Reformulating the climate change debate

A study on context-specific conditions for strategic maneuvering with the straw man fallacy in the Nongovernmental International Panel on Climate Change's report 'Climate Change Reconsidered'

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1. Introduction

Recently, the straw man fallacy has been receiving new attention (Lewiński 2011). Most commonly described as a type of fallacy of reasoning wherein one misrepresents the argument of an opponent and thereby easily defends the weakened version and claims victory over the original, stronger argument" (Talisse & Aikin 2006, p. 87), it is recognised as a very commonly used argumentative strategy (Aikin & Casey 2011) that knows "clear textbook descriptions and theoretical accounts" (Lewiński 2011, p. 470). Recent studies demonstrate, however, that the prevailing picture of the straw man fallacy is greatly oversimplified: An analysis of textbook descriptions of the fallacy conducted by Talisse and Aikin shows that the picture is accurate in a general sense, but does not distinguish between the different forms in which it may occur. Furthermore, Lewiński notes how many actual instances of the straw man fallacy appear to be less obvious than the examples presented in textbooks on argumentation and logic. These examples only provide a "simple illustration of the mechanism of [the] fallacy" (2011, p. 470) but do not do any right to actual straw men used in real arguments. The standard definition of the straw man fallacy as 'a type of fallacy of reasoning wherein one misrepresents the argument of an opponent' then seems inadequate for an argumentation analyst having to deal with the intricacies of actual argumentative language use.

A case-by-case, argumentative analysis of discussion moves that involves representations of propositions may give more insight in the ways a straw man fallacy can be committed. Furthermore, it may help to understand what kind of conditions pertaining to the context in which the fallacy is committed create opportunities for the fallacy to be successful (van Eemeren 2011; Lewiński 2010). Pragma-dialectical argumentation theory, making use of the concept of 'argumentative activity type' in order to account for the fact that argumentative discourse takes place in concrete situations and under specific (contextual) conditions, offers useful tools for detecting these context-specific conditions. Building on Levinson (1979), who introduced the notion of 'activity type' to refer to "any culturally recognized activity, whether or not that activity is co-extensive with a period of speech or indeed whether any talk takes place in it at all" (Ibid., p. 368), pragma-dialectics uses the concept *argumentative* activity type to denote types of communicative activity that have an argumentative dimension (van Eemeren 2011, p. 152).[1] By studying the characteristics of a particular type of argumentative activity, it can be established what restrictions on and opportunities for committing a (particular type of) fallacy are created by these very characteristics.

Using pragma-dialectics as a theoretical framework, Lewiński (2010) examines context-specific conditions for posing critical reactions in political discussion forums on the internet. On the basis of his findings, he identifies a number of restrictions on and opportunities for committing the straw man fallacy without it blatantly violating any norms or conventions pertaining to communication within this specific argumentative activity type. In addition, Lewiński formulates two general criteria for *evaluating* the reasonableness of reformulations in any argumentative context as well as a set of

[1] That is to say, van Eemeren and Houtlosser (2005) developed the notion of argumentative activity type in order to refer to communicative activity types "which are inherently or essentially argumentative" (van Eemeren 2011, p. 152). In analytic practice, however, the term is being used in a looser sense, referring indeed to all those types of communicative activity that know an argumentative dimension (Ibid.).

necessary and sufficient conditions for *identifying* the straw man fallacy. The latter are conditions an argumentative activity type should comply with in order to be apt for an analysis on the straw man (rather than conditions for a straw man fallacy to be *committed*). Two of these identification conditions Lewiński considers to be necessary ones and require, among other things, for an argumentation analyst to only take into account those discussions in which arguers can respond to (and hence are able to refute) attacks that involve a misrepresentation of their own case. That is to say, according to Lewiński, a straw man fallacy can only be identified in situations in which a discussant has the ability to directly respond to it. This generally is the case, for instance, in spoken debates.

This thesis, however, departs from the assumption that representations of propositions that cannot be critically reacted upon directly can in fact be subject of a straw man fallacy analysis and evaluation. More specifically, it will be argued that the reasonableness of representations that are not critically reacted upon *at all* can be properly evaluated if clear norms and conventions can be found to pertain to communication within the argumentative activity type under consideration. This will be demonstrated by means of a case study of the scientific assessment report Climate Change Reconsidered (CCR) written by the Nongovernmental International Panel on Climate Change (NIPCC). This report, published in 2009, is, just like the Fourth Assessment Report (AR4) published two years earlier by the Intergovernmental Panel on Climate Change (IPCC), meant to provide policy makers world-wide with an overview of the present-day state of knowledge in the field of climate science. A major difference between the two reports, now, is the fact that they draw opposite conclusions on both the cause of the current climate change as well as the impacts it would have on the earth's environment. According to the IPCC, the current warming of the earth is due to human activities as these would be causing a rise in atmospheric CO2. This, in turn, would have negative consequences for the earth's environment. The NIPCC on the other hand contends that the current change of climate is caused by natural forces that are by no means influenced by humans; also, the fact that the earth is currently warming would have beneficial effects on humans, plants and wildlife. Another difference between the reports of the IPCC and the NIPCC is the way in which they present their conclusions. In this thesis it will be shown how the NIPCC aims to reach its goal primarily by calling upon arguments put forward by the IPCC and trying to refute these, initiating, so to say, a discussion between the two.

In my thesis I adopt the hypothesis that the specific activity type of the NIPCC's report and the wider context of the (international) debate on climate change provide an ideal situation for the NIPCC to not only commit the straw man fallacy but also to do so with most minimal consequences. More specifically, I expect the complexity of the scientific data used in the arguments, the audience that is expected or known to read the reports, their understanding of scientific communication and the fact that the reports are not interactive in the sense that discussants can point out "an attempted misrepresentation on-the-spot" (Lewiński 2011, p. 481) create opportunities for (unobtrusively) distorting the other party's propositions. In analysing parts of the NIPCC's scientific assessment report in which critical reactions are posed towards claims put forward by the IPCC, I aim to uncover whether these and other contextual factors may indeed contribute to the success of the straw man fallacy or the likelihood of it going unnoticed.

Furthermore, in the analysis of representations found in the NIPCC's scientific assessment report this thesis aims to provide an insight in the specific *manners* in which the straw man fallacy is committed in actual argumentative discourse. More precisely, taking into account the fact that recent studies on the straw man fallacies theorize on how different variants of the straw man fallacy can be distinguished, it will be examined whether (some of) these variants can be found to occur indeed. The aim of this thesis, thus, is twofold: By examining representations in a particular argumentative activity type, it strives to contribute to a better understanding of what contextual factors may influence the success of the straw man fallacy; in addition, it seeks to answer the question whether the different forms of the fallacy as they are distinguished in the literature can be found to occur in actual argumentative discourse indeed.

This thesis will start with a literature review on the straw man fallacy in Chapter 2. In this chapter, an overview is provided of how the straw man fallacy is reflected upon in the literature, bringing to the fore both theoretical and practical concerns regarding the analysis and evaluation of the fallacy. It will be discussed, among other things, what different categories of variants of the fallacy are distinguished in the literature and how these categories relate to one another. Furthermore, it will be noted what solutions have been suggested to the often difficult task of deciding between (sound) reformulations of propositions on the one hand and *mis*representations – straw man fallacies – on the other hand.

As contextual information on the object of analysis, i.e. the scientific assessment report of the NIPCC, is crucial for an understanding of its argumentative activity type, Chapter 3 will give an illustration of the (historical) context of the international debate on climate change. In this chapter particular attention will be paid to the fact that this debate is located on the boundaries between the scientific and political domain. It will be explained, among other things, how the interwovenness of science and policy making in particular brings along two specific concerns hampering the implementation of international action on climate change: On the one hand, the question arises how one is to ensure that scientific knowledge is used to inform policy without being distorted or misused; on the other, one may ask how governments are to respond to this knowledge considering their own interests, perceptions and commitments (Boehmer-Christiansen 1994, p. 140). These questions are found to be reflected in the argumentation strategy put forward in the NIPCC's scientific assessment report as well.

In Chapter 4, it will be explained in more detail how pragma-dialectical argumentation theory and its concept of argumentative activity type in particular may give more insight in the conditions and opportunities for committing a straw man fallacy in a given type of communicative activity. In this chapter a more general introduction will be given of the field of argumentation theory as well, explaining how a combined normative and descriptive perspective on argumentation are of useful value for argumentation analysts interested in both the analysis and evaluation of (ordinary) argumentative discourse.

Chapter 5, then, provides an analysis of discussion moves in the NIPCC's report Climate Change Reconsidered that involve representations of arguments and standpoints that are (said to be) put forward by the IPCC in its Fourth Assessment report. First, an overview will be given of the main

standpoints and the general lines of argumentation put forward by the NIPCC. Subsequently, two examples will be discussed in which the NIPCC explicitly refers to and represents standpoints and arguments put forward by the IPCC. These examples will be used to examine to what extent the different variants of the straw man fallacy elaborated upon in Chapter 2 of this thesis can be found to occur in the NIPCC's report. A characterisation of the scientific assessment report of the NIPCC in terms of the pragma-dialectical notion of the argumentative activity type then is used to demonstrate what conditions are created for the straw man fallacy to be (successfully) committed.

Lastly, in Chapter 6 of this thesis the most important findings will be summarized. In this chapter, it will be reflected upon mostly how the results of the analysis on representations in the NIPCC's scientific assessment report provide more insight in (1) what contextual factors may influence the success of the straw man fallacy and (2) the ways in which the straw man fallacy can be committed. In addition, suggestions will be given for further research on the fallacy as well as the methods for analysing it.

On a last note, it is important to add that by examining (potential) fallacious argumentative moves committed by the NIPCC, this thesis by no means aims to draw any conclusions on the (overall) validity of its report nor will it be suggested that the IPCC's claims – even if prone to a straw man attack – are 'right' indeed. Furthermore, as will be explained in more detail in subsequent chapters of this thesis, the fact that the NIPCC's scientific assessment report (rather than the IPCC's report or both) is chosen as subject of analysis, is due to analytical restrictions only. As the IPCC has not posed any reaction to the NIPCC's report or the allegations in it, no critical reactions towards the NIPCC put forward by the IPCC can be analysed. If the IPCC will respond to specific arguments deployed by the NIPCC in the future, its reactions would form an interesting subject of analysis indeed.

2. Literature study

2.1 Introduction

This chapter provides an overview of how the straw man fallacy is reflected upon in the literature, bringing to the fore both theoretical and practical concerns regarding the analysis and evaluation of the fallacy. First, in section 2.2, it will be discussed how recent studies have found the prevailing picture of the straw man fallacy to be greatly oversimplified, most notably because variants of the fallacy can be recognized to which the standard definition does not apply to. As a result, textbooks on argumentation and logic would render the impression that the straw man fallacy is a very simple and easily recognizable fallacy whereas most actual instances of the fallacy would be considerably subtler and hard to detect. In subsections 2.2.1 and 2.2.2 it will be discussed what different variants are being distinguished in the more recent literature, thereby demonstrating how some ways for committing the straw man fallacy are recognized by a number of authors whilst some are reflected upon in the literature only once. Subsection 2.2.3 will discuss how these renewed insights in the fallacy may contribute to a better understanding of the various ways in which the straw man fallacy may be committed indeed, but how no attention is paid to the question of how one is actually to decide when (a particular variant of) the fallacy is committed. This question is dealt with in more detail in section 2.4. In section 2.4 it will be explained as well how pragma-dialectical theory offers a context-sensitive approach to the reconstruction of argumentative discourse that may function as a useful basis for the identification of the straw man fallacy. Section 2.5, then, describes how Lewiński (2011) uses this pragma-dialectical basis in order to formulate a number of specific criteria for the evaluation of the straw man fallacy. Attention will be paid to the fact that Lewiński stipulates necessary and sufficient conditions for straw man fallacy identification, thereby excluding particular contexts of argumentative discourse from being potential subjects of analysis. Lastly, in section 2.6 an overview will be given of the main findings of this chapter.

2.2 Different variants of the straw man fallacy

Typically characterised as a fallacy of criticism or a dialectical fallacy, the straw man fallacy is generally explained to occur in the adversary context of two participants in dialogue, A and B, arguing with each other. When one arguer (say, A) challenges an argument or position of the other (B), and in doing this, distorts some important feature of B's original argument or position so that it easier to refute and then proceeds to argue against the set-up version as though it were their opponent's, A commits a straw man fallacy (Johnson & Blair 1983, p. 71). This may be illustrated by the following:

A: The current rise of global temperature is partly caused by a rapid increase in the concentration of atmospheric CO_2.

B: An increase in the concentration of atmospheric CO_2 alone cannot account for the current rise of global temperature.

In this (constructed) example, A's argument that the current rise of global temperature is *partly* caused by a rapid increase in the concentration of atmospheric CO2 is taken to mean by B that the current rise of global temperature is *entirely* caused by a rapid increase in the concentration of atmospheric CO2, which is indicated by the word 'alone' in B's reaction to A. Here, it is demonstrated how a linguistic distortion of A's argument results in a rebuttal that does not address the actual argument that was originally put forward, making B's contribution to the discussion, in fact, irrelevant.

This irrelevance, however, is not always as clear as in the example given above (Tindale 2007; Lewiński 2011). Many actual instances of the straw man fallacy are considerably harder to detect, meaning that what suffices as an illustration of the mechanism of the straw man for textbook readers does not do full right to the argumentative practice of actual arguers (Lewiński 2011). Indeed, fallacies that are recognisable as such defeat their very goal of getting accepted as a reasonable contribution to a discussion, which makes deciding between a (sound) reformulation or a *mis*representation of a proposition a challenging task. Recent studies on the fallacy have responded to this in part by demonstrating how in fact different variants of the straw man fallacy can be distinguished, some of which do not involve any distortions at the *linguistic* level. Talisse and Aikin (2006) present themselves as the first to expand the conception of the fallacy beyond the form presented in the standard analysis. In their (2006) article, Talisse and Aikin make a distinction between two ways in which the straw man fallacy can be committed, to which Aikin and Casey (2011) add a third. As will be argued below, the three variants more or less match the various techniques for committing a straw man fallacies discussed by van Eemeren and Grootendorst (1992) albeit the latter do not (explicitly) distinguish the same (main) categories as Talisse and Aikin and Aikin and Casey do.

Before the different variants of the straw man fallacy as they are differentiated in the literature will be elaborated upon, it may be important to add that both van Eemeren and Grootendorst (1992), Talisse and Aikin (2006) and Aikin and Casey (2011) discuss the different manners for committing a straw man fallacy in relation to the (persuasive) effects these may have on a third-party audience. Indeed, because a straw man fallacy does not attack a real standpoint but a distorted or fictitious version of it instead, it would be highly obstructive or counterproductive for the *dialectical* objective of dispute resolution or the objective of resolving a difference of opinion on the merits (Walton 1996, Van Laar 2008). Walton, quoting Vernon and Nissen (1986), explains how the straw man fallacy is in fact "very unwise from a purely pragmatic point of view" as

> "[t]he failure to engage with the real position of your opponent […] in a way, defeats the whole purpose of your argument. It is what Aristotle would classify as a failure of real refutation. From this perspective, the outcome is that your opponent's (real) position has not been challenged at all by your argument. It is a kind of failure of an argument to succeed in its real purpose of refuting or critically questioning the opposed point of view." (1968, p. 160; as quoted by Walton 1996, p. 121)

Discussants who do not principally aim for a resolution on the merits, however, may take advantage of the fact that they can be less prudent in representing the other party's point of view. Indeed, as they do

not need the discussion to be actually resolved for their primary (rhetorical) goal to be obtained, they might as well try to alleviate their burden of proof by addressing weakened versions of the other party's contributions instead of the actual ones. This distortion of another party's standpoint or argument, now, is likely to have the most effect when being addressed to a third-party, onlooking audience such as readers of a written polemic. Indeed, particularly in case of less obvious distortions, a third party audience may not immediately observe a dissimilarity between what the one party meant and the other takes (or pretends to take) it to mean. As will be argued in subsequent chapters of this thesis, this is most probably the case not only when the audience is unfamiliar with the topic of discussion or unaware of the exact positions and arguments put forward in the debate, but also if the party under attack fails to refute the straw man fallacy by calling attention to the fact that a misrepresentation has occurred. This may apply, for instance, to discussion situations that do not allow for discussants to pose direct reactions to each other's contributions (van Eemeren & Grootendorst 1992, pp. 125-26).[2]

Furthermore, as Aikin and Casey (2011) argue, many straw man fallacies can be found to have been designed intentionally to persuade an audience that already has strong preferences for a particular conclusion to be drawn, either because the audience already takes it to be true or because it strongly wishes for it to be true. Straw man fallacies, in cases like these, would "not [be] made with unbiased or indifferent audiences in mind, but rather […] as theater for those with whom the speaker already agrees" (Ibid., p. 98). An audience that does not have a preference for a particular conclusion to be drawn, on the other hand, appears less easy to persuade as long as it is willing to carefully scrutinize each of the party's contributions to the discussion (Bizer et al. 2009, p. 225). Of course, as Oswald and Lewiński (2013, p. 171) note too, whether a particular instance of the fallacy remains unnoticed depends on the specific way in which the fallacy is committed as well. In order to understand what specific means a discussant may use to make a straw man fallacy as discrete as possible even for a highly critical audience, we may now turn to the question which variants of the straw man are distinguished in the literature.

2.2.1 The 'standard' straw man fallacy and its selectional counterpart

As was already touched upon above, Talisse and Aikin (2006) present themselves as the first to broaden the conception of the straw man fallacy. More particularly, they argue that a distinction should be made between a 'standard form' (which they also refer to as the *representational* form of the straw man fallacy) and another, less-known variant which they call the 'weak man' (or the *selectional* form of the straw man fallacy). The definition of this standard variant, now, most resembles the definitions of the fallacy given in previous sections of this thesis. It involves (at least) two discussants, A and B, arguing about some position (*p*) by means of one or more arguments (*x*, *y*, or *z*). In attacking the opponent, A or B may try to caricature or distort the other party's position, ascribing to the other party a position

[2] I.e. by reactions that are 'direct' I mean reactions in which there is no (considerable) time delay between the one arguer putting forward an argument and another arguer posing a reaction to it. If a discussion takes place in a written polemic in a newspaper, for example, a rebuttal of a straw man can be brought to the fore in the next issue of the newspaper, but readers who – for some reason or another – do not come across this next issue may wrongly take the (straw man) attack to be a real (or legitimate) and successful one.

that is easier to attack (p^*). If, suppose, B does so, and then sets to criticize p^*, concluding that p^* and therefore A is wrong, the standard form of the straw man fallacy is committed (Aikin and Casey 2011, p. 89). This same principle may be applied to an opponent's arguments rather than to his position: If B attacks A's position by not addressing A's original arguments (x, y or z) but caricatured (weaker) versions (x^*, y^* or z^*) instead, he may, on the basis of the attack on these weaker representations, conclude that B's position p is wrong (or, at least, weak) (Ibid.) In these examples of the standard variant or the representational form B's attacks are irrelevant as they address either a position or arguments that have not been put forward by A, and hence, do not actually form an attack to A's actual standpoint or arguments.

If misrepresenting a dialectical situation by addressing weaker arguments or positions than those that have originally been put forward is the central vice of the straw man, Talisse and Aikin argue, it admits of more forms than the one presupposed in the standard analysis. More specifically, they conclude that a discussant does not necessarily have to misrepresent the opponent's argument or position for a straw man fallacy to be committed. Rather, a discussant may misrepresent a dialectical situation with respect to the variety and strength of the opponent's argumentation as well (2006, p. 346). For means of illustration, we may suppose there are two discussants again, A and B, A defending position p by putting forward arguments x, y and z. If B selects the weakest of these arguments, refutes only this weakest argument and subsequently argues to have refuted B's overall case, some variant of the straw man fallacy is committed as the opponent's case is represented weaker than it actually is.[3] Talisse and Aikin call this the selectional form of the straw man fallacy or the weak man.

Aikin and Casey (2011) point out how the selectional form of the straw man fallacy resembles the hasty generalization as one sample (i.e. one argument) is taken to stand for all (i.e. the arguer's overall case). The specific straw man character, however, lies in the following: In selecting A's weakest argument and attending only to this argument, Aikin and Casey argue, B *implies* that this argument is the best or most powerful argument that has been put forward. That is to say:

> "if A is taking the time to respond to one of B's arguments, then A must take argument x [the weakest argument] as providing some comparative measure of rational resistance to A's preferred position. If A passes the other arguments over with silence, A implicates that they are not worth responding to (or at least do not have the urgency that x has)". (Ibid., p. 90)

This very feature illustrates a resemblance as well as the difference between the selectional form of the straw man fallacy described above and its 'standard' (representational) counterpart. Both concern misrepresentations of an opponent's case albeit on a different level: whereas the representational form applies to a distortion of an argument or standpoint put forward by an opponent, the selectional form concerns a distortion of the dialectical situation, i.e. a "more global failure to exercise charity in

[3] In this example, only *one* weakest argument is addressed. The selectional form of the straw man fallacy can also be committed, however, if *some* of the weakest arguments are addressed – i.e. as long as the stronger ones are ignored. (cf. Aikin & Casey 2011, p. 88)

selecting which of an opponent's arguments to address selectional form of the straw man fallacy" (Ibid., p. 90).[4]

A somewhat different instance of the selectional variant may be committed in a larger context in which multiple arguers are involved. To illustrate this, we may suppose there are four arguers, A, B, C and D, three of which hold a different point of view than one of them. The latter, now, may choose to attack the arguments of the opponent who holds the weakest arguments against the arguer's own view or, if the situation lends itself to it, the formulation of an argument that is shared by all but that is put forward by one in the least advantageous way:

> "Schematically, the distortion may be presented as follows. B, C, and D all hold that *p*, but they hold that *p* on the basis of a wide variety of arguments. B, perhaps, is sophisticated, and she holds that *p* on the basis of arguments *x*, *y*, and *z*, which, by the standards set by the state of the dialogue, are good arguments. C and D, however, are not quite up to snuff, and though they get B's arguments, when they try to give them, they muck them up. C holds that p on the basis of distorted and more criticizable arguments x^*, y^*, and z^*. And D just holds *p* on the basis of x^*. A does not need to distort standing arguments for *p*, now, as those who argue for *p* have done that work for him—all he needs to do is find and pick on the members of the opposition that are more mistake-prone or less careful" (Ibid., p. 91)

In the example given above, A, who holds a different point of view than B, C and D, chooses whose argument(s) he is going to refute on the basis of the strength of the arguments as they are put forward by the opponents. Again, this strategy is considered an instance of the selectional form of the straw man fallacy if A, by using this strategy, gives the impression that the other arguments that are left unaddressed are not worth responding to and are, in fact, weaker than the argument that has been (or the arguments that have been) addressed.

In their standard work on fallacies van Eemeren and Grootendorst (1992) make note of what Talisse and Aikin (2006) have coined the selectional variant of the straw man fallacy. Van Eemeren and

[4] According to Talisse and Aikin (2006) and Aikin and Casey (2011) to only those cases in which the *weakest* arguments have been addressed and the stronger ones have been neglected, the selectional form of the straw man fallacy applies. The basic justification given for this is that the authors adhere to the principle that the central vice of the straw man fallacy lies in addressing *weaker* arguments or positions than the ones originally put forward by an opponent, making the opponent not only easier to attack but also making his case look more vulnerable. One might argue, however, that in each case in which arguments are left unaddressed, some sort of distortion of the other party's case occurs, or indeed some rendering of the impression that the arguments not responded to are indeed not worth responding to. This, as a matter of fact, would include all cases in which arguments are being jumped over, be it the stronger or relatively weaker ones. If we reconsider the remark from Aikin and Casey (2011) mentioned above, i.e. that a discussant may misrepresent a dialectical situation with respect to both the variety and strength of the opponent's argumentation, we may say that a misrepresentation of the strength of one's case may occur if the full variety of arguments that have been put forward is not done justice to.

Grootendorst do not, however, discuss this variant in detail. More specifically, it is not included in either of the two main categories of the straw man fallacy they distinguish. Instead, it is discussed in the section on 'complications regarding the representation of standpoints' (1992, pp. 130-131). In this section it is argued that "attacking the opponent's weak arguments while ignoring his strong arguments" and "attacking insignificant opponents while ignoring more powerful opponents" should be considered straw man attacks indeed as they both concern a representation of the opponent that does not do right to reality. In their discussion of these straw man techniques, van Eemeren and Grootendorst use the same theorizing as Aikin and Casey (2011) in order to draw the conclusion that the essence of the straw man fallacy, i.e. making the opponent appear weaker than he actually is, admits for different variants of the fallacy to be formulated (van Eemeren & Grootendorst 1992, pp. 1301-131). It is unclear, however, why this specific variant is mentioned only in a side note.

If we look in more detail at the two main categories van Eemeren and Grootendorst distinguish, we see that one of the two matches Talisse and Aikin's (2006) and Aikin and Casey's (2011) description of the standard form. Generally circumscribing it as 'distorting the opponent's standpoint', van Eemeren and Grootendorst (1992, p. 127-130) explain how an arguer can (subtly) twist the opponent's words in such a way that the standpoint under attack is easier to refute whilst at the same time the impression is given that the original standpoint is being addressed. This can be done, as they note, by means of a number of linguistic devices, such as simplification, exaggeration, absolutisation, generalisation, omission of nuances and qualifications (Ibid., p. 128).

In the same category van Eemeren and Grootendorst (1992) discuss another technique of distorting the opponent's standpoint, i.e. taking things out of context. This technique, used most notably in written discussions, concerns picking quotes selectively and omitting parts of the surrounding context by means of which words can be given a different meaning. Returning to Talisse and Aikin's (2006) or Aikin and Casey's (2011) discussion of the standard form, it is not entirely clear whether they assume this to fall under their category of the standard form as well. Walton and Macagno (2010), however, who discuss the fallacy of 'wrenching from context' in relation to other fallacies (including the straw man), explicitly consider the technique of "[manipulating] the meaning of the other's statement through devices such as the use of misquotations, selective quotations, and quoting out of context" (Ibid., p. 283) to *not* belong to the realm of the straw man fallacy. According to them, the straw man fallacy would include only those distortions of meaning by means of (incorrect) paraphrasing, whereas wrenching from context would be the fallacy that concerns the misrepresentation of direct quotations. Their reason for making a distinction between these two fallacies seems to be motivated by their finding that another difference would exist between the two. Walton and Macagno also note, namely, that the straw man fallacy always attacks another discussant's point of view *put forward in a discussion*; wrenching from context, on the other hand, would also be applicable to another party's point of view *held outside a discussion*. More specifically, wrenching from context could also be used to distort a point of view that has not been put forward within a discussion or that is held by a person or party that does not partake in it:

> "Whereas straw-man is misrepresentation aimed at distorting the opponent's viewpoint […] wrenching from context is a wider strategy of altering a position to support the speaker's viewpoint. […] Wrenching from context can be a manipulation of the other party's standpoint, but is not only that. Authorities' claims, opponent's past statements, a third party's viewpoint can be taken out of context in order to support a position." (Ibid., p. 296)

In our discussion of yet another form of the straw man fallacy that is reflected upon in the literature, however, we will see how these features Walton and Macagno (2010) reserve for the fallacy of wrenching from the context are considered by others to be applicable to the straw man fallacy as well.

2.2.2 The hollow man or the technique of imputing a fictitious standpoint

Building on Talisse and Aikin (2006), Aikin and Casey (2011) note how particular instances of the straw man fallacy can be placed on a spectrum of accuracy of representation. In deciding whether a discussant's words are accurately or fairly represented, they argue, one may find that some representations are more or less 'honest' (2011, p. 92). According to them, instances of the selectional form of the straw man are less dishonest than instances of the representational (standard) form as the former would not cause someone's position to be actually *altered* – that is to say, "someone does, after all, hold the weak-manned position" (Ibid.). The representational form, on the other hand, would really concern a caricature of an actual view that is being ascribed to an opponent.[5] If one is to take this one step further, Aikin and Casey (2011) say, this allows for another variant of the fallacy that does not involve a caricature but rather a *complete fabrication*. Aikin and Casey (2011) call this the 'hollow man' variant of the straw man fallacy, which can be committed in two different ways. On the one hand, one may ascribe to an opponent a view that is completely made-up and does not bear any resemblance to any standpoint or argument actually expressed by the opponent. This technique is called the less extreme variety of the hollow man and may be committed if a discussant, in reacting critically to a standpoint or argument adhered to by another party, makes a reference to a standpoint or argument held by some (large, general) group of people like 'Liberals' or 'climate sceptics'. In cases like these, a distortion of the dialectical situation is caused by the fact that the discussant is pictured as belonging to a group and, consequently, is taken to adhere to some (general) viewpoint this group could be taken to have. This viewpoint, then, is being addressed rather than an actual standpoint or argument put forward in the discussion. More specifically, as Aikin and Casey (2011) explain, a less extreme variant of the straw man fallacy is committed when

[5] In relation to this, Aikin and Casey also note how this caricatured representation of the opponent's case "may be a distortion of the dialectical situation, but at least it is addressed to someone who at least can clarify the situation" (2011, p. 92). Again, one might argue how the discussion situation (determining whether discussants can pose direct reactions to each other's arguments) also influences this – if an arguer can only react in print, for example, readers who for some reason or another do not come across this reaction may wrongly take the (straw man) attack to be a legitimate (and hence successful) argument.

> "[...] A reviews arguments from B, C and D, whom A classifies as the Φ's. B, C and D give arguments aggregative to *x*, *y* and *z* (and perhaps of varying quality, including *x**, *y**, and *z** too). Despite the rich terrain of arguments to survey and to respond to, A speaks broadly of the Φ's, and instead of responding to *x*, *y* or *z* (or even *x**), A responds to an argument *w** that has no relationship whatsoever to those given by any member of Φ." (2011, p. 93)

The extreme variety of the hollow man, on the other hand, concerns the fabrication of both an opponent and some alleged point of view this opponent should be taken to hold. This may occur, Aikin and Casey explain, when a vague phrase like 'some say' or 'people think' is used – in situations like these, it is often impossible to find someone to attribute a standpoint to. This variant seems to be most useful for providing support for one's own view when no real opposition can be found:

> "A may have his view that not-p and there may or may not be some B who criticizes A's view. A, however, need not address B, but instead may invokes a class U, representative of the standing opposition. A attributes an exceedingly bad argument (w*) either directly to B or to U, responds to w*, and then claims to have defended his view." (Ibid., p. 93)

The extreme variety of the hollow man thus seems to be somewhat different from the other variants of the fallacy as it is not a real discussant that is being attacked but an invented one instead.

Aikin and Casey (2011) argue that the hollow man variety of the straw man fallacy has only been infrequently recognized in the literature. They note that Johnson and Blair's (1983, p. 74) description of the hollow man "leaves open room for the possibility of hollow man" (Aikin and Casey 2011, p. 92) and that definitions of the straw man fallacy by van Eemeren, Gootendorst (1992) and van Eemeren, Grootendorst and Snoeck Henkemans (2002, p. 117) include descriptions of a technique for committing the fallacy that resembles Aikin and Casey's definition of the hollow man variant (see also Copi et al. 2007, p. 445 and Rudinow & Barry 2008, p. 325). Other authors, however, can be found making note of the hollow man variety as well.[6] In Walton's (1996) article on the straw man fallacy and fallacies that are closely related to it, for instance, we see that the first example he gives to illustrate the gist of the straw man concerns the misrepresentation of a discussant's position that can be categorised as a hollow man. In addition, Bizer et al. can be found to illustrate a 'classic' straw man argument by the following example in which George W. Bush, former president of the United States, discusses the war in Iraq: "There's a lot of people in the world who don't believe that people whose skin color may not be the same as ours can be free and self-govern. I reject that. I reject that strongly" (2009, p. 217, taken from Milbank 2004). By dissociating himself from the vague group of "a lot of people in the world […]", Bush seems to be guilty of committing a hollow man variant in this example. Lastly, it appears that van Eemeren and Grootendorst's (1992, pp. 126-127) description of the technique for committing the fallacy that resembles Aikin and Casey's definition of the hollow man variant seem to be quite comprehensive. More specifically, van Eemeren and Grootendorst's second main category of

[6] I.e. even though they may not consider it to form a subcategory or variant of the straw man fallacy, they include examples or descriptions of it in their account of the fallacy.

techniques for committing the straw man fallacy, 'imputing a fictitious standpoint to the opponent', for a large part matches Aikin and Casey's (2011) classification of the hollow man.

Van Eemeren and Grootendorst (1992, pp. 126-127) discuss a number of ways in which one can ascribe a fictitious standpoint to an opponent. The first they make note of is referring to a party or grouping to which the opponent belongs and linking the opponent to a viewpoint this group is argued to held. This, indeed, seems to correspond to Aikin and Casey's (2011) less extreme variety of the hollow man. Another technique van Eemeren and Grootendorst describe is considered to be an application of the former and concerns the creation of a fictitious standpoint, with no real opponent being attacked and an empty accusation being made. This, in turn, resembles Aikin and Casey's (2011) extreme version of the hollow man.[7] A third technique van Eemeren and Grootendorst include in the category of ascribing a fictitious standpoint to the opponent is the technique of putting forward the opposite standpoint with great emphasis: For it would only seem relevant to empathically put forward another standpoint if it is not shared by the other party, van Eemeren and Grootendorst note, the impression is generated that the opposing view can indeed be ascribed to that party. Van Eemeren and Grootendorst (1992) also mention how this technique seems to have an even greater effect when the standpoint presented contains a negation. An utterance like "I do not think higher levels of atmospheric CO2 can cause or amplify an increase in global temperatures", for instance, creates the impression that the opposing party thinks the opposite, whereas this party's standpoint may be much more nuanced (Ibid., p. 126). It also raises the question, however, how one is to make a distinction between a distortion of an arguer' position and the imputation of a standpoint that is altogether fictitious. Indeed, if a standpoint that is being imputed to another party resembles this party's actual position (i.e. if explicitly put forward) one may ask where exactly a line can be drawn between the two.

Returning to Walton and Macagno's (2010) claim that the straw man fallacy would be inherently different from the fallacy of wrenching from context as the latter could be used to refer to another (i.e. third) party's point of view held *outside* a discussion, we now see how the extreme version of the hollow man or the technique of creating a fake opponent concerns, in fact, a reference to a non-discussant, third party's point of view as well. In other words, what Walton and Macagno consider a reason to make a distinction between two different fallacies only denotes a difference between different variants of the same fallacy by Aikin and Casey (2011) and van Eemeren and Grootendorst (1992).

2.2.3 Pinning down the straw man fallacy variants in actual argumentative discourse

In the above we saw how a reconsideration of the central vice of the straw man fallacy leaves room for the recognition of different variants of the fallacy. It also appeared that the distinctions between different variants of the fallacy being made in the literature show considerable overlap as the different

[7]Van Eemeren and Grootendorst (1992, pp. 126-127), however, add a caveat to this distinction by acknowledging that it is often difficult to decide whether the fictitious opponent and the standpoint ascribed to this opponent actually exist or whether they are the product of the attacker's imagination. Therefore, they argue, this technique is particularly likely to be successful if an audience is completely unacquainted with the subject of discussion. In other words, the particulars of a discussion situation might influence the success of the fallacy (or rather the likelihood of it going unnoticed) and, the other way around, the likelihood of it being committed as well. This will be further elaborated on in Chapters 3 and 5 of this thesis.

techniques for committing a straw man fallacy recognized by van Eemeren and Grootendorst (1992) for a large part match (or can be placed within) the three categories distinguished by Aikin and Casey (2011).[8] Lastly, we saw how Walton and Macagno (2010) explained how a distinction should be made between the straw man fallacy on the one hand and the fallacy of wrenching from the context on the other, an explanation which would not be applicable to Aikin and Casey's (2011) and van Eemeren and Grootendorst's (1992) perception of the (extreme) variant of the hollow man.

The question may arise, however, what the various (sub)categorizations lend themselves to – i.e. transcending the purpose of categorizing for the sake of categorizing. What seems to be missing in all theoretical accounts described above indeed is a connection to actual argumentative discourse. That is to say, particularly Talisse and Aikin (2006) and Aikin and Casey (2011) have shown to remain mostly abstract in distinguishing different variants of the straw man fallacy, basing their categorizations on theorizing rather than on examples of the fallacy occurring in actual argumentative discourse. Van Eemeren and Grootendorst (1992), on the other hand, do take into consideration the likelihood of a particular straw man variant to be committed in particular discussion situations and make use of some real-world examples to illustrate the various techniques that may be used, but little attention is paid still to the question why many actual instances of the straw man fallacy are difficult to detect. That is to say, in the above it was mentioned how the simplicity of definitions and examples of the fallacy do not do right to argumentative reality, in which it is often difficult to decide whether a representation is a *mis*representation indeed. It can be argued that the theoretical accounts aiming to give a more extensive explanation of the fallacy by distinguishing its different variants again principally illustrate the mechanism of the fallacy, or rather the different mechanisms that may govern a straw man fallacy.

The problem of how one is exactly to establish a misrepresentation is reflected upon in the literature in relation to the standard variant of the straw man fallacy. Most of what is addressed can be said to apply to any of the variants as it – for a large part – concerns the reconstruction of an arguer's actual position or argument. It should be noted, however, that the variants of the straw man fallacy other than the standard one may involve other complexities on deciding between a fair representation and an unreasonable one. Considering the selectional form of the straw man, for instance, one may ask how this fallacious move can be successfully committed in actual argumentative discourse. As we saw above, a crucial part of it is that the arguer committing the fallacy draws the conclusion that the opponent's overall case has been refuted without having addressed all (or the strongest) arguments. One might wonder how this may be done – after all, for this fallacious move to be successful, like all fallacies, it needs to go unnoticed. It could be argued that the drawing of the conclusion may be done implicitly – that is to say, in real arguments it could be that it is not explicitly stated but nevertheless made clear in one way or another by an arguer that he considers the debate settled after having addressed only a part or only the weakest argument(s) of an opponent's case. In this way, an arguer would refrain from (directly) stating his exact conclusions and, in doing so, make it more difficult for his opponent to pose a critical reaction to this. Pinning down an argumentative move like this as an

[8] For the sake of clarity, in the remainder of this thesis Aikin and Casey's (2011) terms will be used to refer to these categories (i.e. the standard variant or representational form, the weak man variant or the selectional form, and the extreme and less extreme versions of the hollow man variant).

instantiation of the selectional form of the straw man fallacy, now, may be more difficult than the general explanation on the variant may suggest. Further research on questions like these is needed to indicate whether (other) difficulties arise in establishing (actual instantiations of) any of the other variants. In the next section, it will be discussed how the literature accounts for the difficulties in establishing a misrepresentation from the perspective of the standard form.

2.3 Difficulties in establishing a misrepresentation

If one takes the central vice of the fallacy to lie in representing the arguer's case as weaker than it actually is, the problem arises how one is to determine an arguer's actual position. Indeed, as Lewiński and Oswald point out, "since the very core of any straw man attack lies in an opponent's misrepresentation of a proponents position, an analyst of argumentation needs to be able to draw the line between representation and misrepresentation" (2013, p. 166). This presupposes that there are criteria for deciding what a sound representation, or rather, interpretation, is.

According to Lewiński (2011, p. 485), there is a tendency in the literature on the straw man fallacy not to pay close attention to the reconstruction of both the original position of the protagonist and the antagonist's critical reaction. Instead, most attention seems to be paid to the comparison of the different propositions put forward. Often, formal language is used as it facilitates a precise comparison of propositions. Even though such an approach might be useful in showing the mechanism of the fallacy, Lewiński argues that in a way it "presupposes what is to be proven" (2011, p. 485). Indeed, it might be useful for categorizing the various possible relations between propositions, but it neglects the problem of reconstructing ordinary language use: "[the] abstract character [of logical analyses] leaves largely unaddressed the question of how to justifiably assign logical symbols to actual utterances of ordinary language users" (Ibid.).

Walton also signals this difficulty in establishing the straw man fallacy and proposes to consider an arguer's actual position as "the total commitment set of a participant in a dialogue" (1996, p. 116). This 'commitment set' consists of all propositions an arguer may be taken to have committed himself to on the basis of the utterances he made in the course of the debate. Walton does not discuss, however, how exactly one is to attain such a list of propositions. Instead, following Govier (1992) in this matter, he explains how one should take into account not only the position or argument that is being represented but also what has been said in the discussion before this was put forward. An arguer's earlier argumentation, Walton explains, should provide enough evidence to reconstruct his stated and implied commitments, enabling one to compare the reconstructed position with the represented version of it. He then sets out to provide a more detailed study of some more specific cases that are problematic in this respect, such as arguments of which one does not have a record stating what is said in the past discourse (1996, p. 118). What is lacking, now, are more specific, hands-on criteria for determining stated and implied commitments and, more importantly, deciding exactly what an arguer can be held accountable for in a given situation. That is to say, Walton, stressing how one needs to take an arguer's actual wording into account, does not explain what reconstructing actual

discourse amounts to given the fact that often a discrepancy can be noted between the literal meaning of an utterance and the underlying implications. In other words, it is not explained how pragmatic elements in actual argumentative discourse should be accounted for in one's reconstruction of a discussion.

As Lewiński notes, determining what a discussant may be taken to have said strongly depends on an approach that does not only take semantic but also pragmatic aspects of argumentative language into account. Procedures for the reconstruction of pragmatic elements like these have been developed by, among others, Levinson (1983) and Morency et al. (2008), and are further refined for a specifically argumentative reconstruction within the field of pragma-dialectics (i.a. van Eemeren et al (1993) and van Rees (1992, 2001) (Lewiński 2011, p. 486). In the remainder of this section, the pragma-dialectical approach to the reconstruction of argumentative discourse will be discussed in more detail, including Lewiński's application of this approach to the interpretation of the straw man fallacy.

In order to find out what a protagonist really may have taken to have said rather than what he has literally said, pragma-dialectics introduced the concept of 'disagreement space' (van Eemeren et al. 1993, p. 95). This concept comprises "all the justifiably reconstructible commitments an arguer may be held accountable for on the basis of what they said in a given context", including not only semantic but also pragmatic aspects of the argumentation such as conversational implicatures, presuppositions and felicity conditions (Lewiński 2011, p. 486; see Grice 1975 and Searle 1969). When trying to determine whether a critical reaction from a discussant addresses a standpoint or argument genuinely advanced by the opponent, one can thus resort to the disagreement space of the discussion: Any critical reaction from an antagonist has to be directed against the protagonist's commitments that are *pragmatically plausible* given what the protagonist has actually said; reactions that go beyond the boundaries of the disagreement space are considered straw man attacks.

Pragma-dialectics recognizes, however, how each utterance may have a variety of possible interpretations "all compatible with the information that is linguistically encoded" (Wilson 1944, p. 44, as cited by Lewiński 2011, p. 486). Indeed, as van Eemeren et al. point out, an "indefinitely large and complex set of beliefs, wants, and intentions that jointly compose the perspective of one's partner" (1993, p. 95) can be inferred from an argumentative discourse and the context in which it is taking place. This means that in some cases, especially when contextual information is scarce, it is impossible to pin down only one interpretation of an utterance. Instead, there are a variety of plausible interpretations. Argumentation analysts therefore might recourse to the *principle of charity* when facing these less-than-obvious cases. Originally a concept from the philosophy of language proposed as a basis for a general semantic theory, this principle advocates that another speaker's utterances are to be interpreted in such a way that no false beliefs are ascribed to that speaker (Honderich 1995, p. 744). Being applied to the study of argumentation in a number of ways, the pragma-dialectical formulation of the principle of charity states that one is to interpret an utterance in such a way that it "is most likely to be *successfully defended* by the arguer" (Snoeck Henkemans 1992, p. 104; italics in original; see also Lewiński 2011). Rather than a rule for argumentation which is to be followed in ordinary

argumentative discourse, it is designed to be "a meta-theoretical drive that guides the choice of the analysis carried out by an argumentation critic" (Lewiński 2011, p. 487).

In its pragma-dialectical application, the principle of charity comprises specific strategies for the reconstruction of argumentation: First, there is the strategy of *maximally argumentative interpretation*, which entails that speech acts are to be interpreted as argumentatively relevant when it is not entirely clear whether they are meant to be argumentative or not. Second, according to the *maximally dialectic analysis*, a (fragment of) discourse is to be reconstructed as a critical discussion if it is not clear whether it should be taken as one. Lastly, a *maximally argumentative analysis* leads an analyst to reconstruct an argumentation structure as multiple (rather than coordinative) in cases in which it is unclear how the arguments are to be related to each other (van Eemeren et al. 1992; Lewiński 2011, p. 487-488). Additionally, as Lewiński argues, analysts should make sure that premises that are left unexpressed are reconstructed in a 'pragmatically optimal' manner: an argumentation analyst must examine whether the incomplete argument can be completed in such a way that it becomes valid (cf. van Eemeren and Grootendorst 1992, p. 61).

As mentioned above, the principle of charity as it is used in pragma-dialectics does not state that arguers involved in an actual discussion do or need to obey this principle. Pragma-dialectics recognizes the fact that when an arguer faces a variety of possible interpretations of an utterance made by another party, an arguer may follow "the strategy of the easiest objection" (Lewiński 2011, p. 488) by attacking those elements in the argumentation that seem to be easiest objectionable.[9] Indeed, as Lewiński points out, trying to undermine the protagonist's case in the most efficient way by attacking an *uncharitable* interpretation of the protagonist's utterance is not inherently wrong from a dialectical point of view (Ibid., p. 480). In a way, he argues, this can be compared to trying to win a game of chess with the least amount of moves, as both are fair as long as no rules are harmed. Lewiński uses an example from Snoeck Henkemans (1992, p. 123–125) to clarify how an interpretation of ordinary language can be both dialectically reasonable and uncharitable: The interpretation of the standpoint 'Tom is a liar' as 'Tom is a habitual liar' may be argued to be a plausible one considering ordinary conventions on language use. The most charitable interpretation, however, would be that 'Tom is an incidental liar'. The burden of proof of the former is higher than the burden of proof of the latter, and, as Lewiński notes, it is a choice arguers can make whether they want to be "a […] confident arguer displaying chivalry" or "a coldly calculating opponent who considers lack of charity as possibly the only way to successfully (and still reasonably) refute the protagonist's point" (2011, p. 490). In other words, arguers are free to choose whether they adopt a charitable or non-charitable interpretation of their opponent's standpoint depending on the argumentative strategy they wish to employ. Charity and plausibility of interpretation, Lewiński argues, are two *separate variables* in reacting critically to another party's utterances.

Returning to the question of how one is to determine whether a representation of another party's point of view is 'accurate' or may be considered misleading for doing injustice to the strength of

[9] This is in line with the pragma-dialectical idea that arguers try to maneuver strategically between dialectical reasonableness and rhetorical persuasiveness, which will be elaborated on in Chapter 3 of this thesis.

the actual viewpoint expressed, this means that a line between the two may be even harder to draw than may have seemed from earlier accounts of the fallacy. How is one to decide between an uncharitable yet reasonable and uncharitable *and* unreasonable representation? In this case, pragma-dialectics offers a solution by taking into account another aspect of a discussion's context, namely the *argumentative activity type* which the discussion can be counted among.

Pragma-dialectics uses the notion of argumentative activity type to account for the fact that argumentation takes place in concrete situations and under specific (contextual) conditions. As many of these situations occur regularly and are socially identifiable, they can be considered types of communicative activity that can be recognized by certain norms or expectations (Lewiński 2010, p. 55). These norms and expectations, now, may be more or less institutionalized – that is to say, argumentative activity types such as a legal trial or a discussion in parliament are subject to formal, written rules, whereas a chat between friends or family members are "built up of informal, largely unwritten conventions without any explicit connection to the functioning of the state or corporate administration" (Ibid., p. 56). Furthermore, those activity types that are more institutionalised, often offer precise rules of interpretation of discourse (Lewiński 2011, p. 490). This is the case, for example, in legal trials or peer academic reviews, "where certain claims have to be established 'beyond reasonable doubt'" (Ibid., p. 491). All parties participating in a legal trial, for example, are expected to state their standpoints and arguments explicitly and directly so that no question remains on what an utterance may be taken to mean. In less institutionalised activity types, on the other hand, elements of pragmatic meaning (e.g. conversational implicatures) may be taken into account in establishing the meaning of particular utterances.

As Lewiński (2010, 2011) notes, any evaluation of an alleged straw man fallacy should take into consideration such context-specific rules of interpretation. Analysts should, for instance, base their evaluation of a representation on the strict, or even literal, meaning of the protagonist's utterances when analysing activity types such as legal trials or peer academic reviews. In less institutionalised, more informal activities, less of what is communicated is stated explicitly; accordingly, analysts have more freedom in interpreting the meaning of utterances. Based on the context, they may come to an interpretation that is most plausible. In other words, "[t]he plausibility of reconstructing what is said in a way departing from the explicit, overt meaning is thus decidedly limited by the requirements of precision" (2011, p. 491).

2.4 From interpretation to evaluation

In the previous section it was emphasized how one should take into account the context of a discussion (and, more specifically, specific rules of interpretation pertaining to the particular context) in order to be able to decide between a sound or fallacious representation. That is to say, in deciding on the fallaciousness of a discussion move one should not only take into consideration the surrounding text from which commitments and pragmatic aspects of the argumentation such as conversational implicatures, presuppositions and felicity conditions can be derived, but also the type of discourse in

which an argument takes place as presumptions or norms about reasonableness of a certain form of argument (and the formulation of it) are dependent on the context in which the argumentation takes place. In pragma-dialectics this idea is captured in the notion of argumentative activity type.

Even though pragma-dialectics provides a useful basis for the evaluation of the straw man fallacy, practical, workable tools for doing so are still lacking (Lewiński 2011, p. 480). In order to fill this gap, Lewiński introduces a set of criteria for evaluating the straw man fallacy that can be applied in detailed case-by-case assessments of argumentative discourse. Each of these criteria will be discussed below. First, however, attention will be paid to the fact that Lewiński considers only particular contexts of argumentative discourse to be suitable for "a well-justified evaluation of a given critical reaction" (p. 483) by stipulating both necessary and sufficient conditions for straw man fallacy identification.

2.4.1 Lewiński's (2011) necessary and sufficient conditions for identifying the straw man fallacy

For being able to identify a straw man fallacy, Lewiński contends, one needs to have access to the ''detailed, more localized record of what the [original] speaker actually said as he developed his point of view'' (Walton 1996, p. 127 as quoted by Lewiński 2011. p, 481) as well as information about the context in which the discussion takes place. This condition connects to what is discussed above about how one should not only take into account the standpoint or argument that is being represented for being able to draw any conclusions on how a particular contribution to discussion should be understood. Rather, attention should be paid as well to what has been said in the discussion before and what context the discussion takes place in. This condition is most usually met if discourse has been written down or recorded in some other way. Discourse that has not been recorded, on the other hand, which is the case in most cases of spoken conversation, would pose too many difficulties for an argumentation analyst to be able to clearly identify representations of arguments as misrepresentations.[10]

Lewiński's second condition for the identification of the straw man fallacy requires for an argumentation analyst to only take into account discussions in which a discussants can directly respond to each other's contributions and hence, are able to "point out an attempted misrepresentation on-the-spot" (2011, p. 481). Lewiński too considers this condition to be a necessary one as one would not be able to (justifiably) identify a straw man before an interpretation has been further specified by the opponent under attack. Cases in which arguers are not able to correct any

[10] The idea of this being a *necessary* condition for identifying the straw man fallacy is shared by Walton (1996). Govier (1992), on the other hand, draws the conclusion that a straw man fallacy is *most easy* to identify indeed when the conversation is documented, but she also argues how it can be detected in another way. More specifically, she notes how a straw man fallacy can be identified in those cases where positions being discussed are "general ones, not identified with the stated ideas of any single specific person, such as the environmentalist position on DNA research, feminism, evolutionary theory [...]" (Ibid., p. 157). What we see here, is how Govier discusses an example of the hollow man variety; in cases like these, Govier argues, one has to depend one's own background knowledge in order to determine "the real context of the position" (Ibid.). Lewiński does not seem to take this (or any other variant of the fallacy different from the standard form) into consideration in formulating his conditions.

distortion 'on-the-spot' – which are manifold – thus cannot be taken into consideration.[11] This may seem a bit striking if we take into consideration the pragma-dialectical tools for reconstructing argumentative discourse discussed in the previous section as these are designed indeed for an argumentation analyst to be able to detect any fallacy without needing some sort of confirmation from the arguer being prone to one. Moreover, if an arguer tries to refute an attack by claiming that his standpoint or argument has been misrepresented, this does not necessarily mean this is the case.[12] As a matter of fact, an arguer may commit a fallacy as well by accusing another party of having misrepresented some standpoint or argument if he in fact has not. As van Eemeren and Grootendorst (1992) note in their discussion of the technique of distorting the opponent's standpoint by means of the replacement of quantifiers, an arguer who advances a standpoint like "men are oversensitive" with an 'all' interpretation, may decide to fall back on the 'some' interpretation if he finds out the former is too difficult to defend. In doing so, an arguer can be found guilty of (purposefully) using unclear or ambiguous formulations in expressing his point of view. Furthermore, he runs the risk of evading the burden of proof of its original point of view.

The third and final condition for the identification of a straw man fallacy Lewiński discusses is a sufficient (instead of necessary) condition and concerns the fact that both the original and the reformulated position need to be carefully reconstructed before an accurate evaluation of a critical reaction can be given. This condition too connects to what is discussed in section 2.4 of this thesis, i.e. how it is often difficult to accurately reconstruct the actual standpoints or arguments when studying natural language. In the next section it will be shown how Lewiński aims to overcome this problem in his formulation for criteria for the evaluation of the straw man fallacy by taking into account context-specific norms or conventions on interpretation and commitment attribution.

2.4.2 Lewiński's (2011) criteria for the evaluation of the straw man fallacy

Two key notions in Lewiński's (2011) formulation of criteria for the evaluation of the straw man fallacy are *plausibility* and *charity*. As discussed earlier, Lewiński considers these notions to be two separate variables that determine the way in which an arguer chooses to interpret his opponent's utterances. This decision, in turn, depends on the argumentative strategy an arguer wishes to employ. An arguer

[11] Indeed, situations in which an arguer is not able to pose a direct reaction to a misrepresentation seem most convenient for a straw man fallacy to be committed. Lewiński seems to acknowledge this too, pointing out how Walton notes that "[r]hetorically speaking, as long as the attacked arguer is not immediately capable of correcting the abuse, the antagonist's straw man attack may be powerfully persuasive to the members of a third party audience who may simply uncritically consider the attack a faithful representation of the original position" (Walton 1996, pp. 126–127; as quoted in Lewiński 2011, p. 482). A written polemic therefore renders arguers a somewhat underprivileged position as their re-reaction in which they may try to refute the straw man attack may not successfully reach the audience.

[12] In discussing the third condition for identifying a straw man fallacy, Lewiński also acknowledges this: "Arguers (in their role of protagonists) may be mistaken, vague or even dishonest in referring to and interpreting their own past expressions and thus, deliberately or not, they may deny previously incurred commitments. Moreover, they can reproach others for fallacies which in fact have not been committed (clearly, not every straw man accusation is justified). Therefore, the interpretation of the original arguments proposed by the original arguers themselves should not be taken as an ultimate authority and hence as a sufficient condition in deciding whether the straw man has been committed or not." (2011, p. 484)

who prefers winning a dispute in his own favor over resolving it on the merits may choose to attack his opponent(s) in some uncharitable way if that will mean bring him closer to his goal. An arguer aimed at resolving a difference of opinion on the merits, on the other hand, may be expected to display a more charitable approach to interpreting his opponent's contributions as this may facilitate the resolution-finding process.

Another notion that is least as important in Lewiński's formulation of criteria, is the notion of argumentative activity type. In the above, it was already touched upon how different types of communicative activity may give rise to different expectations and norms about the use of language and the way in which it should be interpreted, some of which may be more strict or binding than others. In the more formal, institutionalized types of activity like academic discussions or legal trials, for instance, arguers may be expected to express themselves more explicitly and directly than, say, in an informal chat; accordingly, utterances of people communicating in the more formal, institutionalized activity types may be expected to be subject of more thorough scrutiny than utterances made in the situation of an informal chat. Returning to the factors of plausibility and charity, Lewiński also explains how these can be found to apply to some varying extent to different types of argumentative activity: Plausibility (or: precision) of interpretation, so to say, is very *narrow* in those activity types on the formal end of the spectrum, whereas informal types of discourse allow for a more loose interpretation (i.e. broad plausibility). Regarding the notion of charity, some activity types are characterized by a highly critical (i.e. uncharitable) interpretation of discourse, whereas others are typically associated with a more constructive (i.e. charitable) interpretation.

According to Lewiński, depending on the argumentative activity type, "these criteria apply differently to generate different fallacy judgements" (2011, p. 492). In other words, what may be considered a fallacy in the one context may be an infallacious (yet uncharitable) discussion move in another, depending on the role plausibility and charity can be found to play in the activity type under consideration. In the table below, taken from Lewiński (Ibid.), some examples are given of characterizations of argumentative activity types in terms of the variables of plausibility and charity:

	***Precise* interpretation (narrow plausibility)**	***Loose* interpretation (broad plausibility)**
Highly *critical* (uncharitable)	Criminal trial, blind academic review	Much of political discourse, especially informal public sphere (incl. online discussion forums)
***Constructive* (charitable)**	Doctor-patient consultation, conference presentation, classroom discussion	Chat in a pub, dinner table

Table 1. Precision and charity of interpretation in various activity types (Lewiński 2011, p. 492)

The example of the blind academic review, for instance, shows how interpretation of language in this type of argumentative activity can be expected to be highly critical and precise. In Chapter 5 of this thesis it will be shown how these criteria can be used to determine whether a straw man fallacy is committed in the argumentative activity type under consideration.

2.5 Conclusion

In this chapter it has been discussed how the literature on the straw man fallacy brings to the fore a number of practical and theoretical concerns, some of which have been taken up by recent studies and some of which would be benefit from further research. First, it was discussed how different authors distinguish different variants of the straw man fallacy by taking into consideration its central vice, i.e. representing another party as weaker than it actually is. It was shown how most distinctions between the different variants of the fallacy being made in the literature show considerable overlap as the different techniques for committing a straw man fallacy recognized by van Eemeren and Grootendorst (1992) for a large part match (or can be placed within) the three categories distinguished by Aikin and Casey (2011). Subsequently, it was noted how in these studies on the different variants of the fallacy little attention has been paid to the question of how one is to actually decide when (a particular variant of) the fallacy is committed. It was discussed how the reconstruction of the *actual* meaning of a proposition strongly depends on an approach that does not only take semantic but also pragmatic aspects of argumentative language into account. Pragma-dialectical argumentation theory showed to offer an apt context-sensitive approach to the reconstruction of argumentative discourse by making use of the notion of argumentative activity type to account for the fact that argumentation takes place in concrete situations and under specific (contextual) conditions. As it does not, however, provide practical, workable tools for the evaluation of the straw man fallacy, Lewiński (2011) formulated (on the basis of pragma-dialectical theory) a number of workable criteria for the evaluation of the straw man fallacy. It was also discussed how he set up a list of necessary and sufficient conditions for straw man fallacy identification.

Lewiński's (2011) second condition for the identification of the straw man fallacy, requiring an argumentation analyst to take into account only discussions in which arguers respond to (and refute) attacks that involve a misrepresentation of their own case, was found to raise some important questions on exactly why one would not be able to pin down a straw man fallacy in those situations in which arguers do not have the possibility to respond to and correct a distortion. In the remainder of this thesis it will be argued how this may be possible indeed, most notably if the argumentative activity type in which the (alleged) straw man is put forward is characterized by formal, explicit norms and conventions regarding the interpretation of language. More specifically, it will be argued how in argumentative activity types in which the interpretation of language can be expected to be highly critical and precise and arguers may be expected to express themselves clearly and effectively, one may make use of these norms and expectations in evaluating whether a representation of a proposition does right to the proposition that has actually been put forward.

3. The international debate on climate change

3.1 Introduction

This chapter will give an illustration of the broader (historical) context in which the scientific assessment reports of the IPCC and the NIPCC can be placed, i.e. the international debate on climate change. In the first section, a short overview will be given of the emergence of this debate in the second half of the twentieth century and some of the main obstacles that have been blocking the establishment of a (concerted) international effort to combat climate change since the very start. In section 3.3 it will be explained in more detail how the implementation of international action on climate change is most particularly hampered by the fact that the international debate on the matter is to be located on the boundaries between the scientific and political domain, causing different interests to be at play regarding the exact settlement of the debate. Section 3.4, then, will illustrate how in the past couple of decades scepticism has arisen towards not only the anthropogenic causes of climate change and the negative impacts it would have on the environment. Lastly, it will be argued why the NIPCC's report on climate change forms a particularly interesting object of analysis.

3.2 Scientific concern on climate change and the development of a global climate regime

During the second half of the twentieth century scientific concern regarding unnatural changes of the earth's climate started to emerge. In the 1950s, first systematic measurements of carbon dioxide levels were conducted and over the next decades scientists started on working to understand the effects of the atmospheric change caused by changes in the air's CO2 concentration. Due to technological advancements scientists were able to build computer models of the atmosphere which allowed them to draw increasingly reliable predictions on the earth's future climate (Bodansky 2001, p. 24). By 1979, a review of prediction models led researchers of the U.S. National Research Council to conclude that if the atmosphere's CO2 concentration would continue to rise, there would be "no reason to doubt that climate change will result and no reason to believe that these changes will be negligible" (National Research Council 1979, p. viii). It was also recognized that other greenhouse gases like methane and nitrous oxide also showed an effect on the earth's temperature, further stressing the need for the implementation of measures to counter these effects.

By the late 1980s, public and political interest in the matter gradually started to emerge (Bodansky 2001; Orkeskes 2010). A number of international meetings on environmental issues had been held the decade before, including the first United Nations Conference on the Human Environment in Stockholm in 1972 and the 1979 Geneva meeting on the Protection of the Environment, but none of these had resulted in any large-scale political agreements to fight the causes and effects of CO2. The discovery of the so-called Antarctic ozone hole in 1987 and the North American heat wave and drought in the summer of 1988, however, caused governmental interest in the matter to expand significantly (Bodansky 2001, p. 27, Ungar 2003, p. 263). As a result, subsequent international meetings started to make more headway. In 1988, for instance, the Toronto Conference on the Changing Atmosphere attracted more than 340 participants from 46 countries, all of which

agreed on the need for articulating policy responses. In 1988 too, the Intergovernmental Panel on Climate Change (IPCC) was established, a scientific and intergovernmental body initiated by the United Nations Environment Programme (UNEP) and the World Meteorological Organization (WMO) set up in order to provide policy makers with an overview of the latest state of knowledge on climate change as well as its potential environmental and socio-economic impacts (IPCC 2007-I, p. i). More specifically, it was meant to publish scientific assessment reports of the state of knowledge on climate change at regularly intervals. Its first official report (AR1), published in 1990, stressed the importance of international cooperation to stop climate change, spurring further negotiations about policy responses (Bodansky 2001, p. 27).

From about 1990, more non-western countries started to get involved in the matter as well.[13] At the Second World Climate Conference (SWCC) convened in Geneva in late 1990, a special "Consultation Group on Special Needs of Developing Countries" (UNFCCC website[14]) was established in order to discuss, among other things, how the implementation of measures to combat climate change would affect developing countries. From the very outset a division, the so-called "North-South Divide", became apparent between developing countries on the one hand and developed countries on the other. This divide mostly centred on the agreement of future obligations (Boisson de Chazournes 2008, p. 1). More specifically, developing countries wished for climate change to "be viewed not simply as an environmental issue but as a development issue as well" (Bodansky 2001, p. 30), asking for the implementation of a climate change regime to not obstruct their (economic) development. Among these countries significant differences could be found regarding the exact implementation of this idea. As Bodansky points out, at the one extreme of the continuum the small island developing states could be found, "fearing inundation from sealevel rise, strongly [supporting the establishment of] targets and timetables for developed countries"; at the other were the oil-producing states, questioning "the science of climate change and [arguing] for a 'go slow' approach" (Ibid.). Furthermore, countries like Brazil, India and China, located at the relative middle of the continuum, exhibited the tendency to try to protect their sovereignty and their right to develop economically in particular.

Among the developed countries, on the other hand, dissension was present as well. In general, a split existed between most European countries on the one hand, joined (to some degree) by the so-called CANZ group (Canada, Australia and New Zealand), and the United States (partially joined by Japan and the former Soviet Union) on the other. This split had become apparent first at the 1989 Noordwijk Ministrial Conference, at which only the former group agreed on the establishment of limitations on emission levels of greenhouse gases on a national level – a course of action the latter did not want to accept. Instead, particularly the United States wished for more scientific research on the climate change issue as well as the development of national strategies and programs rather than

[13] Up until then, the governments partaking in international meetings were primarily those of Western industrialized countries as these had produced the greater majority of scientific research on climate change; Bert Bolin, the incoming head of the IPCC in 1988, explained how at that time "many countries, especially developing countries, simply do not trust assessments in which their scientists and policymakers have not participated" (Siebenhüner 2003, p. 113). The IPCC, it is argued, was established too to overcome this matter, by "designing and organising international assessments that allow for broad participation by representatives of national governments and influence domestic and international policy making" (Ibid.).

[14] http://unfccc.int/resource/ccsites/senegal/fact/fs221.htm [accessed 8 June 2015]

international ones (Bodansky 2001, pp. 28-9). This difference of opinion would appear to remain unsolved and even deepened at later international meetings (Ibid.).

According to Bodansky, different explanations can be found for the dissimilar interests of the governments partaking in the negotiations on the establishment of a climate change regime. Factors playing a role in this matter are, among other things, disparities in perceived costs of abatement and domestic politics. The former would include, for instance, the fact that the United States had large reserves of (cheap) coal, the incineration of which would lead to a substantial increase of the air's concentration of CO2, whereas Germany would benefit from switching from coal to natural gas (2001, p. 29). In the future it would appear how dissimilar interests like these would time and again hamper the implementation of instruments for large-scale, (legally binding) international action on the reduction of climate change and its perceived and socioeconomic impacts.[15]

3.3 The entanglement of politics and science and the role of the IPCC

Governmental concerns on climate change ignited as scientific understanding of the greenhouse problem improved. That is to say, being a scientific issue only at first, climate change gradually turned into a topic of political interest as scientific consensus on its causes and impacts started to emerge. The period between 1988 and 1990 in particular can be considered a transitional period in this matter (Bodansky 2001, p. 28). During these years, governments started to become increasingly involved in the issue, acknowledging the need for political action to limit the potential negative environmental and socio-economic impacts of climate change. In response to this, the IPCC was established in order to help policy makers understand the present-day state of knowledge in the field of climate science.

The establishment of institutions like the IPCC in 1988 was not uncommon within the scientific field as the scientific developments that had been taking place in the twentieth century had led to the proliferation of several other intermediaries making a connection between science and social sectors (Vasileiadou et al. 2011; Vasileiadou & Van den Besselaar 2006; Van der Meulen & Rip 1998). Nonetheless, the IPCC was quite unique as it was set up to synthesize scientific knowledge on the *entire* field of climate change, a span of research broader than that of other intermediary institutions. Furthermore, despite the fact that its reports know some geographical biases regarding the regions are reflected upon most in the studies summarized by the IPCC, the IPCC was set up to summarize the scientific findings on a global scale (Vasileiadou et al. 2011).[16] Both factors contributed to the fact that

[15] At the 1992 Rio de Janeiro United Nations Conference on Environment and Development (UNCED), for instance, the United Nations Framework Convention on Climate Change (UNFCCC) was signed by 154 states and the European Commission. This treaty, which entered into force in 1994, stated that its signatories committed to curtail atmospheric concentrations of greenhouse gases on a voluntary basis with the aim of preventing "dangerous anthropogenic interference with the climate system" (UNFCCC 1992, p. 9), recognizing "common but differentiated responsibilities" according to the countries' or states' extent of industrialization (Ibid., p. 2). No binding limits were set, however, on the actual emission of greenhouse gases. At the 1997 Kyoto conference, its follow-up, a protocol was adopted to actually commit industrialized countries to stabilize the emission of greenhouse gases; this protocol, however, has not been ratified by all its signatories, including the United States. Furthermore, Canada withdrew from the protocol in 2011 (UNFCCC website unfccc.int [accessed 8 June 2015]).

[16] Overall, the reports are found to be biased towards developed countries as most of the research in the field of climate science is conducted by these countries (Haas 2005; Kiparsky et al. 2006).

the IPCC, in order to meet its goals, has been attracting thousands of scientists from all over the world to contribute to the publication of each assessment report (IPCC website[17]). In addition, as it has a formal intergovernmental status, the IPCC has been inviting government representatives for all member countries of the UN and WMO to take part in activities concerning the adoption and approval of the IPCC work programme (Ibid; Agrawala 1999).

Precisely its size as a scientific and intergovernmental organization is what the IPCC often has been criticized for. More specifically, according to Agrawala, it would have been frequently argued that "a smaller size and better insulation from political actors could have made science advising more innovative, and ultimately more effective in the global climate regime" (1999, p. 157). "[S]imultaneously [straddling] the demands for scientific credibility and international political legitimacy" (Ibid.), the IPCC would be troubled by all sorts of (formal) procedures and – as a result – time delays in providing advisory inputs. It should be noted, however, that the IPCC does not consider itself to be an advisory body in any sense. It was established indeed to "provide the world with a clear scientific view on the current state of knowledge in climate change and its potential environmental and socio-economic impacts" (IPCC website[18]), but it explicitly refrains from formulating advice on the matter. That is to say, the IPCC considers its work to be "policy-relevant and yet policy-neutral, never policy-prescriptive" (Ibid.) and aims to do so by synthesizing the most recent scientific research findings relevant to the understanding of climate change in the Assessment Reports it publishes at regular intervals. These reports do include a Summary for Policy Makers (next to a Technical Summary) written in a non-technical style, "[addressing] a broad-range of policy-relevant but policy-neutral questions" (Ibid.).

It could be argued, however, that the character of the IPCC's work is advisory or prescriptive in some sense. Indeed, as Vasileiadou et al. point out: "What IPCC reports filter as relevant science is a selection of scientific results on climate change which in turn is presented to policymakers, and feeds into policy decisions" (2011, p. 1059). This is linked to the idea of co-evolution of systems. Co-evolution between science and policy needs, it is explained, "means that both systems exercise selection pressure upon each other; this selection pressure stimulates changes in diversity in the two systems, which means the systems co-evolve" (Ibid.; see also van den Bergh et al. 2007). When applied to the debate on climate change, it shows how policy needs in fact "create a selection mechanism for climate science through science programming and funding of specific research projects on climate science" (Vasileiadou et al. 2011, p. 1053). Most particularly climate modelling, which is used to make predictions about future climate change, appears to be dependent on policy decisions because of its high expenses. Furthermore, Vasileiadou et al. note, policy presumably also creates a selection mechanism for what scientific findings are included in the IPCC's repport. The fact that the IPCC as a formal intergovernmental body allows government representatives to take part in activities like the review procedures of the reports, substantiates this. Simultaneously, specific policy needs are also brought about by selection mechanisms within science. That is to say, policy responses are shaped according to scientific outcomes: specific targets of reducing CO2 emissions, for instance, are based on

[17] http://ipcc.ch/organization/organization.shtml [accessed 16 June 2015]
[18] http://ipcc.ch/organization/organization.shtml [accessed 16 June 2015]

scientific predictions on what amount of rise in atmospheric CO2 would lead to dangerous amounts of warming (Ibid.).

In a similar way, Siebenhüner describes the relationship between science and policy in the debate on climate change as "a circular influence from science to policy making and from the political sphere back to towards science and the assessments" (2003, p. 113). More specifically, he notes how scientific assessments like the ones conducted by the IPCC may help translate scientific ('expert') knowledge into policy-related forms of knowledge. At the same time, however, these scientific assessments are simultaneously influenced by political actors like the government representatives involved in the publication of the assessments (Ibid.). Siebenhüner explains how these political actors have a function that is twofold. On the one hand, they are "part of a scientific process which is dedicated to informing policy makers on the basis of the latest research findings". On the other hand, they are representatives of governments having particular political interests. Sometimes these functions do not coincide with each other, often confronting a government representative with conflicting interests (Ibid., p. 114).

Consequently, one may argue, the establishment of environmental policy faces two problems. A first matter of concern is the question of how one is to ensure that scientific knowledge is used to inform policy without being distorted or misused; secondly, one may ask how governments are to respond to this knowledge considering their own interests, perceptions and commitments (Boehmer-Christiansen 1994, p. 140). Regarding the first, the IPCC has indeed more than once been accused of having omitted or misrepresented findings of scientific research[19] (Vasileiadou et al. 2011; Crok 2010; PBL 2010). According to Vasileiadou et al., as a result of these 'mistakes', "the IPCC's policy orientation became evident" (Ibid., p. 1053). It is nonetheless debatable, however, whether these mistakes were a case of misperception or sloppiness or because the IPCC would be undertaking a deliberate effort to paint a skewed image. What is certain, one the other hand, is that it has fed distrust or scepticism, not only towards the credibility of the IPCC but also towards the veracity of the conclusions it draws. As a matter of fact, during the last decade, the issue of climate change has become highly controversial, most notably in the United States (i.a. Lahsen 2013; Dunlap & McCright 2011, 2010; Oreskes & Conway 2010). As will be dealt with in more detail in the next section, organised efforts can be recognized questioning both the causes of climate change and its status as a problem deserving amelioration.[20] The Nongovernmental International Panel on Climate Change (NIPCC), founded in 2003 in reaction to initial drafts of the Fourth Assessment Report which would be released by the IPCC in 2007, is the largest and most well-known organization questioning the science reflected upon in the IPCC reports (Oreskes & Conway 2010). In Chapter 5 of this thesis it will be argued how the NIPCC does in fact principally makes use of flaws or errors in IPCC reports to prove its own main points. More specifically, the NIPCC aims to demonstrate indeed how scientific findings would have

[19] In the IPCC's Fourth Assessment Report published in 2007, for instance, positive impacts climate change would have been underplayed. In addition, the IPCC was accused for not having made a distinction between future negative impacts of climate change and future negative impacts of other changes. The number of heat-related deaths in Australia, for example, was suggested to be due to an increase in temperature alone whilst in fact changes in population size and age distribution played a role as well (Vasileiadou 2011, p. 1053; PBL 2010).

[20] I.e. some sceptics can be found to question the fact that the earth would be warming as well. The NIPCC, on the other hand, does contend the earth's temperatures are rising.

been distorted or (purposefully) omitted by the IPCC for political reasons.[21] As will be discussed in the next section, however, the NIPCC is often accused for distorting scientific data as well for it would be predisposed towards drawing conclusions that there is no need for any (international) environmental policy to be established (i.a. MccRight, Dunlap & Xiao 2013; Oreskes & Conway 2010).

Returning to the problem of how one is to ensure that scientific knowledge is used to inform policy without being distorted or altered, it may be clear that an answer to this problem may be difficult to find, most notably for policy makers who want to formulate their policy on the basis of the most reliable scientific evidence available. This problem of uncertainty can be linked to the second question hampering the establishment of environmental policy mentioned above, i.e. how governments are to respond to scientific knowledge considering their own interests, perceptions and commitments. That is to say, the very fact that uncertainties on the reliability of the scientific predictions (seem to) exist contributes to governments adopting a more hesitant attitude regarding the formulation of measures to combat climate change as there is a possibility they would be of no avail. As a result, global warming has lost some of its significance on the international political agenda as policy makers wish for scientific findings on climate change to be established with more certainty before any large-scale action will be undertaken (Oreskes & Conway 2010; Boehmer-Christiansen 1994).

As is argued by Boehmer-Christiansen (1994), however, it is deceptive to think that the moment science is able to accurately predict the earth's future climate as well as the influence of anthropogenic activities on it, a particular policy could be implemented that would alter any possible negative scenario. Instead, she argues, one should ask whether "more scientific knowledge as such (that is the more precise diagnosis of the problem) in fact and virtually automatically generate better policy" (1994a, p. 141). Potential change, "even if correctly predicted by models, does not come marked as good or bad with clear policy implications" (Ibid.). Agrawala explains this by noting how questions in the debate on climate change fall under the realm of what Alvin Weinberg once called 'trans-scientific issues', issues "which hang on to questions which can be asked of science and yet cannot be answered by science" (Agrawala 1999; Weinberg 1972, p. 209). Or, as Oreskes (2010) explains, in the trans-scientific issue of climate change, science does give an answer to the question of what might happen in the future but in no way dictates what one should do about it; new scientific outcomes will not alter this, even if they are more reliable than previous ones. In other words, as a result of the complex interconnectedness of being a scientific issue as well as an issue of policy making, the international debate on climate change seems to have reached an impasse. This impasse seems unlikely to be overcome unless parties agree either on undertaking international political action to combat climate change, i.e. despite the fact that uncertainties remain about both the anthropogenic cause of global warming and its potential (negative) effects, or on refraining from implementing any measures to stop the earth from warming any further, whilst acknowledging the risks that might follow. In the next section, it will be explained how the NIPCC aims for the debate to be settled in another way, i.e. by

[21] In order to get a short impression of why the NIPCC thinks the IPCC is biased, a short look on the NIPCC's webpage 'About the IPCC' may suffice. Among other things, it is noted how "[t]he IPCC was created in 1988 largely due to the efforts of Maurice Strong, a billionaire and self-confessed socialist, as part of a larger campaign to justify giving the UN the authority to tax businesses in developed countries and redistribute trillions of dollars a year to developing nations" (NIPCC website climatechangereconsidered.org/abouttheipcc [accessed 8 June 2015]).

endorsing the conclusion that it is not anthropogenic but natural causes that are making the climate change. As this natural change of climate would by no means be harmful to the earth's environment, there would be no need for an implementation of measures to stop it.

3.4 Scepticism, public opinion and the role of the NIPCC

As was already touched upon above, scepticism towards the anthropogenic cause of climate change as well as the negative consequences it would have on our environment has grown over the last decades. In a way it can be argued that scepticism towards scientific findings on climate change and, equally important, the assessments based on it by the IPCC, is by no means a bad thing. Indeed, scientists need to exert a sound scepticism in interpreting scientific findings for being able to detect flaws, errors or poorly supported ideas both in their own work and work of others. As a result, scientific understanding of the matter at issue may improve (cf. Mercier & Heinz 2013; Ferreira 2008; Kutrovátz 2008). It is the two-tieredness of the climate change debate again, however, that causes the matter to be somewhat more complex.

Among the so-called 'climate sceptics', organized efforts can be recognized questioning both the reality and significance of global warming as well its potential effects and the need for action to stop these. Also referred to as being parts of a 'denial machine' (Begley 2007; Oreskes & Conway 2010; Dunlap & McCright 2011), sceptics are often accused of purposefully (i.e. against better judgement) denying the climate change problem because of an opposition to greater government regulation, be it due to economic, ideological or other reasons (Dunlap & McCright 2011).[22] The NIPCC is the largest organization taking part in this. One of its main feats, now, would be the dissemination of doubt and uncertainty regarding a scientific consensus on climate change (Oreskes & Conway 2010).[23] Indeed, as we saw above, uncertainty on the issue causes governments to become more hesitant in adopting a policy to fight climate change; if uncertainty does not cease to exist or becomes even greater, chances are that an (international) environmental policy becomes unattainable.

In 2009, two years after the publication of the IPCC's Fourth Assessment Report, the NIPCC published a scientific assessment report called Climate Change Reconsidered (CCR). A direct reaction to AR4, it aims to demonstrate how the IPCC's conclusions in AR4 are wrong as scientific findings would have been distorted or omitted by the IPCC in order to make its conclusions match with its

[22] As Crok (2010) notes, allegations like these have the effect that all people questioning (the science behind) climate change are considered immoral or selfish for preferring to pursue free market ideals over saving the earth for future generations. As a result, some 'sceptics' explicitly dissociate themselves from conservative think tanks or the fossil fuels industry.

[23] Allegations regarding the NIPCC's cause are manifold. More generally, the American sceptics movement is linked to conservative think tanks in the United States that have been set up to promote the core values of conservatism (e.g. free market capitalism, little governmental influence and dergulation) and to fund research that may help achieve this goal (Bodker & Neverla 2013; Oreskes 2010; Oreskes & Conway 2010; Lakoff 1996). The NIPCC itself is a product of the Heartland Institute, a "Chicago based think tank promoting public policy based on individual liberty, limited government, and free markets" (Heartland Institute website https://www.heartland.org/ [accessed 8 June 2015]); because of its ties with American conservatism, the NIPCC is often accused of being predisposed in drawing any conclusions on climate change as well for they would rather wish for scientific outcomes to demonstrate that no governmental action would be needed to stop or mitigate any negative effects of global climate change. A further inquiry into these allegations, however, is beyond the concern of this thesis.

political interests. The NIPCC, on the other hand, would be "wholly independent of political pressures and influences" and "therefore [...] not predisposed to produce politically motivated conclusions or policy recommendations" (NIPCC website[24]), thereby presenting itself as a 'team B', that is "not biased toward the assumption that greater government activity is necessary" (NIPCC 2009, p. vi). In other words, by claiming to be a more transparent scientific intermediary than the IPCC, the NIPCC initiates a tug-of-war for 'the scientific truth'.

The consequences of the NIPCC's initiative to discredit the IPCC and its scientific assessments are manifold. Most importantly, by accusing the NIPCC of being driven by political rather than purely scientific interests, the debate takes on an *ad-hominem* character. Most notably laymen, i.e. non-scientists, who need to resort to opinions of experts (scientists, in this case) in order to be able to grasp the state of affairs in climate change science and to base their opinion on it, are likely to be influenced by this. If there appears to be no consensus among experts, or worse, if there appears to be a clear dissensus, laymen may lose faith in the ability of experts to draw reliable conclusions on issues within their fields of expertise.

As will be discussed in more detail in Chapter 5 of this thesis, the IPCC has not posed any reaction to the NIPCC's allegations that the IPCC is biased and predisposed to drawing any conclusions in favour of political preferences; if it would have, it will be argued, it could have done the IPCC as well as the trustworthiness of climate science as a whole more harm than good. Indeed, "skirmishing over who is and is not an authority is well known to diminish the credibility of entire disciplines" (Jackson 2008, p. 228; see also Ezrahi 1971). Again we see if this were to cause uncertainty on (the validity of scientific evidence on) the potential causes and impacts of climate change, this would by no means be detrimental to the NIPCC's own cause. The NIPCC's standpoint that no governmental activity should be undertaken to stop the current climate change may in fact benefit from a situation in which uncertainty exists on the science behind climate change. Indeed, distrust in scientific outcomes feeds (further) restraint regarding the establishment of any environmental policy. On the other hand, the mere fact that the NIPCC accuses the IPCC of (purposefully) drawing false conclusions on climate change already changes the picture of the debate. Whether the IPCC chooses to respond to these allegations or not, does, in fact, not prevent it from losing credibility amongst part of the audience at least – i.e. being questioned alone is sufficient for the IPCC to see its position eroding. Consequently, the question whether the NIPCC's allegations actually hold water or not, is easily passed over as it is difficult if not impossible for laymen in the field of climate change to judge the validity of the arguments put forward in this matter (Dunlap & McCright 2011).

Recent studies on public belief in global warming show how global warming is increasingly contested in both the political arena and wider society indeed (i.a. Dunlap & McCright 2011; Leiserowitz et al. 2010). An important role in this is played by the media, acting as the 'key mediator' between science and the public sphere (Brüggemann & Engesser 2014, p. 399). Indeed, as the majority of the people holding an opinion on climate change does, as a rule, not read the scientific assessment reports of either the IPCC or the NIPCC, it receives most information on the issue via the media. A number of studies on the influences the media may exert on public opinion make note of the fact that

[24] http://climatechangereconsidered.org/about-nipcc/ [accessed 9 June 2015]

media coverage of the issue often leads to a misperception of the scientific debate (i.a. Boykoff & Smith 2010, p. 215; Oreskes & Conway 2010, p. 184; Brüggemann & Engesser 2014, p. 400). More specifically, media treatments of climate change would "frequently result in illusory, misleading and counterproductive debates" (Boykoff & Smith 2010, p. 215) by giving space to climate sceptics who contend that there is no such thing as a scientific consensus on climate change. Also referred to as 'balance as bias' (Boykoff & Boykoff 2014), journalists would adhere to a norm of balanced reporting, meaning that equal space is given to 'believers' on the one hand (i.e. people holding the opinion that the current climate change is due to human activities and detrimental to the earth's environment) and sceptics on the other. As the former group (in reality) would be significantly greater (and hence more important) than the latter, this would be a case of skewed reporting leading people to think the group of sceptics is greater than it actually is.

Lastly, it should be noted that political orientation has been found to have a significant influence on the public's perception of (the existence of a) scientific agreement, its belief in the anthropogenic cause of the current climate change, and its support for political action to diminish its causes (McCright, Dunlap & Xiao 2013, p. 511). Other studies also found that scepticism regarding anthropogenic global warming is prevalent among American conservatives (McCright & Dunlap 2011a; 2011b).

In short, from being a scientific concern at first, the issue of climate change has turned not only into a subject of political interest but into a matter of public interest as well. Because of the complexity of the topic, opinions of non-scientists are formed on the basis of facts and opinions on the matter brought to its notice by the media, i.e. most notably the ones the public deems most probable to be true or the public tends to believe to be true due to its political orientation.[25] This may pose some significant difficulties for scientists who do not pursue political ends in their work but nonetheless "feel compelled to speak for the science itself" (Jackson 2008, p. 215). Indeed, due to the many discordant voices circulating on the issue *outside* the realm of science, scientists' exact arguments for their points of view runs a high risk of falling on deaf ears.

3.5 Conclusion

In the above it was discussed how climate change has moved from being predominantly a scientific issue to being a matter of political and public interest as well. If the current warming of the earth is in fact due to human activities and having a negative impact on the earth's environment, this spread of interest, it can be argued, is both a good and a bad thing. That is to say, for action to be undertaken to combat climate change, it needs to be brought under the attention of both policy makers and the wider public. On the other hand we saw how the opinion of both is being influenced by climate change sceptics as well. Especially the NIPCC, contending "[i]t is a time-honored tradition in science to set up a "Team B," which examines the same original evidence but may reach a different conclusion" (NIPCC

[25] A study conducted by McCright, Dunlap & Xiao (2013) shows that political orientation has a significant influence on both perceived scientific agreement, belief in anthropogenic global warming, as well as support for government action to reduce emissions.

2009, p. iii), plays a major role in discrediting the scientific consensus on climate change conveyed by the IPCC. Consequently, policy makers as well as the wider audience who both need expert opinion on climate change to base their own viewpoints on are being influenced by messages on the credibility of either side, in which political preferences or personal ideals play a role too. As argued above, this, in turn, derives away the attention from the arguments scientists put forward in order to substantiate their findings on whether global warming is caused by human activities or not and whether this change of climate would cause a threat to the earth's environment.

As mentioned before, in Chapter 5 of this thesis a number of arguments put forward in the NIPCC's report Climate Change Reconsidered will be taken a look at in more detail. This report is apt for an analysis on the straw man fallacy as it comprises a large number of arguments in which the NIPCC explicitly refers to (and thereby represents) claims that have been made by the IPCC or that are ascribed to the IPCC on the basis of its general line of argument. First, however, in the next chapter of this thesis, it will be explained in more detail how pragma-dialectical argumentation theory and the concept of argumentative activity type in particular can be efficiently used for identifying and evaluating misrepresentations.

4. Method: Pragma-Dialectical argumentation theory

4.1 Introduction:

In this chapter it will be explained in more detail how pragma-dialectical argumentation theory and its concept of the argumentative activity type in particular offers useful instruments for analysing what conditions a particular type of communicative activity may offer for the straw man fallacy to be successfully committed. First, in section 4.2, a general introduction will be given of the field of argumentation theory and the division between descriptive and normative approaches to argumentation. Section 4.3, then, provides an overview of the central tenets of pragma-dialectical argumentation, offering insight in why the theory is apt for the analysis and evaluation of the straw man fallacy occurring in actual argumentative discourse. In this section, it will also be explained in more detail how the pragma-dialectical notion of argumentative activity type can be employed to study context-specific restrictions and opportunities for committing particular (types of) fallacies. Lastly, in section 4.4 the most important findings of this chapter will be summarized.

4.2 Argumentation theory: an umbrella term

The label *argumentation theory* is used to refer to the study of argumentation "in all its manifestations and varieties, irrespective of the intellectual backgrounds of the theorists, their primary research interests, and their angles of approach" (van Eemeren et al. 2014, p. 7). Depending on the theoretical perspective that is taken as a starting point, different outlines of paradigms can be distinguished, including Chaim Perelman and Lucie Olbrecht-Tyteca's new rhetoric (e.g. Perlman & Olbrechts-Tyteca 1969), Stephen Toulmin's analytic framework (e.g. Toulmin 1958), Anthony Blair and Ralph Johnson's informal logic (e.g. Johnson & Blair 1983) and Frans van Eemeren and Rob Grootendorst's pragma-dialectics (e.g. van Eemeren & Grootendorst 1992).[26] Each theoretical perspective is shaped by the disciplinary backgrounds of the argumentation theorists and the philosophies of reasonableness underlying their approach, be it the field of philosophy, formal or informal logic, discourse or conversation analysis, communication studies or some other discipline (van Eemeren et al. 2014, p. 40). Depending on these backgrounds, different objectives are addressed. Indeed, as the scope of argumentation theory is very broad, it has its core several interrelated concerns. Characteristically, objectives are to gain a better understanding of argumentation as it is used in actual argumentative practice, or to develop means for argumentation assessment (van Eemeren et al. 1993).

The particular objectives of the different approaches towards argumentation mark a division in contemporary argumentation research. On the one side of the spectrum are those approaches that aim to give a (principally) prescriptive account of argumentation, on the other side are the ones that study argumentation from a (predominantly) normative perspective (van Eemeren et al. 1993, p. vii). Theorists approaching argumentation from a descriptive point of view are interested, for instance, in

[26] Pragma-dialectical argumentation theory was set up by Frans van Eemeren and Rob Grootendorst; in later years, Frans van Eemeren and Peter Houtlosser extended the theory by, among other things, incorporating the concept of strategic maneuvering which will be discussed in more detail below.

describing how discussants try to convince or persuade others by making use of certain linguistic devices. As Van Eemeren and Houtlosser argue, it is mostly contemporary linguists (characteristically conversation and discourse analysts) who restrict themselves to "pure and 'unbiased' observation" (1992, p. 5). Approaches that are more oriented towards the reasonableness underlying argumentation processes are often inspired by logic, philosophy, or insights from law. Studying argumentation principally for normative purposes, they restrict themselves to non-empirical regimentation (Ibid.). Examples of theorists who approach argumentation from a purely normative or prescriptive point of view, are Biro and Siegel (1992) and Willard (1983, 1989), respectively (van Eemeren et al. 1996).

Even though extremes of these lines of research are indeed represented in argumentation theory, most argumentation theorists seem to recognize that a comprehensive theory of argumentation takes a combined perspective (van Eemeren et al. 2014). Indeed, while it is possible to pursue a strictly descriptive or normative approach to argumentation, theorists who are interested in the different ways argumentation is or can be used to justify or refute a standpoint in a rational way will need to resort to an approach that allows for both analysing and evaluating (ordinary) argumentative discussions.

A number of approaches to argumentative discourse show a line of development from a more one-sided perspective on a particular aspect of argumentation towards one that is more encompassing. Walton and Krabbe's (1995) approach to the contextuality of argumentation, for instance "start[ed] from a normative theorising about various 'systems of dialogue rules' and then [sought] to integrate it with the descriptive study of 'conventionalized conversational settings' in their conception of dialogue types" (Lewiński 2010, p. 47). Similarly, Jackson and Jacobs' (i.a. 1980; 1989) context-sensitive approach to argumentation started out with a focus on pragmatic discourse analysis but was later supplemented by normative concerns. An approach to argumentation that has not experienced a process of integrating a normative and descriptive perspective on argumentation but rather takes it as its point of departure, is pragma-dialectics (Lewiński 2010, p. 47). In section 4.3, it will be explained how the normative perspective is based on its dialectical basis whilst the descriptive aspect is reflected in its pragmatic orientation and how this approach to argumentative discourse may be particularly useful for analysing the straw man fallacy.

4.3 Pragma-dialectical argumentation theory

The pragma-dialectical approach to argumentation perceives argumentation as a means to resolve a difference of opinion by critically testing the acceptability of the standpoint(s) at issue. That is, "in case of a difference of opinion the protagonist and the antagonist of a standpoint should attempt to find out by means of a critical discussion whether the protagonist's standpoint is capable of withstanding the antagonist's criticism" (van Eemeren & Grootendorst 2003, p. 365). This very definition captures the normative perspective that is reflected in the dialectical basis of the theory: Inspired by Karl Popper and Hans Albert's *critical rationalism* and the principle of falsificationism in particular, it adheres to the basic assumption that "rationality of theses is measured in an ongoing exchange of 'conjectures and refutations,' rather than in a finite process of justification through unshakeable facts and proofs"

(Lewiński 2010, p. 48; van Eemeren & Grootendorst 1988). This philosophical idea is embodied in the pragma-dialectical model of an ideal critical discussion, a normative model that specifies the various stages that can be distinguished in a critical discussion aimed at resolving a difference of opinion as well as the verbal moves constituting 'integral parts' of each of these stages (van Eemeren & Grootendorst 1995).[27] This pragma-dialectical model of an ideal critical discussion sets out to provide the best possible circumstances for the externalisation of criticism and, in this way, the systematically testing of the propositions put forward in the discussion (Lewiński 2010, p. 48).[28] As Van Eemeren et al. (2014) note, it is "a theoretically motivated idealization" rather than a utopia. Ideally, the resolution of a dispute goes through all four stages of the model, but actual argumentative discussions will always deviate from this ideal. Nonetheless, actual argumentative discussions can always be reconstructed in terms of the discussion stages, making the model a heuristic instrument for a dialectical analysis of argumentative discourse (Van Eemeren & Grootendorst 1992, p. 36).

As Lewiński notes, the applicability of the pragma-dialectical model of a critical discussion to the analysis and evaluation of actual argumentative discourse is "significantly enhanced thanks to the rules of the model being formulated in the terminology of linguistic pragmatics, i.e., in terms of rights and obligations pertaining to the performance of conventionally recognisable speech acts (Austin, 1975; Searle, 1969)" (2010, p. 50). Examples of such speech acts pertaining to specific discussion stages are advancing a standpoint (in the confrontation stage) challenging the protagonist to defend a standpoint (in the opening stage), arguing[29] (in the argumentation stage), and agreeing on the outcome of the discussion (in the concluding stage). In addition, there are speech acts such as requesting for clarification and defining, which may occur in any of the four stages. By analysing all utterances made in an argumentative discussion in terms of speech acts like the ones mentioned above, an argumentation analyst is able to select (only) those utterances with a (potential) argumentative function as relevant objects of close argumentative analysis (Lewiński 2010, pp. 50-51). The principles authorising the distribution of the various verbal moves belonging to the different discussion stages are accounted for in a set of rules regarding the performance of speech acts. Taken together, these rules not only constitute a theoretical definition of a critical discussion, but also provide a means to detect any unreasonable, or rather fallacious, argumentative moves made (van Eemeren & Grootendorst 1995). That is to say, any violation of a discussion rule is considered a possible threat to the resolution of a difference of opinion and is therefore regarded as fallacious. The first discussion rule, for instance,

[27] In the pragma-dialectical model of an ideal discussion, four stages are recognized: In the confrontation stage, a difference of opinion is externalized. In the opening stage, discussants agree on the discussion roles each of the discussants will adopt and the points of departure of the discussion. The argumentation stage is the stage in which discussants put forward argumentation, cast doubt on arguments and put forward counter-argumentation. In the concluding stage, the parties establish the outcome of the discussion (van Eemeren & Grootendorst 1995, p. 135).

[28] Pragma-dialectics approaches the study of argumentation by means of four basic metatheoretical premises: externalisation, socialisation, functionalisation and dialectification (van Eemeren & Grootendorst 1995). The premise of externalisation refers to the fact that pragma-dialectics deals with externalised acts of communication.

[29] According to pragma-dialectical theory, argumentation in itself is to be viewed as a complex speech act. More specifically, van Eemeren and Grootendorst (1984) define argumentation as a speech act that consists of several elementary, communicative (illocutionary) speech acts, or *elementary illocutions*. These *elementary illocutions* composing the "constellation of statements designed to justify or refute an expressed opinion" (Ibid., p. 18), then, are considered to perform an argumentation at a higher, above the sentence level.

states that "parties must not prevent each other from advancing standpoints or casting doubt on standpoints" (van Eemeren & Grootendorst 1995, p. 135). This rule, pertaining to the confrontation stage, can be violated in various ways by both the protagonist and the protagonist. If a protagonist, for instance, prohibits the antagonist from casting doubt on or criticizing a standpoint advanced, he may try to do so by threatening him, appealing to the antagonist's feeling of pity or guilt or by discrediting the antagonist's expertise, impartiality, integrity, or credibility (Ibid., p. 139). Each of these violations can be connected to a particular type of fallacy, in this case the *argumentum ad baculum, argumentum ad misericordiam, argumentum ad hominem,* respectively.

Acknowledging the fact that arguers often aim to resolve a difference of opinion in their own favour rather than to resolve a discussion on the merits, the theoretical tools of pragma-dialectics have been extended by the incorporation of a rhetorical dimension. More specifically, pragma-dialectics adopted the notion of *strategic maneuvering* to account for the fact that arguers may try to pursue rhetorical aims whilst still trying to adhere to standards of reasonableness. Strategic maneuvering, then, refers to the continual efforts made by arguers to reconcile their aims of winning a dispute and resolving the difference of opinion in a reasonable way. If arguers succeed to obtain rhetorical success whilst still meeting the standards of reasonableness, they achieve a 'delicate balance' between their rhetorical opportunities and dialectical constraints (van Eemeren and Houtlosser 2002). A *derailment* of strategic maneuvering occurs, however, when the arguer's rhetorical and dialectical goals diverge in such a way that one or more rules for a critical discussion are harmed in the process of striving for persuasive success. Then, a fallacy is committed.

Lastly, pragma-dialectics distinguishes three aspects of strategic maneuvering that are associated with types of choices an arguer may make in giving shape to his argument. First, it is recognized how an arguer can make a choice from the available *topical potential*, "the (not always clearly delineated) repertoire of options for making an argumentative move that are at the arguer's disposal in a certain case and at a particular point in the discourse" (van Eemeren 2010, p. 93-94). In each discussion move, an arguer can make a specific selection of topics from those that are available in the given discussion stage. An example of such a selection may concern the choice of a particular argument scheme in the argumentation stage. In some cases, for instance, argumentation based on causality may be more convincing than argumentation based on comparison. Second, an arguer may choose to shape a discussion move in such a way that it is most convincing to a particular audience, most notably the audience he aims to convince (i.e. meeting *audience demand*). Distinctive audiences may agree to different procedural and material starting points, for instance, urging an arguer to adapt his argumentative moves accordingly. The third aspect of shaping a strategic maneuver that is recognized within pragma-dialectics concerns the exploitation of *presentational devices*, referring to the fact that an arguer can present his standpoint or argument in such a manner that it is most likely to get accepted. In presenting a standpoint, for example, it can be advantageous for an arguer to keep a discussion single and non-mixed. In order to achieve this, he may choose to formulate his standpoint in such a way that it is less likely to provoke any counter-standpoints (Ibid., p. 94). It should be noted that these three aspects are by no means unrelated but pertain to different qualities of the maneuvering. That is to say, each argumentative move inherently consists of qualities that relate to both the topical

potential and audience demand as well as presentational aspects. Carrying out a complete check of all three aspects may provide more insight in the effect a particular discussion move may have (Ibid., p. 93).

The pragma-dialectical concept of argumentative activity type

In Chapter 2 of this thesis it was explained how pragma-dialectics accounts for the fact that argumentative discourse occurs in concrete situations, many of which occur regularly and are socially identifiable, by studying strategic maneuvering in relation to the argumentative activity type in which it occurs. More specifically, a comprehensive pragma-dialectical analysis of argumentation takes into consideration how types of communicative activity can be recognized by certain norms or expectations, bringing along both constraints regarding particular modes of strategic maneuvering that are allowed or deemed acceptable as well as certain context-specific opportunities for strategic maneuvering (van Eemeren & Houtlosser 2009, pp. 7-8).

As van Eemeren and Houtlosser note, in contrast to a theoretical construct like the pragma-dialectical ideal model of a critical discussion that is based only on analytic considerations, argumentative activity types are "empirical concepts that can be identified and characterized on the basis of a careful study of a certain domain of practice" (2009, pp. 7-8). A domain of practice, it is explained, is the broader sphere of communicative practice which is primarily defined by the rationale or 'institutional point' the various activities that fall within the domain pursue (Lewiński 2010, p. 56). Examples of these are the legal, political, medical, and scientific or scholarly domain.[30] Within these domains of practice, various 'genres of communicative activity' or clusters of activity types are distinguished that can be considered typical argumentative practices in the particular kind of domain. Prototypically employed in the legal domain is the genre of adjudication, whereas the political domain, the problem-solving domain and the scientific domain can be characterized by the genres of deliberation, mediation and disputation, respectively (van Eemeren 2011).[31] In the following table (an excerpt from van Eemeren 2011, p. 143) an overview is given of the different constructs:

[30] In the literature, the terms 'scientific' and 'scholarly' are used interchangeably. In this thesis, I will make use of the term 'scientific' as it is most applicable to the domain of the argumentative activity type that is subject of analysis in Chapter 5.

[31] As will be discussed in Chapter 5 of this thesis, in pragma-dialectics up until now little attention seems to have been paid yet to why some communicative genres are prototypically linked to particular domains of communicative activity and what role other genres may play within one domain. Neither seems a full account to have been given yet of (the interpretation of) all different genres that are distinguished.

Domains of communicative activity	**Genres of communicative activity**	**Communicative activity types**	**Concrete speech events**
Political communication	Deliberation	- Presidential debate - General debate in parliament - Prime Minister's Question Time	(presidential debate) 1960 Nixon–Kennedy television debate
Scholarly/scientific communication	Disputation	- Book review - Scientific paper - Conference presentation	(book review) *Dr. Apt's critique of the* Controversy and Confrontation *volume*
Commercial communication	Promotion	- Advertorial - Sales talk - Classified ad	(advertorial) *Shell's newspaper message about its role in Nigeria*
... [etcetera]			

Table 2. Examples of communicative activity types implementing certain genres of communicative activity in particular speech events in various domains of communicative activity (Excerpt from van Eemeren 2011, p. 143)

What is not included in the table are the various institutions in which communicative activity types may take place. Within pragma-dialectical theory, institutions are understood as "systems of socially constructed rules with their associated sanctions" (Lewiński 2010, p. 56). This notion is used to refer to all kinds of communicative activity that are associated with certain expectations of their participants, which would include any activity from a legal trial to an informal pub conversation. In terms of a continuum of institutionalization, the former would be an example of an institution in the stronger sense as it is characterized by formal, explicitly stated and enforced rules. A pub conversation, on the other hand, can be considered an example of an institution in the weaker sense as it is loosely connected to informal, mostly unwritten expectations (Ibid.). As Lewiński notes, the pragma-dialectical conception of institutions ensures that communicative activity types that are informal yet can be recognized by certain norms of communication "are not excluded from systematic analysis" (Ibid.). Indeed, as discussed earlier in this thesis, norms and conventions pertaining to a particular type of argumentative activity can be of useful value in determining the (context-specific) criteria for evaluating a straw man fallacy. These same norms and conventions, now, can be used for identifying context-specific restrictions on and opportunities for strategic maneuvering as well.

The way in which context-specific restrictions on and opportunities for strategic maneuvering can be uncovered, can be illustrated most clearly by an example of a highly institutionalised activity type (Lewiński 2010). Mohammed (2008, 2009), who studied the conditions for strategic maneuvering in the Prime Minister's Question Time in the British House of Commons found how particular conventions pertaining to this activity type affect possibilities for strategic maneuvering in a number of ways. One of these concerned the topical potential of argumentation. During Prime Minister's Question Time, members of parliament have the opportunity to ask the prime minister questions but they are restricted in the topics they are allowed to address as these need to fall under the responsibility of the government (2008, p. 387). An example of an opportunity for strategic maneuvering that is created by a particular convention of the activity type concerns the use of presentational devices of the members of parliament: During Prime Minister's Question Time, members of parliament are allowed to ask questions only. This particular convention of the activity type of Prime Minister's Question Time is found to be exploited by members of parliament wishing to steer the discussion towards a preferred outcome. It is shown, for example, how criticism on the prime minister's conduct can be veiled in the form of a seemingly innocent yes/no question:

> "From the range of types of questions allowed to Mr. Vara, he chooses to imply his argument in a yes/no question concerning whether or not the Prime Minister believes that an inconsistency is acceptable. The choice furthers the case of the Member of Parliament since whatever straightforward answer the Prime Minister gives he will be bound to admit the alleged inconsistency." (Ibid., p. 390)

In these examples it is illustrated how context-specific starting points determine what means of argumentation or criticism are allowed. In terms of the pragma-dialectical ideal model of a critical discussion, it can be said that decisions that have been made in the opening stage of the discussion affect what kinds of contributions are allowed in the argumentation stage.

Characterisations of the activity type in terms of the four stages of a critical discussion, now, may provide more insight in opportunities for and restrictions on strategic maneuvering of an argumentative activity type, unveiling specific conditions for strategic maneuvering that might remain unnoticed when only the domain, institutional point, rationale, genre and institutional norms and conventions of the argumentative activity type are taken into account (Lewiński 2010; Mohammed 2008; van Eemeren & Garssen 2008).[32] More specifically, four parameters "which mirror the division of a critical discussion into four stages" (Lewiński 2010, p. 58) can be used in order to reveal the 'key

[32] From the literature it is not entirely clear how one is to understand what exactly *restrictions* on strategic maneuvering are. On the one hand, one may argue that restrictions on strategic maneuvering stipulate which (kind of) strategic maneuvers cannot be committed (i.e. without blatantly violating any norms or conventions on reasonableness). On the other hand, it seems that (argumentative activity type specific) norms and conventions that determine what *argumentative means* are deemed acceptable or reasonable - restrictions on argumentation, so to say - *offer opportunities* for strategic maneuvering. In the example of Prime Minister's Question Time, for instance, it is argued how a particular convention of the activity type is found to be exploited by members of parliament wishing to steer the discussion towards a preferred outcome. In the remainder of this thesis, I will take the latter interpretation as a starting point when addressing context-specific restrictions in relation to strategic maneuvering.

argumentative features' (Ibid.) of a specific argumentative activity type. These parameters are *the initial situation* of the discussion, *the starting points* that are agreed upon, *the means of argumentation and criticism* that are used, and *the outcome* of the discussion. Relating to the confrontational stage, the opening stage, the argumentation stage and the concluding stage of the ideal model respectively, these four parameters may help pin down the specific strategic maneuvers occurring in a given argumentative activity type.

4.4 Conclusion

This chapter started with a general introduction of the field of argumentation theory and the division between descriptive and normative approaches to argumentation. Furthermore, it was discussed how pragma-dialectical argumentation theory and the notion of argumentative activity type in particular offers useful instruments for analysing context-specific conditions for strategic maneuvering. It was explained how an argumentative activity type can be established by taking into account the domain of activity in which it occurs, the rationale or institutional point of this domain, the communicative genre of the activity type, its institutional norms and conventions, and its format. In addition, it was explained how an analysis of four parameters reflecting the pragma-dialectical discussion stages may provide more insight in specific strategic maneuvers occurring in a given argumentative activity type. In Chapter 5 of this thesis it will be demonstrated how a characterisation of the NIPCC's scientific assessment report as an argumentative activity type and an examination of the four parameters belonging to the pragma-dialectical discussion stages may uncover its specific conditions for strategic maneuvering with the straw man fallacy.

5. Analysis: 'Climate Change Reconsidered'

5.1 Introduction

This chapter will provide an analysis of the straw man fallacy in the NIPCC's scientific assessment report Climate Change Reconsidered (2009). More specifically, by examining parts of the NIPCC's report in which it poses critical reactions towards claims made in the IPCC's Fourth Assessment Report (2007), an answer will be sought to the two main research questions of the thesis. The first relates to the different variants of the straw man fallacy that are distinguished in the literature. As we saw in Chapter 2 of this thesis, three main forms for committing the straw man fallacy were found to be commonly recognized. In section 5.3 it will be examined to what extent the representations by the NIPCC can be placed in either one of these categories or coincide with the different variants in some other way. The second research question that will be addressed concerns the conditions for strategic maneuvering with the straw man fallacy that are offered by the argumentative activity type of the report. In section 5.4 it will be studied what aspects of the report provide conditions for committing the straw man fallacy without it running the risk of immediate detection. The main findings of this chapter will be summarized in section 5.5. First, in section 5.2, an overview will be given of the main standpoints and the general lines of argumentation put forward by the NIPCC.

5.2 Two main argumentation techniques deployed in Climate Change Reconsidered

Starting with the rhetorical question "Before facing major surgery, wouldn't you want a second opinion?" (NIPCC 2009, p. iii), the preface of the NIPCC's report Climate Change Reconsidered (CCR) leaves no question about the fact that the report is a reaction to the Fourth Assessment Report (AR4) of the IPPC released in 2007.[33] More specifically, the NIPCC says to question the validity of the claims made in the IPCC's AR4, arguing that it finds the material that is used to substantiate the IPCC's main findings "to be highly selective and controversial with regard to making future projections of climate change and discerning a significant human-induced influence on current and past climatic trends" (Ibid.). In providing support for this thesis, the NIPCC sets out to do two things: Firstly, to prove that scientific facts and studies are not correctly displayed in AR4, and secondly, to demonstrate that scientific studies have been disregarded that should have been included. By doing so, it aims to attack two central claims of AR4 in particular, namely that "most of the observed increase in global average temperatures since the mid-twentieth century is *very likely*[34] due to the observed increase in anthropogenic greenhouse gas concentrations" and that global warming will "increase the number of people suffering from death, disease and injury from heatwaves, floods, storms, fires and droughts"

[33] The NIPCC's arguments in CCR principally deal with the first and second volume of AR4. AR4 consists of three volumes in total: The first volume is called 'The physical science basis' (2007-I) and summarizes scientific findings on the physical science of climate change as well as the earth's sensitivity to greenhouse gas emissions. The second volume ('Impacts, Adaptation and Vulnerability', 2007-II) considers possible impacts of climate change, vulnerabilities and adaptation options, and the third volume ('Mitigation of Climate Change', 2007-III) assesses options for the mitigation of climate change.

[34] In AR4, the IPCC makes use of uncertainty ranges for the results it discusses. The ranges are as follows: Virtually certain > 99% probability of occurrence, Extremely likely > 95%, Very likely > 90%, Likely > 66%, More likely than not > 50%, Unlikely < 33%, Very unlikely < 10%, Extremely unlikely < 5% (IPCC 2007-I, p. 3).

(IPCC 2007, as quoted by NIPCC 2009, p. iii; italics in original).[35] Summarizing thousands of scientific findings that would contradict these claims, the NIPCC aims to demonstrate that the very opposite standpoints are true, i.e. that CO2 is not playing a substantial role in the current rise of the earth's mean temperature and that global warming will have beneficial rather than catastrophic consequences.

When looking at the 'Key Findings by Chapter' listed at the end of the report's executive summary, it appears that the first half of the report (i.e. chapters 1, 2, 3 and 4) deals with refuting the claim that the current global warming would be caused by a rise of the air's CO2 concentration, whereas the second half of the report (i.e. chapters 6, 7, 8 and 9) discuss how global warming is (and will be) by no means catastrophic to humans, animals and plants alike. Chapter 5, then, proposes an alternative theory for the current warming of the climate. In this chapter it is argued how non-anthropogenic (rather than anthropogenic) mechanisms are causing the earth's climate to change and how humans cannot (and should not bother to) stop this process. The 'Key Findings by Chapter' demonstrate too how two main refutation techniques seem to be deployed throughout the report. One part of the key findings shows how the NIPCC attempts to discredit the scientific data upon which the IPCC bases its condusions by demonstrating how the methodologies and models used in the research cited by the IPCC are unconventional or right out inadequate for drawing conclusions about past, current and future climate change. The NIPCC states, for instance, that

> "[t]he IPCC does not apply generally accepted methodologies to determine what fraction of current warming is natural, or how much is caused by the rise in greenhouse gases (GHG). A comparison of "fingerprints" from best available observations with the results of state-of-the-art GHG models leads to the condusion that the (human-caused) GHG contribution is minor." (NIPCC 2009, p. 1)

A second means of refutation deployed by the NIPCC is to demonstrate that the IPCC has distorted, not taken into account or even purposely ignored data that might contradict their conclusions. The IPCC is accused, for instance, for not having considered

> "important scientific issues, several of which would upset its major conclusion— [i.e.] that 'most of the observed increase in global average temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations'." (Ibid.; emphasis in the original)

By listing research findings that contradict matters discussed in AR4, the NIPCC tries to demonstrate how the main conclusions drawn by the IPCC are wrong. The fact that some of this research has been published before the publication of AR4 is used to substantiate the claim that the IPCC has disregarded

[35] Even though the NIPCC puts these claims between quotation marks, it is not indicated where these are quoted from. The first seems to be a paraphrase of a claim made on page 60 of the IPCC report ("It is *very likely* that anthropogenic greenhouse gas increases caused most of the observed increase in global average temperatures since the mid-20th century"). The second, however, cannot be (directly) traced back to AR4.

particular scientific findings on purpose. In short, the two main lines of refutation can be reconstructed as follows: [36] [37]

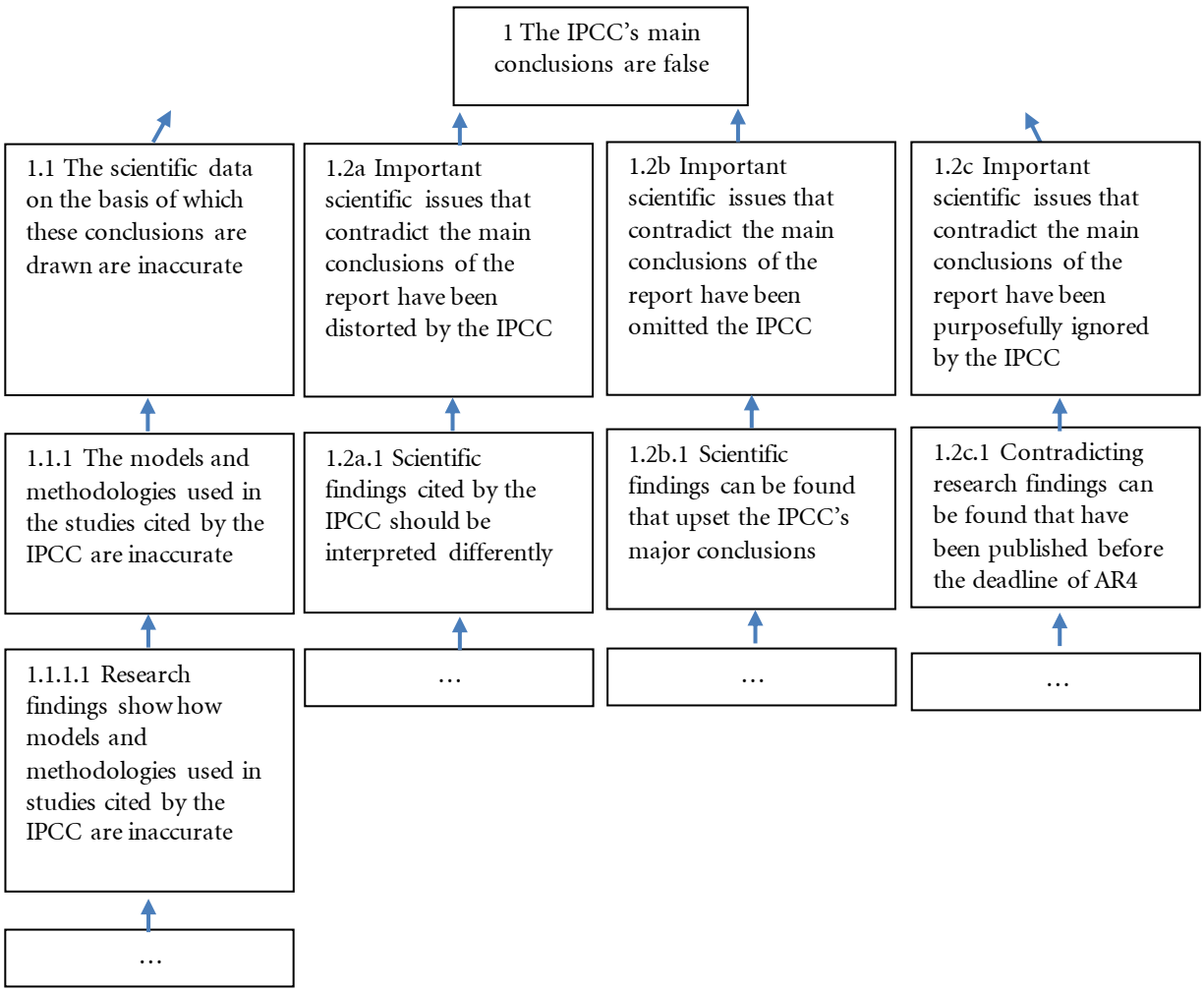

Figure 1. Principal means of refutation deployed by the NIPCC

As arguments 1.2a-c explicitly aim to refute specific conclusions the IPCC draws from the research it assesses, these form an interesting starting point for an analysis on how the conclusions and lines of argumentation of AR4 are represented by the NIPCC. As will be argued below, a more detailed study of actual arguments put forward by the NIPCC shows how in these arguments the IPCC's case is not correctly nor fully rendered, enhancing the risk for a straw man fallacy to occur.

[36] For this reconstruction and the ones that will follow in the remainder of this chapter the standard pragma-dialectical method of reconstruction is used. In these reconstructions a single number is used to refer to the (main) standpoint and multiple arguments substantiating this standpoint are indicated by (different) numbers at the decimal level. Coordinative arguments share the same numbers but are followed by different letters. Premises that have been left implicit are followed by an apostrophe and put between parentheses. In the remainder of this chapter, argumentation structures that do not fit one portrait-orientated page are displayed in the appendices.
[37] The standpoint and arguments listed below are reconstructed on the basis of and cited (directly or indirectly) from the NIPCC (2009).

5.3 Analysis of representations

In this section, an analysis will be given of two arguments put forward by the NIPCC that explicitly refer to a number of claims the IPCC (is argued to have) made in its AR4. Both examples are taken from the third chapter of the NIPCC's report CCR which is principally aimed at providing counterevidence for the IPCC's claim on how climatologic data from the past support the conclusion that the earth's climate would be warming due to a rise of atmospheric CO2. This chapter is apt for an analysis of representations not only because it contains a number of arguments involving an explanation by the NIPCC on how arguments put forward by the IPCC are to be understood, but also because of the relative incomplexity of the chapter in terms of the (non-specialist) language used.[38]

5.3.1 Case 1: representations by the NIPCC in section 3.1 *Paeloclimatic* [sic] *Data*

Chapter 3 of CCR, called *Observations: Temperature Records,* starts with a direct reference to two claims allegedly put forward in the IPCC's AR4:

> "The Intergovernmental Panel on Climate Change (IPCC) claims to have found evidence in paelodimatic [sic] data that higher levels of atmospheric CO2 can cause or amplify an increase in global temperatures (IPCC, 2007-I, Chapter 6). The IPCC further claims to have evidence of an anthropogenic effect on climate in the earth's temperature history during the past century (Chapters 3, 9), in the pattern (or "fingerprint") of more recent warming (Chapter 9, Section 9.4.1.4), in data from land-based temperature stations and satellites (Chapter 3), and in the temperature records of the Artic region and Antarctica where models predict anthropogenic global warming should be detected first (Chapter 11, Section 8)." (NIPCC 2009, p. 63)

The NIPCC sets out to "critically examine the data used to support each of these claims" (Ibid.), and starts with the first in section 3.1. In this section, research findings are summarized that are argued to refute the proposition that (palaeoclimatic data demonstrate that) higher levels of atmospheric CO2 can cause or amplify an increase in global temperatures.[39] In Appendix 1 of this thesis a reconstruction can be found of the argumentation structure of this rebuttal. In Appendix 2 an overview is given of the NIPCC's main lines of argumentation. In these reconstructions it shows how the majority of the studies cited by the NIPCC fall into two main categories.[40] On the one hand, studies are discussed that argue for a decoupling between global climate and CO2, suggesting that there has been no relation whatsoever between the earth's atmospheric CO2 concentration and the inducement of past climate

[38] That is to say, compared to other chapters in the report relatively little technical language is used, admitting for laymen in the field of climate science to grasp the general line of argumentation too.
[39] Palaeoclimatic data (misspelled in CCR) are data acquired from natural sources including tree rings, ice cores, corals, and ocean and lake sediments. On the basis of these data, weather and climate information from hundreds to millions of years ago can be derived (National Oceanic and Atmospheric Administration (NOAA) website http://www.ncdc.noaa.gov/data-access/paleoclimatology-data [accessed 15 June 2015]).
[40] A small number of other arguments not included in the appendix substantiate another standpoint that is elaborated on more extensively in CCR's section 3.2; in the next section of this thesis, these arguments will be studied in more detail.

changes (see arguments 1.1.1a.1 and further). On the other hand, studies are discussed that do conclude there may have been a relation between CO2 and climate changes in the past, but it is most likely it is a relation opposite to what the IPCC's claim on global warming predicts (see arguments 1.1.1a.2 and further). That is, past CO2 perturbations would have been caused by the changes in climate rather than vice versa. At the end of section 3.1, the conclusion is drawn that

> "[t]hese observations seem to undermine the IPCC's claims that the CO2 produced by the burning of fossil fuels will lead to catastrophic global warming [...] There is no way these real-world observations can be construed to suggest that a significant increase in atmospheric CO2 would necessarily lead to any global warming, much less the catastrophic type that is predicted by the IPCC." (NIPCC 2009, p. 65)[41]

Here, the NIPCC concludes that a rise in the air's CO2 concentration has never caused any warming and therefore cannot be the cause of the current change of climate, contrary to what the IPCC would contend. It is suggested that the IPCC has not taken these studies into account and if it would have, its conclusions would have been different. When looking at the arguments put forward in AR4, however, it turns out the IPCC's standpoint and line of argumentation are somewhat more complicated than the NIPCC suggests.

In Chapter 6 of AR4, called *Palaeoclimate*, the IPCC explains how climate has changed on all time scales throughout the earth's history, including those periods humans did not yet exist. According to the IPCC, the principal drivers of past climate changes were changes in the earth's radiation balance. This radiation balance is said to be able to influence the climate in three fundamental ways: Firstly, by changes in the incoming solar radiation (for instance, by changes in the earth's orbit); secondly, by changes in the fraction of solar radiation that is reflected (this fraction, i.e. the albedo, can be changed by changes in cloud cover, aerosols or land cover); and lastly, by altering the long-wave energy radiated back to space (by changes in greenhouse gas concentrations, for instance). In addition, local climate can be influenced by the distribution of heat due to winds and ocean currents. As the IPCC notes, all of these factors have played a role in past changes of the earth's climate (2007-I, p. 449). The IPCC contends, for instance, that there is strong evidence that the ice ages that have occurred in regular cycles during the past three million years are linked to regular variations in the earth's orbit around the sun, the so-called Milankovitch cycles.[42] After explaining how these Milankovitch cycles may have started and ended ice ages, the IPCC notes that "although it is not their primary cause, atmospheric carbon dioxide (CO2) also plays an important role in the ice ages" (Ibid.). Data retrieved from Antarctic ice core show that cold, glacial times knew low CO2 concentrations (~190 ppm) whereas warm, interglacial periods knew higher concentrations of CO2 (~280 ppm). Elsewhere, the IPCC explains that it is very likely (i.e. more than ninety per cent certain) that glacial-interglacial CO2

[41] The burning of fossil fuels refers to the IPCC's claim that the climate change the earth is currently experiencing is due to human activities causing a rise in in carbon dioxide and other greenhouse gases in the atmosphere (the most harmful being the burning of fossil fuels) (see IPCC 2007-I, p. 702).
[42] The IPCC also notes how variations in the energy output of the sun is another likely cause of past climatic changes (2007-I, p. 450).

variations strongly amplified climate variations whereas it is considered unlikely (i.e. a likelihood of less than 33 per cent) that variations in CO2 have triggered the end of glacial periods (Ibid., p. 435).

The IPCC thus argues there has been a relation between CO2 and past climate. The IPCC nowhere contends, however, that CO2 has been a principal driver of past climate changes, as is suggested in the NIPPC's claim that "[t]he Intergovernmental Panel on Climate Change (IPCC) claims to have found evidence in paeloclimatic data that higher levels of atmospheric CO2 can cause or amplify an increase in global temperatures" (NIPCC 2009, p. 63). The IPCC does say past climate changes may have been *amplified* by atmospheric CO2, but it does not argue it caused any. In fact, the IPCC's point of view on (the causes of) past climate changes very much resembles another remark made by the NIPCC at the end of section 3.1:

> "*When temperature is found to lead CO2 by thousands of years*, during both glacial terminations and inceptions (Genthon et al., 1987; Fischer et al., 1999; Petit et al., 1999; Indermuhle et al., 2000; Monnin et al., 2001; Mudelsee, 2001; Caillon et al., 2003), it is extremely likely that CO2 plays only a minor role in enhancing temperature changes that are induced by something else." (NIPCC 2009, p. 65; italics added DW)

The part of the sentence italicized refers to the fact that part of the second group of studies cited by the NIPCC (arguments 1.1.1a.2.1a; 1.1.1a.2.1b; 1.1.1a.2.1c; 1.1.1a.2.1g; 1.1.1a.2.1h in Appendix 1) indicates that past changes in CO2 have lagged behind (rather than anticipated) changes in temperature, sometimes by hundreds or even thousands of years. Even though it is not made explicit how the NIPCC exactly arrives at this conclusion, these findings are explained to mean that CO2 may have played a minor role in enhancing temperature changes that have been induced by something else (Ibid.).

In the IPCC's AR4, now, a clarification is given on how this lagging behind can be explained. As discussed above, the IPCC takes changes in the earth's radiation to have driven past climate changes; CO2, then, would have enhanced this process as a so-called 'feedback factor':[43]

> "Because the climate changes at the beginning and end of ice ages take several thousands of years, most of these changes are affected by a positive CO2 feedback; that is, a small initial cooling due to the Milankovitch cycles is subsequently amplified as the CO2 concentration falls. Model simulations of ice age climate (see discussion in Section 6.4.1) yield realistic results only if the role of CO2 is accounted for." (IPCC 2007-I, p. 449)

This feedback effect of CO2, it is explained, can lag behind the climate changes that occur at the beginning and end of ice ages with some hundreds of years. In other words, changes in atmospheric CO2 may have amplified climate changes but sometimes only hundreds of years after these climate

[43] The term climate feedback is used to refer to an interaction mechanism between processes in the climate system "when the result of an initial process triggers changes in a second process that in turn influences the initial one" (IPCC 2007-I, p. 943). Positive feedback factors intensify the original process whereas negative feedback factors reduce it.

change had been induced. Here we see how the very fact that the IPCC considers CO2 to have acted as a feedback factor means that in past climate changes a change in the amount of CO2 in the atmosphere must have been triggered due to a change in temperatures. Returning to the NIPCC's arguments put forward in this matter – most notably 1.1.1a.2 and 1.1.1b in Appendix 1 – we see that the IPCC and the NIPCC are in fact on the same line with regards to what scientific findings on palaeoclimatic data tell us about the role of CO2 in pas climate changes, even though the NIPCC may make it appear they are not.

Despite drawing the same conclusions on what palaeoclimatic data say about past climate changes, the IPCC's and the NIPCC's main standpoints on the role of CO2 in the current climate change differ. The cause of this, now, can be found in the inferential link left implicit between the NIPCC's arguments 1.1.1a and 1.1.1b on the one hand and argument 1.1 on the other. Taking into account the fact that the former are formulated in the past tense and the latter is formulated in the present tense, we see how the NIPCC implicitly draws the conclusion that if CO2 turns out to not have caused (but only amplified) past climate changes that have been induced by something else, this automatically means that a rise in CO2 cannot be the (main) cause of the climate change the earth is currently experiencing. As fair as this argument from analogy may seem, there is one important caveat: The NIPCC fails to address the main point of the IPCC's discussion on paleoclimatic data, which is that paleoclimatic information supports the interpretation that the current climate change is inherently different from climate changes in the past.

According to the NIPCC, the current climate change differs from previous ones in one significant respect: It is the unprecedented *rate of increase* of the air's CO2 concentration that is currently causing an *unnatural* change of temperature. Indeed, as is argued throughout AR4, CO2 concentrations have varied considerably over the earth's history; these variations may have been caused by various factors and may indeed have played an *amplifying* role during the great climate changes of the ice ages. The current rate of the rise of CO2, however, as well as the rise of two other greenhouse gases (CH4 and N2O), is unusual in geological terms.[44] The IPCC contends that

> "[t]he main reason for the current concern about climate change is the rise in atmospheric carbon dioxide (CO2) concentration (and some other greenhouse gases), which is very unusual for the Quaternary (about the last two million years). The concentration of CO2 is now known accurately for the past 650,000 years from Antarctic ice cores. During this time, CO2 concentration varied between a low of 180 ppm during cold glacial times and a high of 300 ppm during warm interglacials. Over the past century, it rapidly increased well out of this range, and is now 379 ppm." (IPCC 2007-I, p. 465)

The explanation given for this unusual rate of increase is the anthropogenic effect on the amount of greenhouse gases in the air: Human activities such as the burning of fossil fuels and land use changes (e.g. deforestation) contribute to an increase of greenhouse gas concentrations in the atmosphere. This,

[44] Returning to the NIPCC's argument from analogy, we see how the IPCC covers for this by explaining metaphorically how "the fact that forest fires have long been caused naturally by lightning strikes does not mean that fires cannot also be caused by a careless camper" (2007-I, p. 449).

in turn, affects the earth's climate as the incoming solar radiation and outgoing infrared (thermal) radiation that are part of the earth's energy balance are altered (IPCC 2007-I, p. 135). The altering of incoming solar radiation and outgoing infrared (thermal) radiation can, in principle, have a warming or cooling effect. According to the IPCC, studies show how human activities since the start of the industrial era have had an overall effect of warming. Changes in natural processes such as solar changes and volcanic eruptions, on the other hand, appear to have a considerably smaller effect on this era's climate when compared to changes caused by humans. Furthermore, climate simulations show that the global mean warming since 1970 cannot be reproduced when no external forcings such as the ones caused by humans are taken into account.

In short, the IPCC's main conclusion is that the additional burden of CO2 added to the atmosphere by human activities causes a natural range-exceeding rise in greenhouse gases; this 'perturbed' global carbon cycle, in turn, causes the current rapid warming of the earth's climate (IPCC 2007-I, p. 514). Consequently, the main arguments of the IPCC on how climatologic data from the past support the conclusion that the earth's climate would be warming due to a rise of atmospheric CO2 can be constructed as follows:

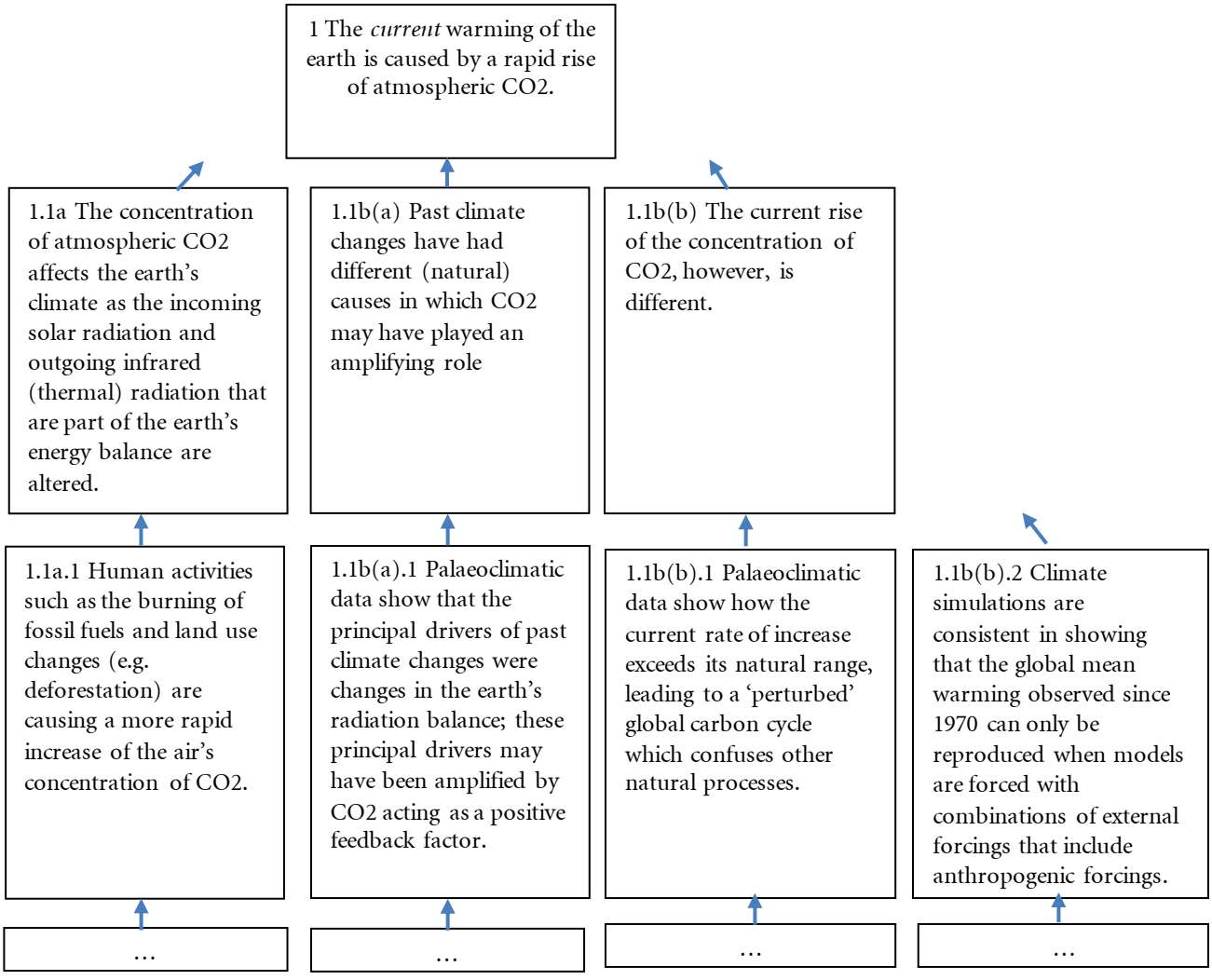

Figure 2. The IPCC's standpoint and main arguments regarding the causes of the current warming of the earth

When comparing the arguments of the IPCC discussed above to the arguments put forward by the NIPCC in support of its accusation that "observations [based on palaeoclimatic data] seem to undermine the IPCC's claims that the CO2 produced by the burning of fossil fuels will lead to catastrophic global warming" (NIPCC 2009, p. 65), it becomes clear how the NIPCC does not do right to the full case of the IPCC. Instead, the IPCC's statements on the role of CO2 in climate changes of the past are taken out of context. Just like the NIPCC, it contends that past climate changes may have been amplified (rather than caused) by changes in atmospheric CO2 concentrations but it also argues that the current rise in CO2 is different in a number of aspects and hence should be evaluated differently.

To sum up, a detailed analysis of the various arguments put forward by the IPCC and the NIPCC shows how the more complex (or more extensive) case of the IPCC has not been fully taken into account in the NIPCC's rebuttal. Consequently, the case of the IPCC is represented as weaker than it actually is, resulting in the critique of the NIPCC missing the actual point at issue. The NIPCC nonetheless claims to have refuted a major argument of climate change theory, a claim that may find resonance with those readers of CCR unfamiliar with the arguments originally put forward by the IPCC.

5.3.2 Case 2: representations by the NIPCC in section 3.2 *Past 1,000 Years*

A rebuttal similar to the one described above can be found in the next section of the third chapter of CCR dealing with more recent changes of the earth's climate. One of the main claims of the NIPCC put forward in this part of its report concerns the fact that the IPCC would have claimed to have found evidence in temperature records that "the warming of the twentieth century was 'unprecedented' and more rapid than during any previous period in the past 1,300 years" (NIPCC 2009, p. 4). When looking at the Key Findings of CCR's Chapter 3, it appears that the NIPCC aims to refute this claim by providing arguments that fall into the two categories discussed earlier in this chapter: First, arguments are put forward on how research findings show that data used in AR4 are biased due to imperfections of the climate models used; secondly, evidence is cited on how other, "highly accurate" (Ibid.) data lead to outcomes that would be different from the ones discussed by the IPCC. More specifically, it is argued that data deployed by the NIPCC show how the warming trend of the last two decades of the twentieth century was "much more modest" (i.e. compared to the warming trend as described by the IPCC) and how there has been "a dramatic decline in the warming trend in the first decade of the twenty-first century" (Ibid.). The actual evidence cited in sections 3.2, however, appears to be principally aimed at proving how the current dimate change is 'not unprecedented' as the data reflected upon demonstrate how the earth has experienced even warmer periods in the past than it is experiencing today.

By means of illustration it can be shown how the section starts with the following list of references to claims made by the IPCC on differences between the current global temperature and temperatures of the past:

> "The IPCC claims "average Northern Hemisphere temperatures during the second half of the 20th century were *very likely* higher than during any other 50-year period in the past 500 years and *likely* the highest in at least the past 1,300 years" (IPCC, 2007-I, p. 9; italics in original). Later in that report, the IPCC says "the warming observed after 1980 is unprecedented compared to the levels measured in the previous 280 years" (p. 466) and "it is likely that the 20th century was the warmest in at least the past 1.3 kyr. Considering the recent instrumental and longer proxy evidence together, it is very likely that average NH [Northern Hemisphere] temperatures during the second half of the 20th century were higher than for any other 50-year period in the last 500 years" (p. 474)." (NIPCC 2009, p. 66)

Throughout section 3.2, the NIPCC aims to refute these claims by listing findings that show how warmer periods have existed in the earth's history. One of the main arguments put forward by the NIPCC is that approximately seven hundred to twelve hundred years ago, a so-called Medieval Warm Period prevailed in which temperatures have been found to have been as high or even higher than today's global mean temperature.[45] According to the NIPCC, the IPCC denies the existence of such a period (NIPCC 2009, p. 67). When looking at AR4, this accusation by the NIPCC does not seem entirely correct: In its chapter on palaeoclimate, the IPCC argues that temperatures in medieval times may have been as high or even higher than they are today.[46] It adds, however, that it is uncertain whether this warmth was a global phenomenon as there is no (conclusive) evidence that all of the earth's regions instead of only northern hemisphere regions experienced this warmth. As the IPCC notes elsewhere in AR4, local climate variations in temperature differ from global ones as the former are often considerably larger than the latter because of local factors (changes in atmospheric or oceanic circulation, for example can shift both the delivery of heat and moisture); large changes in global mean temperature, on the other hand, need a global forcing to occur (an example of which would be a change in solar activity (2007-I, p. 465)). In short, both the IPCC and the NIPCC agree that during medieval times the earth's temperatures may have been as high or higher than they are today. The IPCC and the NIPCC disagree, however, on the (global) scope of this period as the IPCC questions its occurrence in southern hemisphere regions.

Be that as it may, as mentioned above, the IPCC contends it is the current rate of increase of the air's CO2 concentration that is causing the current, unnatural change of temperature. This rate of increase, which would be due to human activities, would have harmful effects on the environment. The IPCC does not argue that the earth has not known a global mean temperature that was as high as or even higher than the current.[47] Yet this is taken as the starting point of the NIPCC's rebuttal,

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[45] Another main argument (discussed in section 3.2) concerns the IPCC's use of the so-called 'hockey stick graph' of Michael Mann and colleagues (Mann et al., 1998; Mann et al., 1999; Mann and Jones, 2003). This graph has been subject of several critical studies in the past and these are discussed in both AR4 and CCR. As the matter is quite complex and the exact arguments used by both parties are difficult to construct, it will be left unaddressed here. This does not, however, affect the analysis of the other main argument discussed here.

[46] The IPCC uses the notion 'medieval times' to refer to the 'Medieval Warm Period' (2007-I, p. 468).

[47] Cf.: "much warmer times have also occurred in climate history" (IPCC 2007-I, p. 449) and "current warmth appears unusual in the context of the past millennia, but not unusual on longer time scales for which changes in tectonic activity (which can drive natural, slow variations in greenhouse gas concentration) become relevant [...] A different matter is the current rate of warming" (IPCC 2007-I, p. 465).

contending "there is nothing unusual, unnatural, or unprecedented about the current level of earth's warmth" (NIPCC (2009, p. 76). As a matter of fact, when considering the quote from CCR mentioned above, arguing that the IPCC would have claimed to have found evidence in temperature records that "the warming of the twentieth century was 'unprecedented' and more rapid than during any previous period in the past 1,300 years" (Ibid.), one may say that the addition of the word 'and' already indicates an erroneous interpretation (or representation) of the IPCC's main point. Indeed, the IPCC contends that the current rise of the earth's mean temperature is unprecedented *because of the fact* that no past climate changes have occurred this rapidly.

What is most important, now, is that the conclusions drawn by the NIPCC on the existence of a global Medieval Warm period are used to refute the IPCC's claim that the current climate change is being caused by a rise in atmospheric CO2. In section 3.2.5.1, for instance, research findings on "a period of exceptional warmth throughout China between AD 800 and 1100" (NIPCC 2009, p. 80) are used to conclude that "whatever was responsible [for this period of exceptional warmth] could be responsible for the warmth of today" (Ibid., p. 82). Or, in section 3.2.4, data from temperature measurements in the Arctic showing that there has been a Medieval Warm Period with temperatures 1C warmer than at present whereas there was less CO2 and methane in the air than there is today, are taken to indicate that "the planet's more modest current warmth need not be the result of historical increases in these two greenhouse gases" (Ibid., p. 79).

Eventually, at the end of 3.2, the NIPCC argues that the strong synchronicity of the century-long climate change of the Medieval Period makes it likely that it was part of a greater, millennium-scale oscillation of the climate; the current change in climate, therefore, could have been caused by "something other than high atmospheric CO2" (Ibid. 82) too. Even though this may be a legitimate counterargument on its own, one of the IPCC's most important line of argument seems to be neglected again, i.e. that the current climate change would be essentially different from past ones, the reason of which would lie in the fact that the rate of the rise in CO2 (caused by human activities) exceeds its natural range, leading to a 'perturbed' global carbon cycle which puts other natural processes out of balance. (IPCC 2007-I, p. 514).

5.4 Analysing the two patterns of rebuttal as possible instantiations of the straw man fallacy

In the above it was shown how findings discussed in AR4 are only partially rendered by the NIPCC, making it easier for the latter to sum up evidence refuting the IPCC's (misrepresented) case. Taking into consideration the gist of the straw man fallacy, i.e. opportunistically misrepresenting a dialectical situation by making the opponent appear weaker than he actually is (Talisse & Aikin 2006, p. 346), one may argue these examples come close to being one. Following pragma-dialectical theory, however, the evaluation of its potential fallacious status depends on the context in which it occurs.[48] Indeed, certain norms and conventions pertaining to a specific communicative activity type may result in a representation of another party's case being acceptable; how this applies to the examples discussed

[48] Other theories or authors (i.a. Walton 1998, Jacobs 2002) can be found to adhere to the idea that fallaciousness is dependent of the context in which an argumentative move occurs as well (see also Lewiński 2010, pp. 14-15).

above will be dealt with in the next section. Irrespective of their exact (fallacious or reasonable) nature, however, it can be examined how the misrepresentations in sections 3.1 and 3.2 of CCR would fit in with the categories of the straw man fallacy as distinguished in the literature.

In Chapter 2 of this thesis it was demonstrated how distinctions between the different variants of the fallacy to a large extend coincided with one another. On the whole, three main categories appeared to be prevalent: (a) the category of linguistically distorting the protagonist's standpoint or arguments originally advanced in a different way (i.e. the representational form); (b) the category of attacking a proposition that is phrased faithfully, but nonetheless distorted by an opportune selection of only the weakest argument(s) as objects of attack (i.e. the selectional form); and (c) the category of imputing an (altogether) fictitious standpoint or arguments to a protagonist, either the actual protagonist taking part in the discussion or some fictitious one (i.e. the less extreme and the extreme variety of the hollow man variant, respectively).[49] Returning to the two examples above, it appears that some of these variants can be found to occur indeed. It also turns out, however, that there seems to be some kind of interplay between different (characteristics of the) variants, making the two misrepresentations somewhat more difficult to grasp than one would expect on the basis of the literature.

In the first example discussed in section 5.3.1 of this thesis we saw how according to the NIPCC, the IPCC would have claimed that CO2 can cause or amplify a global change in temperature. In response to this, the NIPCC set out to refute this claim by demonstrating how global climate changes in the past were only amplified (rather than caused) by a rise of atmospheric CO2 concentrations. As discussed above, however, the IPCC has not put forward such a claim in its AR4 and, in fact, turned out to agree with the NIPCC in this matter, explaining in quite some detail how CO2 may have functioned to enhance past climate changes that were induced by something else than CO2. Returning to Figure 1 on page 45 of this thesis, we see how the IPCC's argument 1.1b(a) ("Past climate changes have had different (natural) causes in which CO2 may have played an amplifying role") is linguistically distorted. Consequently, of all straw man variants discussed above, the representational form seems to be committed here.

The distortion of the IPCC's explanation on the role of CO2 in past climate changes, however, is not the only distortion taking place. As argued above, what damages the IPCC's position most is that from this point it is presupposed or rather suggested by the NIPCC that if CO2 has played only a minor role in past climate changes, the current climate change can also not be the mere result of a rise in the earth's CO2 concentration.[50] We saw how this presupposition lies in the inferential link left implicit between the NIPCC's arguments 1.1.1a and 1.1.1b on the one hand and argument 1.1 on the other (see Appendices 1-2). In drawing this link, the NIPCC neglects one of the main arguments put forward by the IPCC, i.e. that the current rise in temperature is different from past ones (cf. argument

[49] As argued in Chapter 2, for the sake of convenience, Aikin and Casey's (2011) terms for their three main categories will be used as these for a large part match the different categories for committing a straw man fallacy distinguished by van Eemeren and Grootendorst (1992).

[50] This, in fact, is already apparent from the fact that the present tense is used in the NIPCC's remark that "The Intergovernmental Panel on Climate Change (IPCC) claims to have found evidence in paeloclimatic data that higher levels of atmospheric CO2 *can cause or amplify* an increase in global temperatures" (NIPCC 2009, p. 63; italics added DW).

1.1b(b) in Figure 2 on page 50) due to an unnatural, rapid rise in CO2. By disregarding this main argument, the NIPCC makes the IPCC's case look significantly less strong than it actually is. Returning to the categories of straw man variants, one may argue that the selectional form of the straw man fallacy may be at play here.

To sum up, different things seem to be at hand in the first example as two distortions of the IPCC's case are taking place. First, the NIPCC distorts one of the IPCC's arguments on the role of CO2 in past climate changes. It does so by (falsely) claiming how the IPCC argues that past climate changes have been *caused* by changes in atmospheric CO2. This seems to be the basis the NIPCC aims to build its rebuttal on as it wishes to substantiate its standpoint that the current climate change cannot caused by a rise in CO2. It can only pursue this line of argument, however, if it neglects one of the IPCC's main arguments in this matter. In other words, the IPCC's overall case is misrepresented in two ways, displaying characteristics of two different variants of the straw man that are distinguished in the literature.

Something similar, now, appears to be the case in the second example. First, some kind of linguistic distortion occurs. Contending that the IPCC argues that the current global mean temperature is 'unprecedented' in terms of being warmer than any other period during (at least) the past 1,300 years, the NIPCC misinterprets the fact that the IPCC calls the current rise of the global mean temperature 'unprecedented' because of the rate at which it occurs. More specifically, the NIPCC distorts the IPCCs argument 1.1b(b).1 (Figure 2, page 50) on *why* the current rate of increase of atmospheric CO2 is unnatural and hence unprecedented. Again, the representational form of the straw man fallacy appears to be committed. On the basis of this distortion, the NIPCC builds its second line of rebuttal regarding the cause of the current climate change. By discussing scientific data that demonstrate how during the so-called Medieval Period the earth's temperature could have been as high or even higher than it is today, the NIPCC sets out to show that the current climate change is not unprecedented according to what it takes this term to mean. Eventually, the NIPCC draws the conclusion that the fact that there has been a (global) warmer period in the past 1,300 years that is unlikely to have been caused by a rise in CO2 means that the current change in climate could have been caused by something other than CO2 too. In other words, just like in the previous example, a connection is drawn between the cause of past climate changes and the question of which cause would pertain to the current one. Here it is suggested that the current warming could be due to the same cause as the warming taking place during Medieval Times whilst again no mention is made of the IPCC's point of view that the current climate change appears to be different from past ones in a number of ways. Again, the NIPCC seems to be guilty of selectively picking arguments to its own advantage.

To conclude, in both examples a linguistic distortion of what the IPCC puts forward in relation to a certain topic by the IPCC seems to form the basis of the NIPCC's misrepresentations. In both cases, however, this is not enough for the NIPCC's refutations to hold water. In order for this to be the case, one of the IPCC's arguments need to be disregarded that forms an essential substantiation of its claim that the current climate change is caused by a change in atmospheric CO2. The examples presented here thus seem to be a bit more multifaceted and complex than the ones illustrated or

circumscribed in the literature. This may be partially due to the complexity of the topic as well as the scope of both reports. What role these and other characteristics of the reports may play in the evaluation of the representations discussed above will be dealt with in the next section.

5.5 Argumentative activity type specific conditions for maneuvering strategically with the straw man fallacy in the NIPCC's scientific assessment report

In Chapter 4 of this thesis it was discussed how a detailed analysis of an argumentative activity type may give insight in the conditions it offers for strategic maneuvering. In this section, such an analysis will be given of the NIPCC's scientific assessment report. Taking the fours characteristics defining the activity type from the perspective of a critical discussion as a point of departure, it will be discussed what conditions for maneuvering strategically with the straw man fallacy are offered by the initial situation, the starting points, the means of argumentation and criticism and the (possible) outcome of the discussion initiated by the NIPCC. In order to gain a better understanding of these parameters, characteristics of the argumentative activity type of the NIPCC's report (i.e. in terms of its domain of activity, rationale, communicative genre and institutional norms and conventions), will be taken into account as well. Attention will be paid to how some of these characteristics report may be used to apply Lewiński's (2011) straw man fallacy evaluation criteria to the examples discussed in section 5.3 of this thesis. At the end of the section, it will be argued that other characteristics of the discussion initiated by the NIPCC that fall beyond the concept of argumentative activity type may provide an insight in the conditions for maneuvering strategically with the straw man fallacy in the NIPCC's report as well.

5.5.1 Initial situation and starting points

Considering the NIPCC's report from the perspective of the pragma-dialectical ideal model of a critical discussion, one may say that by posing critical reactions to the IPCC's Fourth Assessment Report the NIPCC initiates a discussion. The fact that the NIPCC does not simply question the validity of the claims put forward by the IPCC but rather takes the very opposite standpoints to be true, makes it a (multiple) mixed dispute that is being initiated. Even though the IPCC has never posed a reaction to the NIPCC's report and no starting points of a discussion between the two have been explicitly agreed upon, these can be established in some way indeed. As Lewiński (2010, p. 93) points out, in actual argumentative discourse the opening stage is hardly ever explicitly or completely performed, but participants partaking in a particular activity type may be expected to be acquainted with the rules and conventions of this particular type of activity upon entering it. This especially seems to hold true for the more institutionalized types of activity (Ibid.). In order to find a question to what norms and conventions the IPCC commits itself by publishing its critique in a scientific assessment report, the domain of activity and the institutional goal of the report need to be taken into account.

As discussed in Chapter 3 of this thesis, both the IPCC and NIPCC present themselves as scientific organizations free of bias, aiming to summarize and assess the most recent findings in the

field of climate change in order for policy makers to base their decisions on. On the other hand, we saw how political factors may have played a role in the making of the reports too. Within pragma-dialectics up until today no attention seems to have been paid to the possibility of two domains of communication being applicable to one argumentative activity type. Van Eemeren and Garssen do note how "in argumentative practice, the one argumentative activity type sometimes may change over to the other, or be interrupted by the other" (2008, p. 23). It remains unclear, however, how this (and more specifically, the possibility of one argumentative activity type belonging to or displaying characteristics of two different domains) should be dealt with in determining the norms and conventions pertaining to this activity type. Nonetheless, in deciding what norms and conventions the IPCC and NIPCC can be taken to commit themselves to, it can be argued that the fact that the IPCC and the NIPCC explicitly present themselves as scientific organizations entails that those pertaining to the scientific domain should be taken as the decisive measure. In other words, as they both explicitly place themselves in the scientific domain, they (implicitly) indicate to comply with the norms and conventions pertaining to this domain. The fact that the reports might be affected by political factors too, on the other hand, might provide interesting insights in the possibilities for strategic maneuvering offered by the very fact that the activity type is presented as a scientific activity type. This will be discussed below; first, however, the norms pertaining to scientific domain will be explicated.

In terms of institutionalization, the scientific domain can be located at the more institutionalized end of the spectrum, where communicative activities are characterized by formal rules connected to the functioning of the institutional point of the domain (Lewiński 2010). Yet, rules seem to be rarely made explicit within science itself (Weingart 2015, p. 10720). The field of *sociology of science* studies patterns of behaviour and implicit norms among scientists in order to expose the so-called scientific ethos, "a set of rules that are supposed to establish trust in, and guarantee the reliability of, the knowledge created in the process" (Ibid.). The groundwork in this matter is laid by the American sociologist of science Robert K. Merton. Published as early as 1942, his Sociology of Science still is recognized as the standard reference for an understanding of the interaction between the different mechanisms that are at play in the production and communication of scientific knowledge (Weingart 2015). In short, Merton distinguishes four basic norms scientists should act upon in realizing the institutional point of science, i.e. building a reliable body of knowledge about the world: universalism, communism (also: communality), disinterestedness, and organized scepticism. The first, universalism, refers to the idea that truth claims are "subjected to pre-established impersonal criteria" (Merton 1957, p. 553). In other words, scientists have a shared goal of establishing a reliable body of knowledge about the world; therefore, scientists should not be interested in the people producing these claims (Weingart 2015, p. 10720). The second norm, communism or communality, denotes the idea that scientific knowledge is and is to be shared by the whole community of science. More specifically, it means that scientific findings are a product of joint effort which after publication becomes a public good that can be used by scientists to build additional knowledge (Merton 1973a, p. 273). The third norm, disinterestedness, refers to the idea that scientists are not striving for recognition or other personal advantages. In line with this idea, they should not make use of fraudulent means in conducting science as this would interfere with their aim to contribute to building a reliable body of

knowledge about the world (Ibid., p. 276). The fourth and last norm, organized scepticism, denotes the idea that any knowledge claim put forward in the field of science must have been exposed to critical scrutiny before receiving a place in the shared body of knowledge (Ibid., p. 277-278). As Weingart notes, this norm is institutionalized in peer review systems and funding agencies (2015, p. 10720.).

Even though Merton formulated his norms more than half a decade ago, they are still generally accepted as prevailing standards within the field of science. Some critics (i.a. Ezrahi 1990; Forman 1997; Panofsky 2010) seem to rightly point out that science has undergone many changes in the last few decades, thereby questioning whether "the ethos that is basically geared to an individualist concept of gentlemanly science" (Weingart 2015, p. 10722) is still applicable today. Forman, for instance, notes how postmodern values on science affect the production of science. He gives the example of how the instrumentalisation of knowledge would have led to "an ethos of production as an end in itself" (1997; quoted from Weingart 2015, p. 10722). In modern times, cuts on research fundings would have put a strong emphasis on 'scientific productivity' whereby financial incentives are leading to a system of academia in which publicizing for the sake of producing more publications in one's name has overtaken the intrinsic value of doing research for the sake of knowledge. Thirty years after his publication of the Sociology of Science, Merton (1973b) himself also acknowledges the fact that time can and will bring about changes in scientists' conduct. However, Merton also argues that scientists' main goal (or, the institutional point of science) remains the same and the fact that the norms are based on (actual) patterns of behaviour among scientists does not mean that these norms need to change when scientists' behaviour changes. As Allchin puts it, Merton's norms "specify foundational conditions or proximate values that contribute to the development and certification of knowledge in a community" (2001, p. 186), emphasizing the fact that there is a foundational common ground on what conduct is deemed acceptable. In addition, Merton notes how public reactions to violations of the scientific ethos expose an "instructive paradox", meaning that the "customs governing the public demeanor of scientists and the public evaluation of contemporaries have become more exacting rather than less" (1973b, p. 338).

Returning to the scientific assessment reports of the IPCC and the NIPCC, we see how the NIPCC in fact makes use of some of the norms formulated by Merton in order to accuse the IPCC of drawing false conclusions. First, we saw how the NIPCC explicitly argues how the IPCC would pursue other interests than publishing 'the truth' about climate change – because of its work for governments, it would be "biased toward the assumption that greater government activity is necessary" (NIPCC 2009, p. vi). Thereby, the IPCC would violate the norm of disinterestedness. The NIPCC also accuses the IPCC of having unreliable peer-review procedures (cf. NIPCC 2009, p. v), which would be in conflict with the norm of organized scepticism. Lastly, in a way it can be argued too that the NIPCC implicitly accuses the IPCC of violating the norm of communism or communality as the latter would have purposefully omitted research findings that would contradict its claim.

The other way around, now, it can be analysed how the NIPCC's own arguments comply with the scientific norms discussed above. In view of the NIPCC's critical reactions to AR4 discussed in section 5.3 of this thesis, Merton's norm of organized scepticism seems of particular interest here. In line with this norm, scientists should thoroughly scrutinize scientific claims in order to see if they really

hold up. Keeping in mind the institutional goal of science, they do so to contribute to building a reliable body of knowledge. In terms of Lewiński's (2010, 2011) criteria for deciding on the reasonableness of representations one may say that when it comes to interpretation of other scientists' findings or conclusions, scientists are expected to adopt a *highly critical* (or uncharitable) perspective, conducting a *precise interpretation* (narrow plausibility) of all utterances made in scientific discourse. Indeed, it would be detrimental to the institutional goal if scientists would not do so.

A complicating factor in analysing scientific communication is the fact that it is often aimed at informing fellow scientists in the same field. Publications in scientific journals, for instance, are principally aimed at informing scientists who may (to some varying extent) be expected to be acquainted with the topic under discussion. Explanations on the current state of affairs or earlier contributions to the field may be supposed to be known and, hence, only briefly touched upon. If scientific publications are meant to reach a wider audience, however, things may need to be formulated in another, more extensive way.[51] This seems particularly important in the context of the debate on climate change. Indeed, as complex scientific issues are at stake, laymen (non-scientists) will need to resort to explanations of experts in order to be able to grasp the matter at hand. If there appears to be no consensus among experts, people not well-acquainted with the scientific issues at stake may look into the argumentation put forward by each of the parties for being able to draw a conclusion on the matter. Whilst expecting rebuttals to be objective or unbiased attempts at falsification, readers may expect all parties to be highly critical and to conduct a precise interpretation of their own propositions as well as the ones put forward by other scientists holding other points of view. Taking this into consideration, it can be argued that there seems to be no legitimate reason to consider the examples analysed in section 5.3 of this thesis to concern reasonable representations of the IPCC's case. Indeed, the analysis showed how the NIPCC's representations of claims put forward by the IPCC were by no means *precise*. Even if the NIPCC may be taken to have expected the readers of CCR to be fully acquainted with the exact standpoints and arguments of the IPCC, the NIPCC's arguments analysed in section 5.3 of this thesis can still be considered fallacious misrepresentations because they do in fact not *respond* to the IPCC's actual standpoints or arguments, resulting in rebuttals missing the point.[52]

[51] Just like complex issues, for instance, may be explained in language that is less technical than the language usually used in scientific publications aimed at informing colleagues. The IPCC and NIPCC, which do not conduct new research and are principally aimed at informing policy makers on the latest state of knowledge on climate change, take their audience into account by including sections in their reports that provide extra (and less technical) explanations on the issues at hand. In AR4, for instance, these are the FAQ's answered throughout the report. In CCR, each chapter starts with an explanation on the relevance of the topic being discussed in that particular part of the report.

[52] Here we see how straw men can be identified (and evaluated) indeed without (necessarily) having a critical reaction of the discussant under attack at one's disposal. As discussed in Chapter 2 of this thesis, Lewiński (2011) contends that an argumentation analyst, for identifying a straw man fallacy, can only take into account discussions in which a discussant being attacked by a straw man fallacy actually responds to this by contending his words have been misrepresented. If the argumentative activity type in which the (alleged) straw man is put forward is characterized by formal, explicit norms and conventions regarding the interpretation of language, however, which is the case in the examples discussed in this chapter, arguers may be expected to express themselves clearly and effectively and the interpretation of language can be expected to be highly critical and precise. Consequently, one may make use of these norms and expectations in evaluating whether a representation of a proposition does right to the proposition that has actually been put forward. This is more difficult indeed in informal types of discourse which allow for a more loose and charitable interpretation.

At this point one may ask how the NIPCC would be able to maneuver strategically with the straw man, i.e. without it blatantly violating the norms discussed above. An answer to this may be found in the very fact that the NIPCC's report is presented as a *scientific* assessment report and hence brings along certain expectations among its readers. That is to say, norms and conventions pertaining to the domain of science may be expected to be known among non-scientists as well, even if only the convention or norm that scientists, having a shared goal of establishing a reliable body of knowledge about the world, strive to be objective and precise. Consequently, being unable to judge the validity of (the content of) the arguments put forward by the NIPCC, readers may expect the NIPCC's representations of arguments or viewpoints put forward by the IPCC to be in agreement with these norms. In other words, audience expectations can, in fact, be *misused* in this situation, meaning that the domain to which the report belongs and its institutional goals, norms and conventions offer a possibility for maneuvering strategically with representations.

In the above it was determined that the fact that both the IPCC and NIPCC claim to be "policy-neutral" (IPCC website[53]) or "[not driven] by any political motivation" (NIPCC 2009, p. vi) would make it illegitimate to derive the norms the IPCC and NIPCC commit themselves to from the political domain, i.e. despite the fact both organizations may know political influences indeed. According to Jackson (2008), however, the very fact that the NIPCC accuses the IPCC of being politically predisposed in communicating scientific findings makes the discussion a predicament of politicization. More specifically, Jackson argues that "when a scientist reacts to conduct framed as politicization of science, the scientist's own conduct may be taken up as nothing more than a political move" (Ibid., p. 216).[54] The fact that she uses the word 'predicament' refers to the rhetorical challenge that is created due to the blending of political and scientific interests. That is to say, a rhetorical challenge is created most notably for scientists who do not pursue political ends in their work but nonetheless "feel compelled to speak for the science itself" (Ibid., p. 215). They are lured in a discussion which seems to resolve around scientific issues but which is in fact a political act not aimed at coming to any mutually acceptable resolution. The risk discussions of this kind bring along, is that a disagreement space is opened which can be misused by the initiator of the predicament. This may have a number of consequences on the way a third party audience perceives the difference of opinion. Jackson notes, for instance, that

> "[f]rom the perspective of nontechnical participants [in the debate], expert testimony and other appeals to authority are package deals consisting of the substantive claims made (e.g. the testimony content), the credibility of the source (e.g. the expert witness) and the prestige of the

[53] http://ipcc.ch/organization/organization.shtml [accessed 9 June 2015]

[54] The term politicization of science to refer to the idea that science is influenced by political factors in two respects: On the one hand, there is the fact that the scientific community is mobilised around political protest; on the other, there would be a "growing tendency of politicians of all kinds to treat scientific conclusions as mere instruments of political expressions (rather than as a neutral fact base from which all advocates can draw equally in support of their views" (2008, p. 215). As result of the latter, Jackson argues, scientific results are viewed as political expressions, "'belonging' to one side or another" (Ibid.). According to Jackson, politicization of science occurs in many different fields, not uncommonly leading to protest among scientists. In her (2008) article, she discusses a case study on the controversy over abstinence-only sex education in the United States, showing how science is (mis)used by the Bush presidency to execute its conservative agenda.

> expert field (see Walton 1989, 1997). So long as the field's membership is easy to recognize and the members all agree among themselves on a conclusion, the package may be very strong, but when experts disagree or when it is not clear who is and who is not an expert the package presented by each purported expert is degraded by loss of confidence in the field as a source of reliable judgment." (2008, p. 228)

Returning to the dispute between the IPCC and NIPCC initiated by the NIPCC, one may argue how the mere fact that the NIPCC accuses the IPCC of being politically predisposed creates a difficult situation for the latter. Indeed, the idea that there would be a scientific consensus on climate change is being attacked – if the IPCC were to react to the NIPCC's allegations, however, saying for instance how its arguments are misrepresented by the NIPCC and the NIPCC's rebuttals in fact do not hold up, this would actually turn the matter into a dispute. Furthermore, it would mean that the IPCC agrees on taking a side in the debate, an action which would subvert any claims to neutrality and objectivity (Ibid., p. 228). Lastly, if the IPCC were to react to the NIPCC's 'personal' attacks, i.e. the allegations saying that the IPCC is biased and predisposed to drawing any conclusions in favour of the assumption that greater government activity is necessary (NIPCC 2009, p. vi), it could do the IPCC as well as the trustworthiness of climate science as a whole more harm than good. Indeed, "skirmishing over who is and is not an authority is well known to diminish the credibility of entire disciplines" (Jackson 2008, p. 228; see also Ezrahi 1971).

It can be argued, now, how it would be by no means detrimental to the NIPCC if the field of science (and the field of climate science in particular) would lose credibility. Indeed, as discussed in Chapter 3 of this thesis, scientific uncertainty on the topic of climate change causes governments to adopt a more hesitant position in the implementation of measures to stop it or prevent it from getting worse. If we take a closer look at the means of argumentation and criticism deployed by the NIPCC as well as the outcome it wishes to reach, we see how the fact that it only needs (to create) *uncertainty* regarding the IPCC's claims in order to reach its preferred outcome is reflected in its argumentative strategy.

5.5.2 Means of argumentation and criticism and the possible outcome of the discussion

The analysis of the general lines of argument in CCR discussed earlier in this chapter shows how the NIPCC seems to principally deploy a strategy of rebuttal, aiming first and foremost to refute claims made by the IPCC. That is to say, CCR is explicitly aimed at presenting support for the thesis that "[a]lthough the IPCC claims to […] have based AR4 on the best available science" (NIPCC 2009, p. iii), its conclusions on the causes and potential consequences of climate change are wrong. What has only been briefly touched upon in Chapter 3 of this thesis is the fact that by demonstrating that the IPCC's conclusions are wrong the NIPCC hopes to "save the peoples of the world from the burden of paying for wasteful, unnecessary energy and environmental policies" (Ibid., p. vii). That is to say, it does not only want to demonstrate that there is no anthropogenic global warming that would have catastrophic consequences, it also explicitly wants to pass on to the readers of the report that it is unnecessary and

therefore highly undesirable for government activity to be undertaken to stop the (all-natural and harmless) change in climate. The latter is of great importance for an understanding of the argumentative means the NIPCC needs to deploy in order to reach this ultimate goal.

In reacting critically to the IPCC's point of view that humans are causing the climate to change and this will have negative consequences for the earth's environment, the NIPCC seems to make use of the critical question Tindale (2007) connects to the argument scheme of *argument from consequences*, i.e.: (1) How likely is it that the consequence will follow?; (2) What evidence is provided for believing the consequence will follow?; and (3) Are there consequences of the opposite value that should be considered? (2007, p. 184).[55] The NIPCC seems to focus most on question 2, trying to demonstrate that the evidence the IPCC uses to base its conclusions on, is wrong (i.e. either because the scientific data on the basis of which these conclusions are drawn are inaccurate (argument 1.1 in Figure 1 on page 45) or because important scientific issues that contradict the main conclusions of AR4 have been distorted, omitted or purposefully ignored (argument 1.2a-c in Figure 45). In doing so, the NIPCC automatically makes the IPCC's answer to the first question (i.e. 'How likely is it that the consequences will follow?') loose (some of its) credibility. Regarding question 3, the NIPCC provides counterevidence to the IPCC's claim that the current climate change would have negative consequences by reacting critically to the IPCC's conclusion on the negative effects of global warming (see, for example, Chapter 7 of CCR, 'Biological Effects of Carbon Dioxide Enrichment').

The critical questions connected to the argument scheme of argument from consequence are of great importance in the debate as both the cause of the current change of climate (reflected in questions 1 and 2) and the (un)desirability of its consequences (reflected in question 3) are the main questions that need to be answered for policy makers to base their decisions on. If doubt is raised on an affirmative answer to any of these question, there is a chance policy makers may decide to not err on the side of caution and refrain from taking action to combat climate change. As a consequence, the NIPCC already has a fair chance of achieving its argumentative goal if the audience starts to call into question the validity of the IPCC's claims. Employing a strategy of rebuttal then seems an effective one.

Here, it is the wider context of the debate that enables the NIPCC to focus on discrediting the IPCC's conclusions rather than, for instance, proposing one all-encompassing alternative theory that explains what exactly *is* in fact causing the earth's climate to change today. Even though it may not be a direct opportunity for maneuvering strategically with the straw man fallacy, the context of the debate and the NIPCC's position in it make it easy for the NIPCC to react critically towards the IPCC's claims. In doing so, it may choose to represent the claims opportunistically.

[55]The notion 'argument scheme' is used to denote the *manner* in which a standpoint an argument are linked to one another (Hitchcock & Wagemans 2011 , p. 185). This link may be based, for example, on causality or a comparison. The argument from consequences is based on causal reasoning and draws a link between a consequence (or the consequences) of some (refrain of) action and the preferred or dispreferred outcome that will likely follow when this action is or is not undertaken (Tindale 2007, p. 183).

5.5.3 Conditions for maneuvering strategically beyond the argumentative activity type

Having discussed the four parameters reflecting the pragma-dialectical discussion stages in relation to some characteristics of the argumentative activity type), one clear opportunity for maneuvering strategically with the straw man fallacy was found. This related to the fact that the NIPCC presents itself as a scientific organisation that aims to give an unbiased assessment of the current state-of-knowledge in the field of climate change, which creates expectations on the ways in which it would represent other scientists' arguments or points of view. Such expectations can (and were found to) be exploited, which in the case of the examples discussed in this chapter resulted in a derailment of strategic maneuvering with the straw man fallacy. A factor that is not included in the concept of argumentative activity type may provide another advantageous condition for maneuvering strategically with the straw man fallacy.

What is not included in the concept of argumentative activity type, is the medium in which the discussion is held. The fact that the NIPCC initiates a discussion in a written report in which no opportunity is afforded for the IPCC to pose any direct reaction, has considerable consequences for the success of a straw man fallacy. This is most notably due to the fact that the NIPCC wishes to convince a third party audience of the validity of its arguments rather than the IPCC. As was touched upon a number of times throughout Chapter 2 of this thesis, generally speaking, if an intended audience can be 'fooled' it may be of less importance whether the discussant under attack also believes his (actual) standpoint or argument has been successfully refuted, even if it in fact has been not. If a protagonist cannot pose a direct reaction to a straw man fallacy, it may be the case that the third-party audience will not be informed on the actual fallaciousness of the rebuttal. The chances that the fallacy will actually go unnoticed may be greatest in those cases in which the audience is unacquainted with the original standpoint or argument put forward by the protagonist or the subject of the discussion. If a discussion is highly complex, for instance, either because of the number of issues being discussed or because of the nature of the topic, chances are that outsiders or laymen in particular will have difficulties grasping each of the various discussion moves made. A false refutation like a straw man fallacy then can only be reversed if a protagonist is able to make clear to the audience that his original standpoint or argument has not been accurately represented and therefore has not been successfully refuted. In order for that to happen, the protagonist must be able to reach the readers of antagonist's attack.[56] Whether this is attainable, depends, among other things, on the medium in which the discussion is being held and the people using this medium. A written correspondence in a newspaper or journal, for instance, may be followed (from beginning to end) by its subscribers, but people reading this newspaper or journal occasionally may not be aware of earlier (i.e. the original) contributions being represented and may not come across any rectifications.[57]

[56] As argued in chapter 2 of this thesis, as long as the rebuttal is 'out there' there will be people who will take it to be true, even if it does not address any issues that are subject of debate because standpoints or arguments have been distorted or falsely attributed, which is the case when a straw man fallacy is committed.

[57] In the 301st (2003) volume of *Science*, for example, a peer-review academic journal of the American Association for the Advancement of Science, we see how its editor-in-chief Donald Kennedy refutes a misrepresentation by Fred. S. Singer (the founder of the NIPCC) of three of his claims put forward in earlier volumes of the magazine. Singer accused Kennedy in a (published) letter to the journal of using "his Editorials inappropriately to advocate politically derived goals—undermining the proper role of *Science* and endangering credibility with the public"

In case of the IPCC and NIPCC reports, now, chances are that not all readers of the NIPCC report (or the parts of it which will be covered by the media) will be acquainted with (all) arguments originally put forward by the IPCC in AR4, which was published two years before CCR. As a consequence, any misrepresentation – purposely committed or not – may well benefit from this situation. The fact that the IPCC was not able to pose a direct reaction to CCR (that would have reached all the readers of CCR) may also have created an advantageous situation for the straw man fallacy to be committed. In sum, the concept of argumentative activity type does not cover all (possible) conditions for maneuvering strategically with the straw man fallacy as the medium in which the discussion is held is not included.

Another complication regarding the concept of argumentative activity type is the fact that instantiations that appear to belong to the same argumentative activity type may, in fact, be different. In this section, the analysis of the argumentative activity type of the NIPCC's scientific assessment report focused on particulars of the NIPCC's report. The IPCC's report, however, being a scientific assessment report as well, seems to be different from the NIPCC's in a few respects.

In the above we saw how particulars of the (wider) debate on climate change and the position of the NIPCC enable it to deploy a strategy of rebuttal focusing on refuting claims made by the IPCC. Within the field of science, critical review pay an essential contribution to the institutional goal of building a reliable knowledge of knowledge (cf. Merton's norm of organized scepticism). Furthermore, pragma-dialectics considers disputation to be the prototypical communicative genre of the scientific genre.[58] In this respect, there seems to be nothing odd about the NIPCC's focus on reacting critically towards the IPCC's claims. The main aim of the IPCC's report, however, seems to be inherently different from that of the NIPCC: Despite the fact that the IPCC has not reacted to (the allegations in) the NIPCC's report and thereby, one may say, indicates to refrain itself from entering the discussion, AR4 in itself was not *meant* in itself to create a discussion nor to be part of it.[59] It can be argued that this is inherent to the fact that it is a scientific assessment report. A communicative activity type that is used in other fields of science (e.g. biology, pharmacology) as well, the scientific assessment report is meant to summarize and assess the (most recent) state of knowledge in a particular field of science. If one is to compare it to other communicative activity types used within the scientific domain, it demonstrates similarities with the scientific meta-analysis. If we return to the NIPCC's CCR, now, it can be said that this report is inherently polemic – in other words, the NIPCC uses its scientific assessment report for another purpose as well, making it, so to say, a (critical) 'meta-meta-analysis'.[60] I.e. it does not only (or primarily) summarize and assess the (most recent) state of knowledge in the field of climate science

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Singer (2003) and advanced three reasons – three representations of arguments put forward by Kennedy – for why this would be the case. Kennedy responded to this by noting how "he has misread each one of them" (Kennedy 2003) and explaining how the claims he made were, in fact, different.

[58] In pragma-dialectics, up until now little attention seems to have been paid yet to why some communicative genres are prototypically linked to particular domains of communicative activity and what role other genres may play within one domain.

[59] As discussed earlier, the IPCC may indeed have good reasons for not responding to the NIPCC's allegations. The fact that it is not meant to create (or rather initiate) a discussion, on the other hand, of course does not mean it cannot receive any critical reactions.

[60] Considering van Eemeren and Garssen's remark on how "in argumentative practice, the one argumentative activity type sometimes may change over to the other, or be interrupted by the other" (2008, p. 23) it can be argued this may be the case indeed.

but principally and explicitly argues why the IPCC's assessments are wrong. This may not be a prototypical feature of a scientific assessment report, but it serves the main purpose of the NIPCC: discrediting the IPCC's conclusions as well as its credibility as a scientific organization.

In short, even though both reports are (called) scientific assessment reports – they in fact *look* similar as well –[61] and hence can be taken to belong to the same argumentative activity type, there are inherent differences between the two. Even though in the preface of both reports it is explicitly stated how each of the organizations sets out to provide policy-makers with an overview of the present-day state of knowledge in the field of climate science, the NIPCC seems to focus more on providing policy-makers with evidence of why the IPCC's assessments are wrong. The fact that it uses the format of a scientific assessment reports to address its criticism, now, might be part of its strategy too. Indeed, publishing its critique in the form of a scientific assessment reports brings its conclusions (or rather assessments) on par with those of the IPCC. This may enhance its credibility.

Whether the NIPCC has intentionally chosen to publish a scientific assessment report in order to stand out as a serious opponent to the IPCC or not, it is important to realize that pragma-dialectical theory on the argumentative activity type does not yet account for the fact that argumentative activities that (on first appearance) may look to belong to the same activity type, may display dissimilarities in some respects. This would mean that conditions for maneuvering strategically can in fact be different among instantiations of (what seems) the same argumentative activity type.

5.6 Conclusion

In this chapter an analysis has been given of the straw man fallacy within the context of the NIPCC's scientific assessment report Climate Change Reconsidered. First, the report's main standpoints and the general lines of argumentation were discussed. Subsequently, two examples taken from the third chapter of the report were analysed, showing how rebuttals by the NIPCC of claims made in the IPCC's AR4 represented the case of the IPCC as weaker than it actually is. It was explained how the examples discussed appeared to be a bit more multifaceted and complex than the examples of (different variants of) the straw man fallacy presented or circumscribed in the literature.

In this section it was discussed as well how the (mis)representations analysed can in fact be considered fallacious straw men if we take into consideration some characteristics of the argumentative activity type of the NIPCC's report. Other features of the argumentative activity type of the NIPCC's scientific assessment report discussed above have been used to explain what conditions for maneuvering strategically with the straw man fallacy are created by the activity type of the NIPCC's report. Firstly, it was argued, that the fact that the NIPCC's report is a *scientific* assessment report brings along certain expectations among its readers. Being unable to judge the validity of (the content of) the arguments put forward by the NIPCC, readers may assume or expect the NIPCC's representations of arguments or viewpoints put forward by the IPCC to be in agreement with norms

[61] In terms of the document design and the topics addressed in the different chapters, for example.

and conventions within the scientific domain. The fact that the audience may hold these expectations may be (mis)used for maneuvering strategically with the straw man fallacy.

Secondly, it was discussed how a factor that is not included in the concept of argumentative activity type may also may provide opportunities for strategic maneuvering with misrepresentations in the NIPCC's scientific assessment report. More specifically, it was argued that the medium in which the NIPCC initiates a discussion provides excellent conditions for (successfully) committing a straw man fallacy if we take into account the fact that the NIPCC does not (principally) wish to convince its opponent, the IPCC, of the validity of its rebuttals, but a third party audience instead. Indeed, discussion situations in which discussants are not able to respond to each other's contributions directly – i.e. when the discussion situation or format requires there is some considerable time delay between the one arguer's contribution and the other's reaction to it – it may be the case that (at least a part of) a third-party audience may not come across a refutation of a misrepresentation and hence may not be informed on the fallaciousness of what it might had taken as a sound argument at first.

Lastly, it was noted how differences between the NIPCC's scientific assessment report and that of the NIPCC in terms of their main aims raise the question what consequences this has for the theory behind the concept of argumentative activity type. Indeed, if instantiations of the same argumentative activity type can be found to offer different conditions for strategic maneuvering, it would be impossible in those cases to make any generalizations regarding these conditions. In case of the NIPCC report, it could be that it was intentionally named a scientific assessment report as this would place its conclusions on par with those of the IPCC. As this could enhance its credibility, it may be part of the NIPCC's strategy to stress its scientific (and unbiased) nature as an organization.

6. Conclusion

This thesis sought to provide more insight in the ways the straw man fallacy can be committed in actual argumentative discourse by examining whether the different variants of the fallacy as they are distinguished in the literature can in fact be found to occur. In addition, this thesis aimed to contribute to a better understanding of what contextual factors may influence the success of the straw man fallacy by analysing (unreasonable) representations in the Nongovernmental International Panel on Climate Change's scientific assessment report Climate Change Reconsidered (2009). A direct reaction to another scientific assessment report, i.e. the Fourth Assessment Report published by the Intergovernmental Panel on Climate Change (2007), the NIPCC's report predominantly consist of critical reactions towards the claims put forward by the IPCC and the evidence it uses to substantiate these claims. These reports therefore make for an interesting object of analysis on the straw man fallacy.

The present work started with a literature review on the straw man fallacy in Chapter 2. In this chapter it was discussed how different authors distinguish different variants of the straw man fallacy by taking into consideration its central vice, i.e. representing another party as weaker than it actually is. It was demonstrated that most categories of the different variants of the fallacy in the literature for a large part coincide. Overall, three main variants of the fallacy were recognized: (a) the category of linguistically distorting the protagonist's standpoint or arguments originally advanced in a different way (also called the representational form); (b) the category of attacking a proposition that is phrased faithfully, but nonetheless distorted by an opportune selection of only the weakest argument(s) as object(s) of attack (i.e. the selectional form); and (c) the category of imputing an (altogether) fictitious standpoint or arguments to a protagonist, either the actual protagonist taking part in the discussion or some fictitious one (i.e. the less extreme and the extreme variety of the hollow man variant, respectively).

A second issue addressed in Chapter 2 concerned the solutions suggested in the literature regarding the often difficult task of deciding between (sound) reformulations of propositions on the one hand and *mis*representations – straw man fallacies – on the other hand. It was discussed how pragma-dialectical argumentation, forming the theoretical framework of the analysis in Chapter 5 of this thesis, offers an appropriate context-sensitive approach to the reconstruction of argumentative discourse by making use of the notion of argumentative activity type to account for the fact that argumentation always takes place in concrete situations and under specific (contextual) conditions. As the theory does not, however, provide practical, workable tools for the evaluation of the straw man fallacy, Lewiński (2011) formulated a number of specific criteria for the evaluation of the straw man fallacy. In relation to these criteria it was discussed how Lewiński stipulates a list of necessary and sufficient conditions Lewiński for straw man fallacy identification. One of the necessary conditions, which demands from an argumentation analyst to take into account only discussions in which arguers respond to (and refute) attacks that involve a misrepresentation of their own case, was found to raise some important questions on exactly why one would not be able to pin down a straw man fallacy in those situations in which arguers do not have the possibility to respond to and correct a distortion. It was argued that most notably in argumentative activity types in which the interpretation of language

can be expected to be highly critical and precise and arguers may be expected to express themselves clearly and effectively, one would be able to make use of these norms and expectations in evaluating whether a representation of a proposition does right to the proposition that has actually been put forward. In Chapter 5 of this thesis it was demonstrated how Lewiński's evaluation criteria indeed lend themselves for this.

In Chapter 3 of this thesis an illustration was given of the wider (historical) context of the international debate on climate change. It was discussed how in the course of the twentieth and twenty-first century, climate change has moved from being predominantly a scientific issue to being a matter of political (and consequently a broader public) interest as well. Due to the location of the debate on the boundaries between the science and politics, different interests are at play regarding the exact settlement of the debate. From the onset of the debate, this has been hampering the establishment of environmental policy. The fact that sceptic movements have become louder during the past few years also exerts an influence on this matter, as uncertainty on the issue causes governments to become more hesitant in adopting a policy to fight climate change. It was noted how the NIPCC is the largest sceptic organization in the field of climate change, aiming to demonstrate that the IPCC's claims on the cause and potential consequences of the current climate change are wrong. The way in which it does so, for a large part consists of accusing the IPCC of being politically biased and predisposed towards the idea that greater government activity is necessary. As a result, it was argued, the debate takes on an *ad-hominem* character which may have an influence on laymen who need to resort to explanations of experts in order to be able to grasp the matter at hand. This derives away the attention from the actual arguments scientists put forward in order to substantiate their findings on whether global warming is caused by human activities or not and whether this change of climate would cause a threat to the earth's environment.

Chapter 4 provided a more detailed explanation of how pragma-dialectical theory and the concept of argumentative activity type can be used to examine context-specific conditions for strategic maneuvering with the straw man fallacy. In pragma-dialectics, the notion of argumentative activity type is used to account for the fact that argumentation takes place in concrete situations and under specific (contextual) conditions. As many of these situations occur regularly and are socially identifiable, they can be considered types of communicative activity that can be recognized by certain norms or expectations on communication (Lewiński 2010, p. 55). These norms or expectations can be used to deduce context-specific rules or conventions of *interpretation*, which, in turn, may help an argumentation analyst to decide whether specific interpretations (or representations) comply with the rules or conventions within a particular argumentative activity type or not. It was explained how argumentative activity types are *empirical concepts*, that, as van Eemeren and Houtlosser put it, "can be identified and characterized on the basis of a careful study of a certain domain of practice" (2009, pp. 7-8). The pragma-dialectical method for characterising an argumentative activity type consists of taking into account four features of the activity type under consideration, i.e. the domain of activity in which it takes place, the associated rationale, its genre of communicative activity and its institutional norms and conventions. Once the argumentative activity type has been established, four parameters "which mirror the division of a critical discussion into four stages" (Lewiński 2010, p. 58) can be used

in order to gain more insight in the argumentative type specific conditions for strategic maneuvering. These four parameters are *the initial situation* of the discussion, *the starting points* that are agreed upon, *the means of argumentation and criticism* that are used, and *the outcome* of the discussion which relate to the confrontational stage, the opening stage, the argumentation stage and the concluding stage of the ideal model respectively. In Chapter 5 of this thesis the NIPCC's scientific assessment report has been analysed according to these four parameters, which were discussed in relation to the report's characteristics in terms of its domain of activity, rationale, genre of communicative activity and institutional norms and conventions.

In Chapter 5 the main standpoints and the general lines of argumentation of the NIPCC's scientific assessment report were discussed first. It was demonstrated that the NIPCC deploys two main strategies for discrediting the IPCC's main conclusions: Firstly, the NIPCC attempts to discredit the scientific data upon which the IPCC bases its conclusions by demonstrating how the methodologies and models used in the research cited by the IPCC are unconventional or right out inadequate for drawing conclusions about past, current and future climate change; secondly, the NIPCC aims to demonstrate that the IPCC has distorted, not taken into account or even purposely ignored data that might contradict their conclusions. Especially the latter appeared to be an interesting starting point for an analysis of representations.

Subsequently, two sections from the third chapter of the NIPCC's report were analysed. It was demonstrated how these sections comprise counterarguments to claims made by the IPCC that represented the case of the IPCC as weaker than it actually is. The examples appeared to be somewhat more complex than the examples of (different variants of) the straw man fallacy presented or circumscribed in the literature. This was mostly due to the fact that both examples turned out to comprise two kinds of distortions. It was found that in both examples, an argument put forward by the IPCC is distorted first. In the one case, the NIPCC distorts one of the IPCC's arguments on the role of CO2 in past climate changes; in the other, the NIPCC misrepresents the fact that the IPCC calls the current rise of the global mean temperature 'unprecedented' because of the rate at which it occurs rather than that it would be rising to unprecedented heights. These distortions, however, turned out not to be enough for the NIPCC to successfully refute the IPCC's standpoints. Therefore, in both cases it needed to neglect one of the main arguments the IPCC uses to substantiate its claims, i.e. the argument that the current rise in temperature is essentially different from past ones due to an unnaturally rapid rise in CO2. In sum, the misrepresentations of the IPCC's case by the NIPCC are less straightforward than the variants discussed in the literature. This may be (partially) due to the complexity of the topic; further research may provide more insight in the question whether the straw men examples analysed in this thesis may be exceptional or whether straw men of this less straightforward kind occur more often.

The second part of the analysis focused on the argumentative activity type specific conditions for maneuvering strategically with the straw man fallacy in the NIPCC's scientific assessment report. For this analysis the four characteristics defining the activity type from the perspective of a critical discussion were taken as a point of departure. First, the initial situation and starting points were discussed; second, the means of argumentation and criticism and the possible outcome of the

discussion. In order to achieve a correct understanding of these parameters, characteristics of the argumentative activity type of the NIPCC's report in terms of its domain of activity, rationale, communicative genre and institutional norms and conventions have been taken into account as well.

The first condition for maneuvering strategically with the straw man fallacy that was found relates to the starting points of the discussion the NIPCC can be taken to agree upon by publishing its criticism towards the NIPCC in a scientific assessment report. It was argued that the fact that the NIPCC's report is a *scientific* assessment report brings along certain expectations among its readers towards the manner in which the report communicates its (scientific) criticism. More specifically, being unable to judge the validity of (the content of) the arguments put forward by the NIPCC, readers may assume or expect the NIPCC's representations of arguments or viewpoints put forward by the IPCC to be in agreement with norms and conventions pertaining to the scientific domain. These norms and conventions stipulate, among other things, that scientists should conduct a honest and accurate interpretation of all utterances made in scientific discourse. Indeed, if they would not, this would be detrimental to the institutional goal of science of building a reliable body of knowledge. The fact that the audience may hold these expectations, now, could be *misused*, meaning that the domain to which the report belongs and its institutional goals, norms and conventions offer a possibility for maneuvering strategically with representations.

In relation to the domain of activity, its institutional goals and its norms and conventions, it was also noted that the fact that the NIPCC explicitly presents its report as a scientific assessment report demands that norms and conventions of the scientific domain should be used to formulate the context-specific criteria for evaluating the straw man fallacy. Merton's (1942) norm of organized scepticism, according to which scientists are to thoroughly scrutinize scientific claims for being able to build a reliable body of knowledge, was used in particular to conclude that scientists are expected to adopt a *highly critical* (or uncharitable) perspective, conducting a *precise interpretation* (narrow plausibility) of all utterances made in scientific communication. As the representations deployed by the NIPCC do not concern precise representations of arguments actually put forward by the IPCC in its Fourth Assessment Report, it was concluded that these are cases of derailed strategic maneuvers.

In relation to the means of argumentation and criticism deployed by the NIPCC it was discussed how the wider context of the debate on climate change provides the NIPCC with a rather 'easy' position in the debate. That is to say, due to its standpoints on the matter and its aim to convince its audience of the fact that no governmental action on the current climate change should be undertaken, the NIPCC only needs to prove why the IPCC would be wrong in order to attain this aim. This may not be an opportunity for maneuvering strategically with representations *per se*, but it may imply that of all possible strategic maneuvers, opportunistically representing the opponent's standpoint seems an easy candidate.

Another factor that lays beyond the concept of argumentative activity type was argued to exert a more direct influence on the conditions for strategic maneuvering, namely the *medium* in which the NIPCC initiates a discussion, i.e. a written a report. Indeed, as the IPCC was never able to pose a direct reaction to CCR (i.e. a reaction that would have reached all the readers of CCR), the NIPCC may have used the benefit from the fact that as long as a rebuttal is 'out there' there will be people who will take it

to be true, even if it does not address any issues that are subject of debate because standpoints or arguments have been distorted or falsely attributed.

Lastly, it was discussed that even though both the IPCC's report and the NIPCC's report are (called) scientific assessment reports and hence can be taken to belong to the same argumentative activity type, inherent differences between the two can be found. Most particularly, it was noted that although both reports explicitly aim to provide policy-makers with an overview of the present-day state of knowledge in the field of climate science, the NIPCC seems to focus more on providing policy-makers with evidence of why the IPCC's assessments are wrong. The latter may be considered not to be a prototypical feature of a scientific assessment report, which raises the question whether it is part of the NIPCC's strategy to present its report as such in order to bring its conclusions on par with those of the IPCC. Nonetheless, it brings to the fore a complication regarding the concept of argumentative activity type as the theory does not yet account for the fact that argumentative activities that (on first appearance) may look to belong to the same activity type, may display dissimilarities in some respects.

In conclusion, this thesis hopes to have demonstrated that the straw man fallacy can be found to occur in more complex ways than the literature on (the different variants of) the fallacy may suggest. Further research on representations in argumentative activity types other than the one analysed in the present work may provide more insight in the different ways in which the straw man fallacy is committed in actual argumentative discourse. Furthermore, this thesis has sought to uncover some contextual factors that may influence the likelihood of a straw man fallacy to be committed. Research on the fallacy in different argumentative activity types may enhance our understanding of such factors too.

References

Agrawala, S. (1999). Early science-policy interactions in climate change: lessons from the Advisory Group on Greenhouse Gases. *Global Environmental Change, 9(2),* 157-169.

Aikin, S.F., & Casey, J. (2011). Straw men, Weak men, and Hollow men. *Argumentation, 25(1)*, 87-105.

Allchin, D. (2001). Values in Science: An Educational Perspective. In F. Bevilaqua, E. Giannetto & M. Matthews (Eds.), *Science, Education and Culture: The Role of History and Philosophy of Science* (pp.185-196). Dordrecht: Kluwer Academic Publishers.

Austin, J. L. (1975 [1962]). *How to do things with words*, 2nd edition. Oxford: Oxford University Press.

Begley, S. (2007). The truth about denial. *Newsweek, 150 (13 August)*, 20-9.

Bergh, J.C.J.M. van den, Faber, A., Idenburg, A.M., & Oosterhuis, F.H. (2007). *Evolutionary Economics and Environmental Policy. Survival of the Greenest*. Cheltenham: Edward Elgar.

Biro, J., & Siegel, H. (1992). Normativity, argumentation and an epistemic theory of fallacies. In F.H. van Eemeren & R. Grootendorst & J.A. Blair & C.A. Willard (Eds.), *Argumentation illuminated* (pp. 85-103). Amsterdam: Sic Sat.

Bizer, G.Y., Kozak, S.M., & Holterman, L.A. (2009). The persuasiveness of the straw man rhetorical technique. *Social Influence, 4(3)*, 216–230.

Bodansky, D. (2001). The History of the Global Climate Change Regime. In U. Luterbacher & D.F. Sprinz (Eds.), *International relations and global climate change* (pp. 23-40). Cambridge, MA/London: MIT Press.

Bodker, H., & Neverla, I. (2013). *Environmental Journalism*. London: Routledge.

Boehmer-Christiansen, S. (1994). Global climate protection policy: the limits of scientific advice. Part 1. *Global Environmental Change, 4(2)*, 140-159.

Boisson de Chazournes, L. (2008). Kyoto Protocol to the United Nations Framework Convention on Climate Change. *United Nations Audiovisual Library of International Law*, retrieved from http://legal.un.org/avl/pdf/ha/kpccc/kpccc_e.pdf [accessed 6 May 2015]

Boykoff, M.T., & Boykoff, J.M. (2004). Balance as bias: global warming and the US prestige press. *Global Environmental Change, 14,* 125-135.

Boykoff, M., & Smith, J.H. (2010). Media presentations of climate change. In C. Lever-Tracy (Ed.), *Routledge Handbook of Climate Change and Society* (pp. 210-219). New York: Routledge Press.

Brüggemann, M., & Engesser, S. (2014). Between Consensus and Denial. Climate Journalists as Interpretive Community. *Science Communication, 36 (4)*, 399-427

Copi, I.M., Cohen, C., & Flage, D.E. (2007). *Essentials of logic*, 2nd edition. Upper Saddle River, NJ: Prentice Hall.

Crok, M. (2010). *De staat van het klimaat. Een hoele blik op een verhit debat.* Amsterdam: Paradigma.

Dunlap, R.E., & McCright, A.M. (2010). Climate change denial: sources, actors, and strategies. In C. Lever-Tracy (Ed.), *Routledge International Handbook of Climate Change and Society* (pp. 240-259). New York: Routledge Press.

Dunlap, R.E., & McCright, A.M. (2011). Organized Climate Change Denial. In J.S. Dryzek, R.B. Norgaard & D. Schlosberg (Eds.), *The Oxford Handbook of Climate Change and Society* (pp. 144-160). Oxford, UK: Oxford University Press.

Eemeren, F.H. van (2010). *Strategic maneuvering in argumentative discourse: Extending the pragma-dialectical theory of argumentation*. Amsterdam: John Benjamins Publishing Company.

Eemeren, F.H. van (2011). In Context. Giving Contextualization its Rightful Place in the Study of Argumentation. *Argumentation, 25(2)*, 141-161.

Eemeren, F.H. van, & Garssen, B. (2008). Controversy and confrontation in argumentative discourse. In F.H. van Eemeren & B. Garssen (Eds.), *Controversy and confrontation* (pp. 1-26). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Eemeren, F.H. van, Garssen, B., Krabbe, E.C.W., Snoeck Henkemans, A.F., Verheij, B., & Wagemans, J.H.M. (2014). *Handbook of argumentation theory*. Dordrecht: Springer.

Eemeren, F.H. van, & Grootendorst, R. (1984). *Speech Acts in Argumentative Discussions: A Theoretical Model for the Analysis of Discussions Directed Towards Solving Conflicts of Opinion.* Berlin: Walter de Gruyter.

Eemeren, F.H. van, & Grootendorst, R. (1989). Norms in argumentation. In R. Maier (Ed.), *Proceedings of the Conference on Norms 1988* (pp. 97-112). Dordrecht: Fortis Publications.

Eemeren, F.H. van, & Grootendorst, R. (1992). *Argumentation, communication, and fallacies: A pragmadialectical perspective*. Hillsdale, NJ: Lawrence Erlbaum.

Eemeren, F.H. van, & Grootendorst, R. (1995). The Pragma-Dialectical Approach to Fallacies. In H.V. Hansen & R. C. Pinto (Eds.), *Fallacies: Classical and Contemporary Readings* (pp 130-144). University Park, PA: Pennsylvania State University Press.

Eemeren, F.H. van, & Grootendorst, R. (2003). A pragma-dialectical procedure for a critical discussion. *Argumentation, 17(4)*, pp. 365-385.

Eemeren, F.H. van, Grootendorst, R., Jackson, S., & Jacobs, S. (1993). *Reconstructing argumentative discourse*. Tuscaloosa: University of Alabama Press.

Eemeren, F.H. van, Grootendorst, R., & Snoeck Henkenmans. A.F. (2002). *Argumentation: Analysis, evaluation, presentation*. Mahwah, NJ: Lawrence Erlbaum.

Eemeren, F.H. van, Grootendorst, R., Snoeck Henkemans, A.F., Blair, J.A., Johnson, R.H., Krabbe, E.C.W., Plantin, Ch., Walton, D.N., Willard, Ch.A., Woods, J., & Zarefsky, D. (1996). *Fundamentals of argumentation theory. A handbook of historical backgrounds and contemporary developments*. Mahwah, NJ: Lawrence Erlbaum.

Eemeren, F.H. van, & Houtlosser, P. (2002). Strategic manoeuvring: Maintaining a delicate balance. In F.H. van Eemeren & P. Houtlosser (Eds.), *Dialectic and rhetoric: The warp and woof of argumentation analysis* (131–159). Dordrecht: Kluwer

Eemeren, F.H. van, & Houtlosser, P. (2005). Theoretical construction and argumentative reality: An analytic model of critical discussion and conventionalised types of argumentative activity. In D. Hitchcock (Ed.), *The uses of argument: Proceedings of a conference at McMaster University, 18–21 May 2005*, (pp. 75–84). Hamilton: Ontario Society for the Study of Argumentation.

Eemeren, F.H. van, & Houtlosser, P. (2009). Seizing the occasion: parameters for analysing ways of strategic manoeuvring. In F.H. van Eemeren & B. J. Garssen (Eds.), *Pondering on Problems of Argumentation. Twenty Essays on Theoretical Issues* (pp. 3-14). Dordrecht: Springer.

Eemeren, F.H. van, Houtlosser, P., Ihnen, C. & Lewiński, M. (2010). Contextual considerations in the evaluation of argumentation. In C. Reed & C. Tindale (Eds.), *Dialectics, dialogue and argumentation: An examination of Douglas Walton's theories of reasoning and argument* (pp. 115–132). London: College Publications.

Evans, J.D.G. (1977). *Aristotle's Concept of Dialectic*. Cambridge: Cambridge University Press.

Ezrahi, Y. (1990). *The Decent of Icarus. Science and the Transformation of Contemporary Society*. Cambridge: Harvard University Press.

Ezrahi, Y. (1971). The political resources of American science. *Social studies, 1,* 117-133.

Ferreira, A. (2008). On the role of pragmatics, rhetoric and dialectic in scientific controversies. In F.H. van Eemeren & B. Garssen (Eds.), *Controversy and confrontation* (pp. 125-134). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Forman, P. (1997). Recent science: Late-modern and post-modern. In T. Söderquist (Ed.), *The Historiography of Contemporary Science and Technology* (pp. 179-213). Amsterdam: Harwood Academic Publishers.

Govier, T. (1992). *A Practical Study of Argument*, 3rd edition. Belmont, CA: Wadsworth.

Grice, H.P. (1975). Logic and conversation. In P. Cole & J.L. Morgan (Eds.), *Syntax and semantics, vol. 3: Speech acts* (pp. 41–58). New York: Academic Press.

Grootendorst, R., & van Eemeren, F.H. (2004). *A Systematic Theory of Argumentation: The Pragma-dialectical Approach*. Cambridge: Cambridge University Press.

Haas, P.M. (2005). Science and international environmental governance. In P. Dauvergne (Ed.), *Handbook of Global Environmental Politics* (pp. 383–401). Cheltenham: Edward Elgar.

Hamblin, C. (1970). *Fallacies*. London: Methuen.

Honderich, T. (1995). *The Oxford Companion to Philosophy*. Oxford: University Press.

Hitchcock, D.L., & Wagemans, J.H.M. (2011). The pragma-dialectical account of argument schemes. In E. Feteris & B. Garssen & F. Snoeck Henkemans (Eds.), *Keeping in touch with Pragma-Dialectics. In honor of Frans H. van Eemeren*. Amsterdam/Philadelphia: John Benjamins Publishing Company.

IPCC (2007-I). *The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the IPCC*. Cambridge University Press.

IPCC (2007-II). *Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the IPCC*. Cambridge University Press.

IPCC (2007b-III). *Mitigation of Climate Change. Contribution of Working Group III to the Fourth Assessment Report of the IPCC*. Cambridge University Press.

Jackson, S. (2008). Predicaments of politicization in the debate over abstinence-only sex education. In F.H. van Eemeren & B. Garssen (Eds.), *Controversy and confrontation* (pp. 215-230). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Jackson, S., & Jacobs, S. (1980). Structure of conversational argument. Pragmatic bases for the enthymeme. *Quarterly Journal of Speech, 66*, 251-265.

Jackson, S., & Jacobs, S. (1989). About coherence. In J.A. Anderson (Ed.), *Communication Yearbook* (pp. 146-156). Newbury Park, CA: Sage.

Jacobs, S. (2002). Messages, functional contexts, and categories of fallacy: Some dialectical and rhetorical considerations. In F. H. van Eemeren & P. Houtlosser (Eds.), *Dialectic and rhetoric: The warp and woof of argumentation analysis* (pp. 119–130). Dordrecht: Kluwer.

Johnson, R., & Blair, A. (1983). *Logical Self-Defence,* 2nd edition. Toronto: McGraw-Hill Ryerson.

Kennedy, D. (2003). Response to: Editor bias on climate change? *Science, 301(5633)*, 595-596.

Kiparsky, M., Brooks, C., & Gleick, P.H. (2006). Do regional disparities in research on climate and water influence adaptive capacity? *Climatic Change, 77(3-4)*, 363-375.

Kutrovátz, G. (2008) Rhetoric of science, pragma-dialectics, and science studies. In F.H. van Eemeren & B. Garssen, *Controversy and confrontation* (pp. 231-248). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Laar, J.A. van (2008). Room for maneuver when raising critical doubt. *Philosophy and Rhetoric, 41(3),* 195–211.

Lahsen, M. (2013). Anatomy of Dissent: A Cultural Analysis of Climate Skepticism. *American Behavioral Scientist, 57(6),* 732-753.

Lakoff, G. (1996). *Moral Politics: How Liberals and Conservatives Think*. Chicago: University Of Chicago Press.

Leiserowitz, A., Maibach, E., Roser-Renouf, C., & Smith, N. (2010). *Global Warming's Six Americas. Yale Project on Climate Change,* retrieved from http://environment.yale.edu/climate/files/SixAmericasJune2010.pdf [accesssed 15 May 2015]

Lessl, T.M. (2008). Scientific demarcation and metascience: The national academy of sciences on greenhouse warming and evolution. In F.H. van Eemeren & B. Garssen, *Controversy and confrontation* (pp. 77-92). Amsterdam/Philadelphia: John Benjamins Publishing Company.

Levinson, S.C. (1983). *Pragmatics*. Cambridge: Cambridge University Press.

Lewiński, M., & Oswald, S. (2013). When and how do we deal with straw men? A normative and cognitive pragmatic account. *Journal of pragmatics, 59*, 164-177.

Lewiński, M. (2010). *Internet political discussion forums as an argumentative activity type: A pragmadialectical analysis of online forms of strategic manoeuvring with critical reactions*. Amsterdam: SicSat.

Lewiński, M. (2011). Towards a Critique-Friendly Approach to the Straw Man Fallacy Evaluation. *Argumentation, 25(4),* 469-497.

McCright, A.M., Dunlap, R.E., & Xiao, C. (2013). Perceived scientific agreement and support for government action on climate change in the USA. *Climatic Change, 119(2),* 511-518.

McCright, A.M. & Dunlap, R.E. (2011a). Cool dudes: the denial of climate change among conservative whitemales in the United States. *Global Environmental Change, 21(4),* pp. 1163–117.

McCright, A.M., & Dunlap, R.E. (2011b) The politicization of climate change and polarization in the American public's views of global warming, 2001–2010. *The Sociological Quarterly, 52(2),* 155-194.

Mercier, H., & Heintz, C. (2014) Scientists' argumentative reasoning. *Topoi, 33(2),* 513-524.

Merton R.K. (1957). Science and democratic social structure. In R.K. Merton (Ed.) *Social Theory and Social Structure*. Glencoe, IL: The Free Press.

Merton, R.K. (1973a [1942]). The Normative Structure of Science. In N.W. Storer (Ed.) The Sociology of Science (pp. 267-278). Chicago: University of Chicago Press.

Merton R.K. (1973b). Behavior patterns of scientists. In N.W. Storer (Ed.), *The Sociology of Science. Theoretical and Empirical Investigations* (pp. 325-342). Chicago: University of Chicago Press.

Meulen, B. van der, & Rip, A. (1998). Mediation in the Dutch science system. *Research Policy, 27*, 757–769.

Milbank, D. (2004). Making hay out of straw men. *The Washington Post, 1 June*, A21.

Mohammed, D.A. (2008). Institutional Insights for Analysing Strategic Manoeuvring in the British Prime Minister's Question Time. *Argumentation, 22(3)*, 377-393.

Mohammed, D.A. (2009). *'The honourable gentleman should make up his mind': strategic manoeuvring with accusations of inconsistency in Prime Minister's Question Time*. Unpublished doctoral dissertation University of Amsterdam.

Morency, P., Oswald, S. & Saussure, L. de. (2008). Explicitness, implicitness and commitment attribution: A cognitive pragmatic approach. *Belgian Journal of Linguistics, 22*, 197–219.

National Research Council (1979). *Carbon Dioxide and Climate: A Scientific Assessment. Report of an Ad Hoc Study Group on Carbon Dioxide and Climate*. Washington, DC: National Academy of Sciences.

NIPCC (2009). *Climate Change Reconsidered. 2009 Report of the Nongovernmental International Panel on Climate Change (NIPCC)*. Chicago: The Heartland Institute.

Oreskes, N. (2010). My facts are better than your facts: Spreading good news about global warming. In P. Howlett & M.S. Morgan (Eds.), *How Well Do Facts Travel? The Dissemination of Reliable Knowledge* (136-166). Cambridge University Press.

Oreskes, N., & Conway, E.M. (2010). *Merchants of Doubt: How a Handful of Scientists Obscured the Truth on Issues from Tobacco Smoke to Global Warming*. London: Bloomsbury.

Oreskes, N., Conway, E.M., & Shindell, M. (2008). From Chicken Little to Dr. Pangloss: William Nierenberg, Global Warming, and the Social Deconstruction of Scientific Knowledge. *Historical Studies in the Natural Sciences, 38(1),* 109-152.

Panofsky, A. L. (2010). A Critical Reconsideration of the Ethos and Autonomy of Science. In C.J. Calhoun (Ed.), *Sociology of Science and Sociology as Science* (pp. 140-163). New York: Columbia University Press.

PBL (2010). *Assessing an IPCC assessment. An analysis of statements on projected regional impacts in the 2007 report.* The Hague: Netherlands Environmental Assessment Agency.

Perelman, C., & Olbrechts-Tyteca, L. (1969). *The new rhetoric: A treatise on argumentation.* Notre Dame, IN: University of Notre Dame Press.

Rudinow, J. & Barry, V.E. (2008). *Invitation to critical thinking*, 6th edition. Belmont, CA: Wadsworth.

Rees, M.A. van (1992). The adequacy of speech act theory for explaining conversational phenomena: A response to some conversation analytical critics. *Journal of Pragmatics, 17(1),* 31–47.

Rees, M.A. van (2001). Argument interpretation and reconstruction. In F.H. van Eemeren (Ed.), *Crucial concepts in argumentation theory* (pp. 165–199). Amsterdam University Press.

Searle, J. R. (1969). *Speech acts: An essay in the philosophy of language.* Cambridge: Cambridge University Press.

Siebenhüner, B. (2003). The changing role of nation states in international environmental assessments – the case of the IPCC. *Global Environmental Change, 13,* 113-123.

Singer, S.F. (2003). Editor bias on climate change? *Science, 301(5633)*, 595.

Snoeck Henkemans, A.F. (1992). *Analysing complex argumentation: The reconstruction of multiple and coorinatively compound argumentation in a critical discussion*. Amsterdam: SicSat.

Talisse, R., & Aikin S.F. (2006). Two forms of the straw man. *Argumentation, 20(3),* 345-352.

Tindale, C. (2007). *Fallacies and argument appraisal*. Cambridge: Cambridge University Press.

Toulmin, S. E. (1958). *The Uses of Argument.* Cambridge: Cambridge University Press.

Ungar, S. (2003). Global warming versus ozone depletion: failure and success in North America. *Climate Research, 23*, 263-274.

Vasileiadou, E., Heimeriks, G., & Petersen A.C. (2011). Exploring the impact of the IPCC Assessment Reports on science. *Environmental Science & Policy, 14,* 1052-1061.

Vasileiadou, E., & Besselaar, P. van den. (2006). Linking shallow, linking deep; How scientific intermediaries use the Web for their network of collaborators. *Cybernetrics, 10(1)*, 61-74.

Vernon, T.S., & Nissen, L.A. (1968). *Reflective Thinking: The Fundamentals* of *Logic.* Belmont, CA: Wadsworth.

Walton, D.N. (1989). *Informal logic: A handbook for critical argumentation*. Cambridge: Cambridge University Press.

Walton, D.N. (1996). The straw man fallacy. In J. van Bentham, F.H. van Eemeren, R. Grootendorst & F. Veltman (Eds.), *Logic and Argumentation* (pp. 115-128). Amsterdam, Royal Netherlands Academy of Arts and Sciences.

Walton, D.N. (1997). *Appeal to expert opinion: Arguments from authority*. University Park, PA: Pennsylvania State University Press.

Walton, D. N. (1998). *The new dialectic: Conversational contexts of argument*. Toronto: University of Toronto Press.

Walton, D.N., & Krabbe, E.C.W. (1995). *Commitment in dialogue: Basic concepts of interpersonal reasoning*. Albany: State University of New York Press.

Walton. D.N. & Macagno, F. (2010). Wrenching from Context: The Manipulation of Commitments. *Argumentation, 24(3)*, 283-317.

Weinberg, A. (1972). Science and trans-science. *Minerva, 10(2)*, 209-222.

Weingart, P. (2015). Norms in Science. In J.D. Wright (Ed.), *International Encyclopedia of the Social & Behavioral Sciences 17*, 2nd edition, (pp. 10720-10723). Oxford: Elsevier.

Willard, C.A. (1983). *Argumentation and the social grounds of knowledge*. Alabama: University of Alabama Press.

Willard, C.A. (1989). *A Theory of Argumentation*. Tuscaloosa: University of Alabama Press.

Wilson, D. (1994). Relevance and understanding. In G. Brown (Ed.), *Language and understanding* (pp. 35–59). Oxford: Oxford University Press.

Appendices

1. The IPCC's (2007) claim that the CO2 produced by the burning of fossil fuels will lead to catastrophic global warming is false.

1.1 It is extremely likely that CO2 plays only a minor role in enhancing temperature changes that are induced by something else.

1.1.1a Research findings on paleoclimatic data indicate that past climate changes have not been caused by CO2.

(1.1.1a.1) There are research findings on paleoclimatic data that indicate there is no relation between the earth's atmospheric CO2 concentration and the inducement of climatic variations.

1.1.1a.1.1a A study conducted by Rothman (2002) shows that the CO2 history "exhibits no systematic correspondence with the geologic record of climatic variations at tectonic time scales."

1.1.1a.1.1a.1 Over the last 175 million years the results of Rothmann's (2002) analysis depict a long-term decline in the air's CO2 content earth's atmospheric CO2 concentration.

1.1.1a.1.1a.2 A visual examination of Rothman's plot of CO2 and concomitant major cold and warm periods indicates the three most striking peaks in the air's CO2 concentration occur either totally or partially within periods of time when earth's climate was relatively cool.

1.1.1a.1.1b Many observations done by Pagani et al. (2005), who took a more detailed look at the most recent 50 million years of earth's thermal and CO2 history, "argue for a decoupling between global climate and CO2".

1.1.1a.1.1b.1 Pagani et al. found that between 43 and 33 million years ago the air's CO2 concentration experienced 3 huge oscillations. In the first two oscillations, temperature did not appear to respond to the change in CO2, exhibiting an uninterrupted slow decline.

1.1.1a.1.1b.2 Pagani et al. (2005) also found that from about 33 to 26 Ma BP, the oxygen isotope ratio hovered around a value of 2.7 per mil indicating little change in temperature over that period, whilst the corresponding CO2 concentration, on the other hand, experienced about a 500 ppm increase around 32 Ma BP, after which it dropped 1,000 ppm over the next two million years, only to rise again by a few hundred ppm, refuting – three times – the CO2-induced global warming hypothesis.

1.1.1a.1.1b.3 From 24 Ma BP to the end of the record at 5 Ma BP, there were relatively small variations in atmospheric CO2 content but relatively large variations in oxygen isotope values, both up and down.

(1.1.1a.2) There are research findings on paleoclimatic data that argue that CO2 perturbations have been caused by the changes in climate rather than vice versa.

1.1.1a.2.1a Fischer et al. (1999), who examined trends of atmospheric CO2 and air temperature derived from Antarctic ice core data that extended back in time a quarter of a million years of atmospheric CO2 quarter of million years ago, found that over this period, the three most dramatic warming events experienced on earth were the terminations of the last three ice ages and for each of these climatic transitions, earth's air temperature always rose well in advance of the increase in atmospheric CO2.

1.1.1a.2.1b Petit et al. (1999), who studied the beginnings rather than the ends of glacial ages, discovered that during all glacial inceptions of the past half million years, temperature always dropped well before the decline in the air's CO2 concentration ("the CO2 decrease lags the temperature decrease by several thousand years").

1.1.1a.2.1c Mudelsee (2001) determined that variations in atmospheric CO2 concentration lagged behind variations in air temperature by 1,300 to 5,000 years over the past 420,000 years

1.1.1a.2.1d Staufer et al. (1998) observed the atmospheric CO2 concentration derived from ice core records typically varied by less than 10 ppm during certain climatic transitions characterized by rapid warmings of several degrees Centigrade, which were followed by slower coolings that returned the climate to essentially full glacial conditions

1.1.1a.2.1e Other studies (e.g., Cheddadi et al., 1998; Gagan et al., 1998; Raymo et al., 1998), have also demonstrated this reverse coupling of atmospheric CO2 and temperature where temperature is the independent variable that appears to induce changes in CO2.

1.1.1a.2.1f Steig (1999) noted cases between 7,000 and 5,000 years ago when atmospheric CO2 concentrations increased by just over 10 ppm at a time when temperatures in both hemispheres cooled.

1.1.1a.2.1g Caillon et al. (2003) conclude "that CO2 is not the forcing that initially drives the climatic system during a deglaciation"

1.1.1a.2.1g.1 Results from measurements of the isotopic composition of argon – specifically, $\delta 40Ar$, which Caillon et al. (2003) argue "can be taken as a climate proxy, thus providing constraints about the timing of CO2 and climate change" – in air bubbles in the Vostok ice core over the period that comprises what is called Glacial Termination III, which occurred about 240,000 years ago, led them to conclude that "the CO2 increase lagged Antarctic deglacial warming by 800 ± 200 years."

1.1.1a.2.1h Indermuhle et al. (1999) also found that past variations in atmospheric CO2 concentration lagged behind variations in air temperature

1.1.1a.2.1h.1 Indermuhle et al. (1999) determined that after the termination of the last great ice age, the CO2 content of the air gradually rose by approximately 25 ppm in almost linear fashion between 8,200 and 1,200 years ago, over a period of time that saw a slow but steady decline in global air temperature.

1.1.1a.2.1h.1.2 Indermuhle et al. (1999) also found that over the period of 60 to 20 thousand years ago there were four distinct periods when temperatures rose by approximately 2°C and CO2 rose by about 20 ppm, but one of the statistical tests they performed on the data suggested that the shifts in the air's CO2 content during these intervals followed the shifts in air temperature by approximately 900 years while a second statistical test yielded a mean CO2 lag time of 1,200 years.

1.1.1a.2.1i A study from Siegenthaler et al. (2005), who analyzed CO2 and proxy temperature (δD, the ratio of deuterium to hydrogen) data derived from an ice core in Antarctica, revealed a coupling of Antarctic temperature and CO2 in which they obtained the best correlation between CO2 and temperature "for a lag of CO2 of 1900 years."

1.1.1a.2.1i.1 Specifically, over the course of glacial terminations V to VII, they indicate that "the highest correlation of CO2 and deuterium, with use of a 20-ky window for each termination, yields a lag of CO2 to deuterium of 800, 1600, and 2800 years, respectively."

1.1.1a.2.1j Pagani et al. (2005), who found that approximately 43-44 million years ago the air's CO2 concentration experienced three huge oscillations on the order of 1000 ppm from peak to valley, conclude that temperatures seemed to respond to the third rise in CO2, but in the direction opposite to what the greenhouse theory of global warming predicts

1.1.1a.2.1j.1 The rise in CO2 was followed by the sharpest drop in temperature of the entire record.

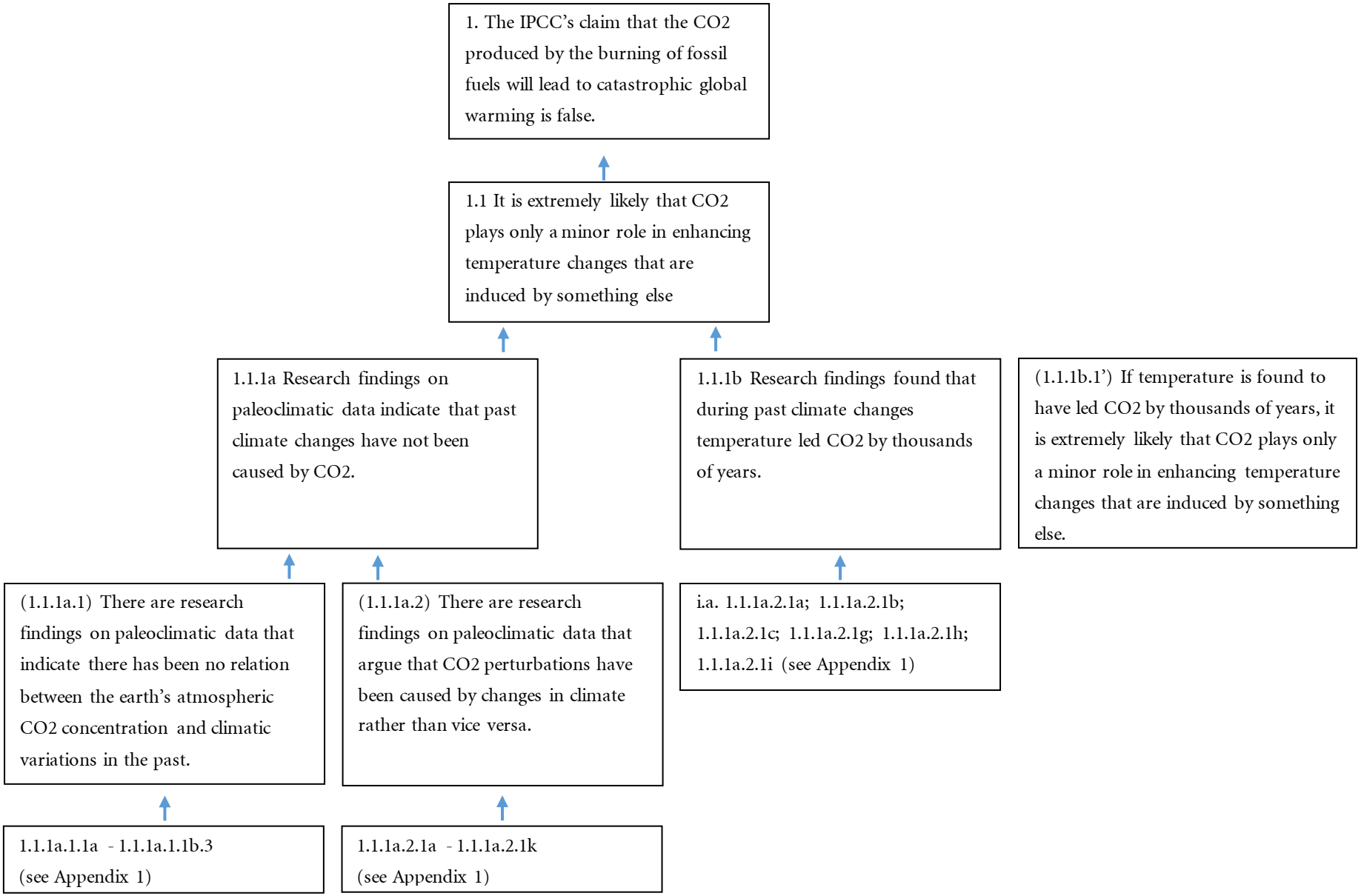
1.1.1a.2.1k Pagani et al. (2005) also found that around 26 Ma BP, the oxygen isotope ratio dropped to about 1.4 per mil (implying a significant rise in temperature), during which time the air's CO2 content declined.

1.1.1b Research findings found that during past climate changes temperature led CO2 by thousands of years.

1.1.1b.1 See arguments 1.1.1a.2.1a; 1.1.1a.2.1b; 1.1.1a.2.1c; 1.1.1a.2.1g; 1.1.1a.2.1h.

(1.1.1b.1') If temperature is found to have led CO2 by thousands of years, it is extremely likely that CO2 plays only a minor role in enhancing temperature changes that are induced by something else.[62]

[62] As discussed in section 5.3.1 of this thesis, this inferential link is not made explicit nor further substantiated by an explanation.


1. The IPCC's claim that the CO2 produced by the burning of fossil fuels will lead to catastrophic global warming is false.
1.1 It is extremely likely that CO2 plays only a minor role in enhancing temperature changes that are induced by something else
1.1.1a Research findings on paleoclimatic data indicate that past climate changes have not been caused by CO2.
1.1.1b Research findings found that during past climate changes temperature led CO2 by thousands of years.
(1.1.1b.1') If temperature is found to have led CO2 by thousands of years, it is extremely likely that CO2 plays only a minor role in enhancing temperature changes that are induced by something else.
(1.1.1a.1) There are research findings on paleoclimatic data that indicate there has been no relation between the earth's atmospheric CO2 concentration and climatic variations in the past.
(1.1.1a.2) There are research findings on paleoclimatic data that argue that CO2 perturbations have been caused by changes in climate rather than vice versa.
i.a. 1.1.1a.2.1a; 1.1.1a.2.1b; 1.1.1a.2.1c; 1.1.1a.2.1g; 1.1.1a.2.1h; 1.1.1a.2.1i (see Appendix 1)
1.1.1a.1.1a - 1.1.1a.1.1b.3 (see Appendix 1)
1.1.1a.2.1a - 1.1.1a.2.1k (see Appendix 1)

1. The IPCC's (2007) claim that the current rise of global mean temperature is caused by high atmospheric CO2 concentrations is false.

1.1 The current rise of global mean temperature is caused by something other than high atmospheric CO2 concentrations.

1.1a Warmer periods have occurred in the past 1,300 years (i.e. the current rise of temperature is not 'unprecedented'[63]).

1.1a.1a The 'hockey stick graph' (which shows nine hundred years of stable global temperatures—until about 1910 when the twentieth century's temperatures seem to rocket upward out of control) used by the IPCC is incorrect.

1.1a.1.1 The graph has been frequently and severely criticized in the literature.

[...][64]

1.1a.1b A thorough examination of temperature records shows how there has been a global Medieval Warm Period during which temperatures exceeded those of the twentieth century.

1.1a.1b.1a Research findings demonstrate that such a Medieval Warm Period did occur over wide reaches of Africa.

1.1a.1b.1a.1a Based on the temperature and water needs of the crops that were cultivated by the first agropastoralists of southern Africa, Huffman (1996) constructed a climate history of the region based on archaeological evidence acquired from various Iron Age settlements. In the course of completing this project, dated relic evidence of the presence of cultivated sorghum and millets was considered by Huffman to be so strong as to essentially prove that the climate of the subcontinent-wide region must have been warmer and wetter than it is today from approximately AD 900-1300.

1.1a.1b.1a.1a.1 These crops cannot be grown in this part of southern Africa under current climatic conditions.

1.1a.1b.1a.1a.1.1 Current climatic conditions are much too cool and dry.

[63] As discussed in Chapter 5 of this thesis, the NIPCC uses the word 'unprecedented' to refer to something else than the IPCC does: In AR4, the IPCC uses 'unprecedented' to indicate how the current rise of atmospheric CO2 (and hence the global mean temperature) is unusual considering past CO2 fluctuations. The NIPCC, however, makes mention of the term 'unprecedented' with reference to the global mean temperature, taking it to mean that the IPCC considers the current global mean temperature to be exceptionally high.

[64] As mentioned in section 5.3 of the thesis, the so-called 'hockey stick graph' has been subject of several critical studies in the past; as the matter is quite complex and the exact arguments used by both parties are difficult to construct, it will be left unaddressed in this thesis.

1.1a.1b.1a.1b Other evidence for this conclusion comes from Tyson et al. (2000).

1.1a.1b.1a.1b.1 Tyson et al. (2000) obtained a quasi-decadal record of oxygen and carbon-stable isotope data from a well-dated stalagmite of Cold Air Cave in the Makapansgat Valley (30 km southwest of Pietersburg, South Africa), which they augmented with five-yearresolution temperature data that they reconstructed from color variations in banded growth-layer laminations of the stalagmite that were derived from a relationship calibrated against actual air temperatures obtained from a surrounding 49-station climatological network over the period 1981-1995, which had a correlation of +0.78 that was significant at the 99 percent confidence level. This record revealed the existence of a significantly warmer-than-present period that began prior to AD 1000 and lasted to about AD 1300.

1.1a.1b.1a.1b In a similar study, Holmgren et al. (2001) derived a 3,000-year temperature record for South Africa that revealed several multi-century warm and cold periods.

1.1a.1b.1a.1b.1 They found a dramatic warming at approximately AD 900, when temperatures reached a level that was 2.5°C higher than that prevailing at the time of their analysis of the data.

[et cetera]

1.1a.1b.1b Research findings demonstrate that Antarctica has experienced such a Medieval Warm Period.

[...]

1.1a.1b.1c Research findings demonstrate that the Arctic has experienced such a Medieval Warm Period.

[...]

1.1a.1b.1d Research findings demonstrate that parts of Asia, including China, Russia and 'other Asia locations', have experienced such a Medieval Warm Period.

[...]

1.1a.1b.1e Research findings demonstrate that Europe has experienced such a Medieval Warm Period.

[...]

1.1a.1b.1f Research findings demonstrate that North America has experienced such a Medieval Warm Period.

[...]

1.1a.1b.1g Research findings demonstrate that South America has experienced such a Medieval Warm Period.

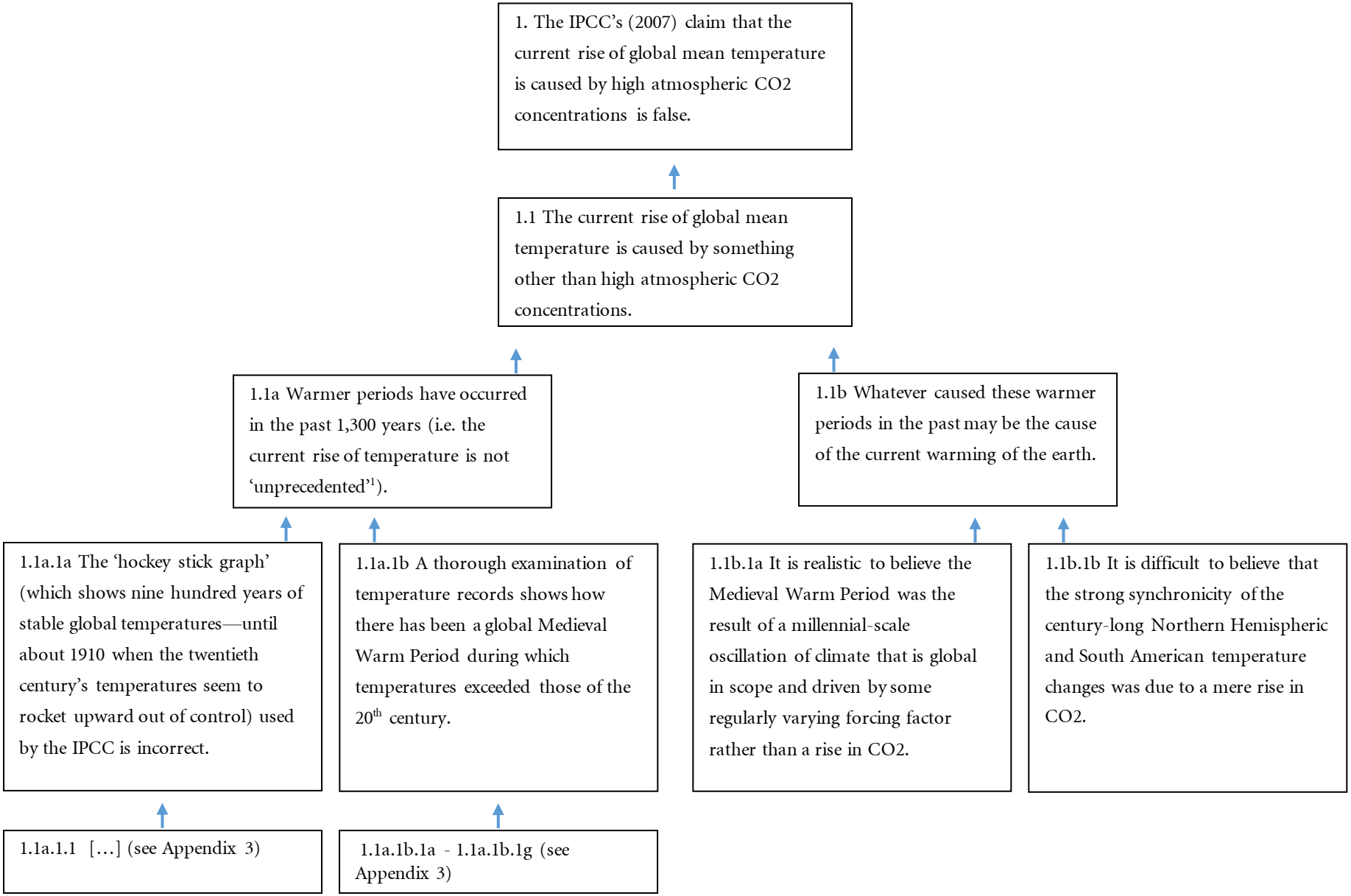
[...]

1.1b Whatever caused these warmer periods in the past may be the cause of the current warming of the earth

1.1b.1a It is realistic to believe the Medieval Warm Period was the result of a millennial-scale oscillation of climate that is global in scope and driven by some regularly varying forcing factor rather than a rise in CO2.

1.1b.1b It is difficult to believe that the strong synchronicity of the century-long Northern Hemispheric and South American temperature changes was due to a mere rise in CO2.[65]

[65] Arguments 1.1b.1a and 1.1b.1b are not further substantiated in CCR.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1.1a.1b A thorough examination of temperature records shows how there has been a global Medieval Warm Period during which temperatures exceeded those of the 20th century.
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1.1b.1b It is difficult to believe that the strong synchronicity of the century-long Northern Hemispheric and South American temperature changes was due to a mere rise in CO2.
1.1a.1.1 […] (see Appendix 3)
1.1a.1b.1a - 1.1a.1b.1g (see Appendix 3)