR2009030302620.html	March 2009	733
W 13	UN chief presses US for stronger UN leadership http://www.washingtonpost.com/wp-dyn/content/article/2009/03/03/AR2009030301357.html	March 2009	479
W 16	Thousands rally for legislation on climate change http://www.washingtonpost.com/wp-dyn/content/article/2009/03/02/AR2009030200447.html	March 2009	452
W 18	House Is Abandoning Carbon Neutral Plan http://www.washingtonpost.com/wp-dyn/content/article/2009/02/28/AR2009022801947.html	March 2009	987
W 19	Young People to Swarm Capitol With Green Agenda http://www.washingtonpost.com/wp-dyn/content/article/2009/02/28/AR2009022801877.html	March 2009	450
W 20	Tenn. offer to offset carbon tax credited in deals http://www.washingtonpost.com/wp-dyn/content/article/2009/03/01/AR2009030100907.html	March 2009	573
W 22	Obama budget gives Dems a roadmap, GOP a target http://www.washingtonpost.com/wp-dyn/content/article/2009/02/27/AR2009022700260.html	Feb 2009	887
W 23	Climate Science in A Tornado http://www.washingtonpost.com/wp-dyn/content/article/2009/02/27/AR2009022700260.html	Feb 2009	752

	dyn/content/article/2009/02/26/AR2009022602906.html	2009	
W 24	Climate change: chance for US-China cooperation http://www.washingtonpost.com/wp-dyn/content/article/2009/02/26/AR2009022601022.html	Feb 2009	585
W 25	Obama budget proposes shift to green energy http://www.washingtonpost.com/wp-dyn/content/article/2009/02/26/AR2009022602083.html	Feb 009	484
W 26	Michelle Obama welcomes 'new era' at EPA http://www.washingtonpost.com/wp-dyn/content/article/2009/02/26/AR2009022601791.html	Feb 2009	118
W 27	Report: Companies should disclose water use http://www.washingtonpost.com/wp-dyn/content/article/2009/02/26/AR2009022603386.html	Feb 2009	545
W 28	Antarctic glaciers melting faster than thought http://www.washingtonpost.com/wp-dyn/content/article/2009/02/25/AR2009022500666.html	Feb 2009	824
W 29	Climate Fears Are Driving 'Ecomigration' Across Globe http://www.washingtonpost.com/wp-dyn/content/article/2009/02/22/AR2009022202378.html	Feb 2009	1361
W 30	EPA's Taddonio Illustrates a New Generation of Thinking From the Partnership for Public Service http://www.washingtonpost.com/wp-dyn/content/article/2009/02/20/AR2009022002491.html	Feb 2009	717
W 31	U.S., China to Focus On Slump, Climate Long-Standing Human Rights Concerns Put on Back Burner During Clinton Trip http://www.washingtonpost.com/wp-dyn/content/article/2009/02/21/AR2009022100485.html	Feb 2009	836
W 32	Obama Arrives in Canada for First International Trip http://www.washingtonpost.com/wp-dyn/content/article/2009/02/19/AR2009021901356.html	Feb 2009	719
W 34	EPA May Reverse Bush, Limit Carbon Emissions From Coal-Fired Plants http://www.washingtonpost.com/wp-dyn/content/article/2009/02/17/AR2009021701302.html	Feb 2009	745
W 35	Alternative Energy Still Facing Headwinds Despite Obama's Support, Projects Tripped Up by Financing, Logistics http://www.washingtonpost.com/wp-dyn/content/article/2009/02/16/AR2009021601199.html	Feb 2009	1670
W 36	Climate Change Solutions Sen. Boxer is open to everything -- except what might work best. http://www.washingtonpost.com/wp-dyn/content/article/2009/02/15/AR2009021501425.html	Feb 2009	440
W 37	Scientists: Pace of Climate Change Exceeds Estimates http://www.washingtonpost.com/wp-dyn/content/article/2009/02/14/AR2009021401757.html	Feb 2009	802
W 38	Dark Green Doomsayers http://www.washingtonpost.com/wp-dyn/content/article/2009/02/13/AR2009021302514.html	Feb 2009	761
W 39	U.N. Chief Wants Obama at Climate-Change Summit http://www.washingtonpost.com/wp-dyn/content/article/2009/02/09/AR2009020902475.html	Feb 2009	384

W 40	Democrats Pen Principles for Climate-Change Bills Senate Panel Sets Goal of Creating Cap-and-Trade System http://www.washingtonpost.com/wp-dyn/content/article/2009/02/03/AR2009020303458.html	Feb 2009	579
W 41	Energy Provision May Test Priorities http://www.washingtonpost.com/wp-dyn/content/article/2009/02/02/AR2009020203162.html	Feb 2009	722
W 42	With AI Due Respect, We're Doomed http://www.washingtonpost.com/wp-dyn/content/article/2009/01/28/AR2009012803318.html	Jan 2009	938
W 43	Study Calls on 'Citizen Scientists' To Tap Their Inner Thoreau http://www.washingtonpost.com/wp-dyn/content/article/2009/01/28/AR2009012801045.html	Jan 2009	1131
W 44	Gore Urges Cap on Carbon Emissions, Global Climate Pact He Tells Senators the Situation Is Dire http://www.washingtonpost.com/wp-dyn/content/article/2009/01/28/AR2009012803316.html	Jan 2009	548
W 45	Agent of (Climate) Change President Obama ends White House inaction -- but there's a better way to tackle greenhouse gas emissions. http://www.washingtonpost.com/wp-dyn/content/article/2009/01/27/AR2009012703013.html	Jan 2009	450
TOTAL NUMBER OF ARTICLES: 36 TOTAL NUMBER OF WORDS: 24.939			

11.3 World Wildlife Fund (WWF) material

Article	Headline + URL	Month/ Year	Word count
WWF 1	Developing Nations Are Taking Strong Action on Climate Change, Carter Roberts Tells Congress http://www.worldwildlife.org/who/media/press/2009/WWFPresitem11809.html	Mar 2009	834
WWF 2	Today: Guyana President to Join WWF CEO at Hill Briefing on Impact of Tropical Deforestation on Climate Change http://www.worldwildlife.org/who/media/press/2009/WWFPresitem11824.html	Mar 2009	245
WWF 3	Europe's new climate gambit - shifting the heat onto developing nations? http://www.panda.org/wwf_news/news/?157921/Europes-new-climate-gambit--shifting-the-heat-onto-developing-nations	Mar 2009	583
WWF 4	Sumatra's Forests Disappearing, Bad News for Climate Change, Tigers and Elephants http://www.worldwildlife.org/who/media/press/2008/WWFPresitem7596.html	Feb 2008	497
WWF 7	Clinton Visit Signals New Era of Trust, Cooperation Between U.S., China on Climate Change http://www.worldwildlife.org/who/media/press/2009/WWFPresitem11576.html	Feb 2009	828
WWF 8	New \$2 Million Network to Help Threatened Ecosystems and Societies	Feb	884

	Adapt to the Impacts of Climate Change http://www.worldwildlife.org/who/media/press/2009/WWFpresitem11371.html	2009	
WWF 9	Tuna spawning grounds can help Coral Triangle nations get better deal on fishing http://www.panda.org/wwf_news/news/?157921/Europes-new-climate-gambit---shifting-the-heat-onto-developing-nations	Mar 2009	583
WWF 11	Archbishop Desmond Tutu supports Earth Hour movement http://www.panda.org/wwf_news/news/?157024/Archbishop-Desmond-Tutu-supports-Earth-Hour-movement	Feb 2009	463
WWF 12	Fixing climate wrongs will be key to protecting human rights http://www.panda.org/wwf_news/news/?157261/Fixing-climate-wrongs-will-be-key-to-protecting-human-rights	Feb 2009	430
WWF 13	WWF gives Europe a roadmap to Copenhagen http://www.panda.org/wwf_news/news/?157741/WWF-gives-Europe-a-roadmap-to-Copenhagen	Feb 2009	719
WWF 14	28 Million scouts to mobilise for Earth Hour http://www.panda.org/wwf_news/news/?157502/28-Million-scouts-to-mobilise-for-Earth-Hour	Feb 2009	481
WWF 15	East meets West for Earth Hour in over 500 cities http://www.panda.org/wwf_news/news/?157022/East-meets-West-for-Earth-Hour-in-over-500-cities	Feb 2009	497
WWF 16	Antarctica found to be a cradle for life http://www.panda.org/wwf_news/news/?156482/Antarctica-found-to-be-a-cradle-for-life	Feb 2009	586
WWF 17	US blocks trawlers from following retreating Arctic ice http://www.panda.org/wwf_news/news/?155781/US-blocks-trawlers-from-following-retreating-Arctic-ice	Feb 2009	544
WWF 18	Greece wins acclaim saying yes to clean energy, no to new coal and nuclear http://www.panda.org/wwf_news/news/?156262/Greece-wins-acclaim-saying-yes-to-clean-energy-no-to-new-coal-and-nuclear	Feb 2009	334
WWF 19	Hungary burns carbon credibility propping up budget http://www.panda.org/wwf_news/news/?157683/Hungary-burns-carbon-credibility-propping-up-budget	Feb 2009	645
WWF 20	Putin petitioned over Siberian power station http://www.panda.org/wwf_news/news/?156361/Putin-petitioned-over-Siberian-power-station	Feb 2009	311
WWF 21	Green light for solar panels in Scotland http://www.panda.org/wwf_news/news/?156161/Green-light-for-solar-panels-in-Scotland	Feb 2009	345
WWF 22	Amazon could prosper thanks to emission payments, be lost without http://www.panda.org/wwf_news/news/?156101/Amazon-could-prosper-thanks-to-emission-payments-be-lost-without-WWF	Feb 2009	559
WWF 23	Turkey signs up to Kyoto, looks forward to Copenhagen http://www.panda.org/wwf_news/news/?155961/Turkey-signs-up-to-Kyoto-looks-forward-to-Copenhagen	Feb 2009	438
WWF 24	Green economy will help fight climate change http://www.panda.org/wwf_news/news/?155001/Green-economy-will-help-fight-climate-change	Jan 2009	752
WWF 25	Europe needs to go much further towards Copenhagen	Jan	555

	http://www.panda.org/wwf_news/news/?155241/Europe-needs-to-go-much-further-towards-Copenhagen	2009	
WWF 26	Polar bears creaking under the strain http://www.panda.org/wwf_news/news/?154121/Polar-bears-creaking-under-the-strain	Jan 2009	499
WWF 27	WWF opposes precarious ocean fertilization project http://www.panda.org/wwf_news/news/?155301/WWF-opposes-precarious-ocean-fertilization-project	Jan 2009	523
WWF 28	More power needed behind renewable energy push http://www.panda.org/wwf_news/news/?155281/More-power-needed-behind-renewable-energy-push	Jan 2009	659
WWF 30	Scotland to host one of world's biggest wave stations http://www.panda.org/wwf_news/news/?154841/Scotland-to-host-one-of-worlds-biggest-wave-stations	Jan 2009	352
WWF 31	'Power emissions limits to save most carbon at least cost http://www.panda.org/wwf_news/news/?154162/Power-emissions-limits-to-save-most-carbon-at-least-cost	Jan 2009	740
WWF 32	Australia aims low in emissions reductions http://www.panda.org/wwf_news/news/?153001	Dec 2008	451
WWF 33	EU "leaders" follow industry on climate http://www.panda.org/wwf_news/news/?152825	Dec 2008	635
WWF 34	Scottish climate bill could set global example http://www.panda.org/wwf_news/news/?152322	Dec 2008	271
WWF 35	Ski champions demand climate action in Poznan http://www.panda.org/wwf_news/news/?151921	Dec 2008	422
WWF 36	Earth Hour to be huge call for climate action http://www.panda.org/wwf_news/news/?152505	10 Dec 2008	508
WWF 37	Brazil falls short with forest emission reduction ambitions http://www.panda.org/wwf_news/news/?151801	Dec 2008	589
WWF 38	Carbon reporting on the rise in India http://www.panda.org/wwf_news/news/?153302	Dec 2008	496
WWF 39	Feeble Europe and leaderless US block progress in UN climate talks http://www.panda.org/wwf_news/news/?152981	Dec 2008	521
WWF 40	Evidence smacks down scaremongering on climate policies http://www.panda.org/wwf_news/news/?151724	Dec 2008	505
WWF 42	Cement can cut 90% of emissions http://www.panda.org/wwf_news/news/?151542	Dec 2008	443
WWF 42	Hot southern summer threatens coral with massive bleaching event http://www.panda.org/wwf_news/news/?153321	Dec 2008	494
WWF 43	WWF applauds British call for ship emission trading http://www.panda.org/wwf_news/news/?153083	Dec 2008	350
WWF 44	Green high-tech champions slow to take up China opportunities http://www.panda.org/wwf_news/news/?152183	Dec 2008	438
WWF 45	Greek PM inundated with e-cards for climate action http://www.panda.org/wwf_news/news/?150821	Nov 2008	344
WWF 46	WWF Travel Helper makes it easy to count and cut your CO 2 http://www.panda.org/wwf_news/news/?151182	Nov 2008	521
WWF 47	WWF welcomes Obama's election	Nov 2008	326

	http://www.panda.org/wwf_news/news/?149582		
WWF 48	Energy outlook preaches revolution but doesn't quite get to it http://www.panda.org/wwf_news/news/?150241	Nov 2008	502
WWF 49	Amazon deforestation trend on the increase http://www.panda.org/wwf_news/news/?151501	Nov 2008	806
WWF 50	Targets and timelines needed for Africa's new sustainability roadmap http://www.panda.org/wwf_news/news/?149361	Nov 2008	468
WWF 53	Sea levels set to rise faster than expected http://www.panda.org/wwf_news/news/?151221	Nov 2008	391
WWF 54	EU's ideas for energy looking tired http://www.panda.org/wwf_news/news/?150383	Nov 2008	448
TOTAL NUMBER OF ARTICLES: 48			
TOTAL NUMBER OF WORDS: 24.815			

11.4 Greenpeace material

Article	Headline + Article Link	Month/ Year	Word count
G 1	New name for government's carbon cop-out http://www.greenpeace.org/australia/news-and-events/news/Climate-change/CPRS-ad	March 2009	407
G 2	Largest plutonium shipment heading for Tasman Sea http://www.greenpeace.org/new-zealand/news/largest-plutonium-shipment-hea#	March 2009	840
G 3	Areva's MOX transport: A Travelling Security Threat http://www.greenpeace.org/africa/news/mox-060309	March 2009	407
G 4	Indonesian Government must get serious about climate action http://www.greenpeace.org/seasia/en/news/indonesian-government-must-get	Dec 2008	680
G 5	CeBIT launch of climate leadership challenge http://www.greenpeace.org/international/news/cebit-launch-of-climate-leader	March 2009	357
G 6	Greenpeace: protection of ASEAN forests can deter climate change http://www.greenpeace.org/seasia/en/news/asean-save-forests-for-climate	March 2009	558
G 7	India's light bulb phase out: setting a smart example http://www.greenpeace.org/mediterranean/news/india-s-light-bulb-phase-out	Feb 2009	516
G 8	ASEAN must act on climate change http://www.greenpeace.org/seasia/en/news/asean-must-act-on-climate-chan	Feb 2009	594
G 9	Five flaws in the carbon reduction scheme http://www.greenpeace.org/australia/news-and-events/news/Climate-change/flaws-cprs-250209	Feb 2009	532
G 10	Greenpeace executive director launches climate solutions tour for a nuclear-free Ontario http://www.greenpeace.org/canada/en/recent/tour-expose-greenwash-energy-act	Feb 2009	411
G 11	Bailouts for banks but the world gets nothing	Feb	302

	http://www.greenpeace.org/china/en/news/EU-climate-green-new-deal	2009	
G 12	Hundreds form "No to BNPP" solidarity message Greenpeace calls on congress representatives to reject BNPP revival http://www.greenpeace.org/seasia/en/news/hundreds-form-no-to-bnpp-sol	Feb 2009	553
G 13	Sands of time push for leadership on climate crisis http://www.greenpeace.org/new-zealand/news/sands-of-time-push-for-leaders	Feb 2009	825
G 14	Clinton in China: Greenpeace response http://www.greenpeace.org/china/en/news/hillary-clinton-china-greenpeace	Feb 2009	214
G 15	US and Indonesia, Save Forests, Save Climate – Cut emissions Now! http://www.greenpeace.org/seasia/en/news/us-and-indonesia-save-forests	Feb 2009	701
G 16	China, US hold key to fixing climate change http://www.greenpeace.org/china/en/news/kung-fu-climate	Feb 2009	627
G 17	Greenpeace challenges President Yudhoyono to honour his commitment to cut emissions and fight climate change http://www.greenpeace.org/seasia/en/news/greenpeace-challenges-presiden	Feb 2009	230
G 18	Cattle ranching biggest driver of Amazon deforestation http://www.greenpeace.org/international/news/cattle-mapping	Jan 2009	604
G 19	Join the plot to stop airport expansion http://www.greenpeace.org/new-zealand/news/join-the-plot-to-stop-airport	Jan 2009	447
G 20	Green stimulus is needed for the environment and economy http://www.greenpeace.org/canada/en/recent/green-stimulus-is-needed	Jan 2009	1030
G 21	Harper wrong to support false energy solutions and underfund green economy http://www.greenpeace.org/canada/en/recent/harper-wrong-to-support-false	Jan 2009	739
G 22	No Forests for Elections – Stop Deforestation http://www.greenpeace.org/seasia/en/news/no-forests-for-elections-sto	Jan 2009	422
G 23	President Obama: China is waiting http://www.greenpeace.org/china/en/news/obama-china-climate-change	Jan 2009	376
G 24	Putting soya impacts on the map http://www.greenpeace.org/international/news/amazon-mapping-200109	Jan 2009	560
G 25	Toxic sludge leaks expose true costs of coal http://www.greenpeace.org/mediterranean/news/toxic-sludge-leaks-expose-true	Jan 2009	1017
G 26	Save the Planet: now... or NOW http://www.greenpeace.org/international/news/brazil-ship-tour150109	Jan 2009	443
G 27	EU flag and climate warnings beamed on Prague http://www.greenpeace.org/international/news/prague-eu-climate070109	Jan 2009	440
G 28	2008: The year in review http://www.greenpeace.org/canada/en/recent/2008-the-year-in-review	Jan 2009	1507
G 29	Ocean monuments? Thank you, George Bush http://www.greenpeace.org/international/news/bush-saves-ocean060109	Jan 2009	651
G 30	Quit coal, save the climate! 2008 campaign highlights http://www.greenpeace.org/seasia/en/news/quit-coal-save-the-climate-2	Jan 2009	833

G 31	Post Poznan: what's the deal on climate change? http://www.greenpeace.org/china/en/news/post-poznan-climate	Dec 2008	472
G 32	Action by Greenpeace in the North Sea: Palm Oil that kills the climate and forests is Not Welcome http://www.greenpeace.org/usa/news/action-by-greenpeace-in-the-no	Dec 2008	615
G 33	That's not a target, it's a betrayal http://www.greenpeace.org/australia/news-and-events/news/Climate-change/emissions-target-betrayal	Dec 2008	472
G 34	Glimmer of hope for Pacific tuna http://www.greenpeace.org/new-zealand/news/glimmer-of-hope-for-pacific-tu	Dec 2008	560
G 35	Canada a key climate villain at the UN climate talks in Poznan http://www.greenpeace.org/canada/en/recent/canada_climate_villain	Dec 2008	706
G 36	Boracay Island to be a climate friendly tourist destination: Greenpeace http://www.greenpeace.org/seasia/en/news/climate-friendly-boracay	Dec 2008	661
G 37	Greener Electronics – Major companies fail to show climate leadership http://www.greenpeace.org/seasia/en/news/greener-electronics-major-co	Dec 2008	838
G 38	Prentice-Renner: Sign-off Letter http://www.greenpeace.org/canada/en/recent/prentice-renner-letter	Dec 2008	272
G 39	Nuclear renaissance meets reality at UN climate talks http://www.greenpeace.org/international/news/nuclear-renaissance-meets-101208	Dec 2008	594
G 40	EU Renewables deal: a "ray of light" in the EU's climate and energy package http://www.greenpeace.org/international/news/eu-renewables-deal	Dec 2008	776
G 41	Final week at Poznan: Time to stop clowning around http://www.greenpeace.org/australia/news-and-events/news/Climate-change/Poznan-final-week	Dec 2008	441
G 42	Global Day of Action 2008 http://www.greenpeace.org/seasia/en/solargen/news/global-day-of-climate-action2008	Dec 2008	474
G 43	Why choose coal when there is solar? http://www.greenpeace.org/mediterranean/news/why-choose-coal-when-there-is	Dec 2008	191
TOTAL NUMBER OF ARTICLES: 43			
TOTAL NUMBER OF WORDS: 24.895 WORDS			