

The London School of Economics and Political
Science

*On the threshold: a social psychological study of
different standpoints in the climate change
debate*

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Declaration

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Abstract

Helm (2008) asked: 'Climate change policy: why has so little been achieved?' Cultural Theory (CT) has been used to analyse the debate over climate change, arguing that competing worldviews mandate divergent policy responses (Rayner & Malone 1998). CT's framework suggests the monolithic structure of the UNFCCC process fails to integrate these multiple worldviews, hindering effective action. This thesis uses a complementary framework, Fiske's (1992) Relational Model's Theory (RMT). Whereas CT analyses the debate at the societal level, RMT proposes a framework of individual social cognition comprising four models of social exchange: 'Equality Matching', based upon reciprocity; 'Communal Sharing', based on equal entitlement within a community; 'Authority Ranking', based upon established status; and 'Market Pricing', based on an external currency of merit. RMT implies that the relational models found in individual cognition should be mirrored in any debate at the societal and inter-personal levels. Content analyses of media articles and focus group interviews support the view that there are four coherent Standpoints matching these relational models in the debate. Survey respondents who believe in climate change used different models from those who did not, but survey evidence also gave support to the view that individuals use multiple models to reason over novel or contested issues such as climate change. CT explicitly argues that one of the four hypothesised worldviews, the 'fatalist', is not active in shaping policy. In contrast, these empirical studies suggest that the closest equivalent relational model, Equality Matching, generates the Commons Dilemma (Hardin, 1968) that actually drives much of the debate. The studies also raised new questions about the structure connecting the four relational models, or the worldviews. Lastly, the framework confirms it will be difficult to get concerted action before climate change impacts intensify, at which point social as well as climate thresholds will have been crossed.

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Abbreviations

AGW	Anthropogenic Global Warming
AR	Authority Ranking (one of the Relational Models)
BSAS	British Social Attitudes Survey
CFA	Confirmatory Factor Analysis
CS	Communal Sharing (one of the Relational Models)
CT	Cultural Theory
EFA	Exploratory Factor Analysis
EM	Equality Matching (one of the Relational Models)
ETS	(European Union) Emissions Trading System
GHG	Greenhouse Gas
IPCC	Intergovernmental Panel on Climate Change
MP	Market Pricing (one of the Relational Models)
RM	Relational Model
RMT	Relational Models Theory
SRT	Social Representations Theory
TEW	Thompson, Ellis and Wildavsky (1990)
TMS	Theory of Moral Sentiments (Smith, 2006)
UNFCCC	United Nations Framework Convention on Climate Change
WoN	An Inquiry into the Nature and Causes of the Wealth of Nations (Smith, 1993)

Chapter 1 Introduction

Chapter Outline

This chapter is divided into two parts. The first introduces the climate change debate and some of the ways social science has tried to analyse it. The second sets out the prevailing social psychological contribution to this analysis. Part 1 has four sections:

1. “*An emerging debate*” briefly outlines existing contributions made by the social sciences, and social psychology in particular, to the debate. Against this background the section identifies the theoretical framework adopted in this thesis.
2. “*Why study the psychology of the global warming debate?*” justifies the importance of the topic.
3. “*What is the debate about?*” outlines briefly the key scientific and policy questions addressed by the debate.
4. “*Making sense of the debate*” establishes how the theoretical framework adopted analyses the debate.

Part 2 of this chapter looks at the prevailing social psychological approach to the debate. This comprises an extensive literature addressing pro-environmental attitudes and behaviour, and other antecedents of such behaviour. This research has typically sought to enable policy both to make individuals more willing to engage in pro-environmental behaviour and to identify and remove contextual obstacles to such behaviour. Part 2 is divided into five sections:

5. “*Rationality in context*” describes the model of a rational actor maximising utility. Within attitude theory this model has gradually acquired hypothesised cognitive variables responsive to the specific context. A challenge to the rational actor model comes from the recognition that much decision making appears to be irrational.
6. “*Values and Rationality*” introduces more recent versions of the rational actor model. Many of these, especially those examining pro-environmental behaviour, have sought to incorporate deep-lying values into the actor’s cognitive processes. This prompts the question as to what form of cognition such values represent and where they come from.

7. *“Social psychological accounts of concern about climate change”* looks at the literature which specifically focuses on the challenge of climate change amongst other environmental concerns. This reveals a tension between approaches that seek to influence individual choices and those that look for more fundamental change in the social and physical context that individuals inhabit and make their choices in.
8. *“Values rationalised”* briefly discusses the way that the rational actor account makes sense of competing value systems.
9. *“Conclusion”* briefly explains how Chapter 2 explores these values that Chapter 1 finds lie at the heart of the debate.

1.1 An emerging debate

1.1.1 An urgent debate

Books on climate change have proliferated in recent years. Many proclaim urgency and also despair, with eschatological titles like ‘The Last Generation: How Nature Will take Her Revenge for Climate Change’ (Pearce, 2007) or ‘Requiem for a species: why we resist the truth about climate change’ (Hamilton, 2010). Other titles bemoan the hysteria, such as ‘Scared to death : from BSE to global warming - how scares are costing us the Earth’ (Booker & North, 2007), or strive for an aloof rationality: ‘An Appeal to Reason: A Cool Look at Global Warming’ (Lawson, 2008).

This thesis provides an account of the different standpoints taken in this debate. The subject is how this topic is debated rather than the issue itself. Although the intention is to contribute to the debate by improving understanding, formally, it analyses the debate rather than participates in it. To place this inquiry into context this first section looks at the emergence of the social science covering the debate before subsequently setting out the component questions that make up the debate itself in section 1.3. In Chapter 1 the ‘debate’ principally refers to the debate carried out in publicly accessible media or political and international arenas.

1.1.2 The role of the social sciences in the debate over climate change

“Climate change is... too important to be left to science or to economics” (Szerszynski & Urry, 2010, p3).

Szerszynski & Urry introduced a special issue of the journal “Theory, Culture and Society” by asserting that the wider social sciences ‘have been nowhere’ (ibid p3) in the debate over climate change. Yet the bibliographies to the assembled papers demonstrably contradict this claim. The failure is rather that the wider social sciences have had little influence on the debate. Instead, activists on both sides, such as James Lovelock and Bjorn Lomborg, who are able to project their academic qualifications as directly relevant, have joined economists like Nicholas Stern and meteorologists like James Hansen to define the social challenges posed by anthropogenic climate change.

Social scientists have described many of the elements of the emerging debate more than they have shaped the debate as a whole. The ‘Risk Society’ identified by Ulrich Beck (1992) could hardly have found a more perfect instantiation than the IPCC reports and the Stern Review. The inventories of greenhouse gases are the inevitable product of an audit culture’s determination to measure and account (O’Neill, 2002). The human consumption and production of material that drives our impact on the planet remains as central to sociological theorising as it was for Marx; the morality and meaning of such consumption continues to be contested by the heirs of Diogenes, Adam Smith, and Thorsten Veblen, whether they be mainstream social scientists (Kasser, 2002) or cultural interpreters like Jean Baudrillard (1998).

Many of the participants in the debate have had to face stinging criticism. The scientific community, in the shape of the highly bureaucratic IPCC, has had to acknowledge important mistakes, or in the shape of the Climate Research Unit at the University of East Anglia has been accused of obscuring the data and has had to submit its procedures to external review (Hulme et al., 2010; Nature Editorial, 2009a). Vested interests fighting to discredit climate science have engaged in shameful distortions and guerrilla tactics (Oreskes & Conway, 2008). Political leaders implementing the UNFCCC process stress the urgency of the issue and engage in uplifting rhetoric, but they have not delivered agreements that can be expected to achieve meaningful carbon emissions reductions (Environmental News Bulletin, 2009, 2010). Some will claim the glass is half full: for them initiatives such as the European Emissions Trading Scheme are successful first steps (Grubb et al., 2011). Yet key inputs to the economic models are driven by political and moral choices which have not yet been made. Dieter Helm (2008) was quite right to subtitle a recent paper ‘Why has so little been achieved?’: so little has. In

2011, his question could be reframed to ‘Why have we given up so quickly?’ In December 2009 the Economist’s front cover anticipated the UNFCCC COP 15 meeting in Copenhagen with the headline ‘Stopping Climate Change’ (Economist, 2009): in November 2010 their front cover anticipated COP 16 in Cancun with the front cover headline ‘How to live with climate change’ and a leader column utterly convinced by the science but just as convinced that the main policy focus should be how to adapt to changes we would fail to stop (Economist, 2010).

1.1.3 A moral and an economic debate

The public debate treats the issue as a moral and an economic one, with meteorologists and other natural scientists called as witnesses in the argument. The moral argument emerges from traditional concern over intemperance and goes on to generate a critique of excess human consumption, stressing human limits (e.g. Goldsmith et al., 1972; Meadows et al., 1972). Opponents rebel what they see as an attack on mainstream liberal economics and the political prioritisation of economic growth, emphasising in turn human possibilities (Maddox, 1972, Ch 7; Nordhaus & Shellenberger, 2007, Ch 9). Typically, economics addresses the problem as a cost benefit analysis (Nordhaus, 1991 sets out the terms of the debate). Recent economic literature defines itself in relation to the Stern Review (Stern, 2007), entitled “The Economics of Climate Change”, which sought to quantify the costs and benefits of the whole range of possible human responses to the threat of climate change. The moral debate suffuses the economic debate by arguing over what kind of sustainability represents an ethical economic goal (Neumayer, 2003, Ch 2) and whether policy should be directed at a wider notion of well-being than one measured in money, such as the UN Human Development Index (United Nations Development Programme & Leiserowitz, 2007, pp. 229-234). A brief review of the history of the climate change debate and some of this literature is given later in this chapter.

1.1.4 Social Psychological analysis of, and within, the debate

For social scientists, a key concern is how environmental concern translates, or does not translate, into pro-environmental behaviour (Jackson, 2005). Economists assume that concern is suppressed by the price signals that discourage pro-environmental behaviour, tracing the arguments back to Pigou’s analysis of public goods (Stern, 2007, Ch2). Social psychologists typically employ attitude theory to explore the links between concern and behaviour. In terms of advice to policy-

makers, it is this approach that represents the mainstream social psychological contribution (American Psychological Association, 2010, p. 64ff). The exploration of heuristics and biases can also be applied to individual behavioural change, especially with regard to discounting remote consequences (ibid. 2010, p. 24ff). The thrust of this research is to identify psychological or perceived practical barriers to individual behavioural change in order to give policy makers a chance to break those barriers down. This mainstream work concentrates on the individual level and relies on the psychological model of the rational actor. Social influences and norms operate as inputs to individual cognition. The economists' price signals represent another input to individual cognition. Attitude theory encourages the search for the most effective blend of economic incentives and social norms to bring about individual behavioural change, whether in energy efficiency (Hutton et al., 1985; Stern & Aronson, 1984) or recycling (Barr, 2007; Bratt, 1999; Vining & Ebreo, 1992) or composite measures of pro-environmental behaviour (Kaiser, Wolfing, & Fuhrer, 1999).

At the societal level, analysis can easily be seduced into framing the issue of climate change solely as a critique of capitalism and the market economy. These can come from the far left (Neale, 2008), but Stern's own diagnosis of climate change as the "greatest and widest-ranging market failure ever seen" also falls into this category (Stern, 2006, p.1). The most influential social psychological analysis of the climate change debate conducted at the societal level is Cultural Theory ("CT"). Developed out of the anthropological work of Mary Douglas, CT has been used to provide a comprehensive analysis of the policy frameworks available to societies wanting to address the challenge of climate change (Rayner & Malone, 1998). Proponents continue to use the theory's approach to mount a critique of climate change policy (Prins & Rayner, 2007b) as well as to provide advice to the UK government (Rayner, 2004). The core thesis is that a limited number of 'worldviews' (something akin to ideologies) serve to shape a society's responses to risks and opportunities (Thompson & Rayner, 1998). Further, successful policy must respond to the values implied by each of the different worldviews in order to maximise the buy-in of society's members.

Cultural theory is regularly criticised for being circular (Jackson, Allum, & Gaskell, 2004) and both muddled and tautologous (Boholm, 1996). Even its supporters acknowledge it lacks empirical support (Rayner, 1992) and it is noticeable that many of Rayner's recent contributions advocate CT's pluralism while eschewing

detailed reference to the theory itself (Pielke et al., 2007; Prins & Rayner, 2007b; Rayner, 2004). Yet the broad claims CT makes clearly have resonance: Douglas's account of risk fits comfortably into social constructionist accounts of risk even though these rarely pay much attention to the detailed framework that CT hypothesises (e.g. Carvalho & Burgess, 2005) . More recently, the leading, and highly influential, UK climate scientist Mike Hulme (2009) published a widely discussed (Kitcher, 2010) examination of the debate which explicitly relies on Cultural Theory. In summary, CT has contributed to the debate in very general sociological terms, but the detailed social psychological mechanisms hypothesised by the theory (most thoroughly reviewed in Thompson, et al., 1990) remain marginalised.

1.1.5 The analysis put forward by this thesis

Reflecting the issues identified above, this thesis:

1. Follows the social science path of providing a description of the debate
2. Proposes an alternative to CT's analysis by linking individual and societal arguments over climate change
3. In doing so provides one answer to Helm's question, "Why has so little been achieved?"

The heart of the thesis is the proposed alternative to CT's analysis, which draws upon Alan Fiske's Relational Models Theory ("RMT"). RMT has close similarities to Cultural Theory as Fiske (1992) himself recognised at the outset. Both theories propose a 4-way taxonomy for categorising social relations and insist that the taxonomy is comprehensive. A key difference is that RMT provides an account of individual cognition of social relationships: the theory draws strength from many parallels in classic theories of societal dynamics (Fiske, 1992) but to date it has been applied to individual level phenomena, including psychopathologies, as well as to organisational psychology (Haslam, 2004). It has not been applied to societal phenomena such as the climate change debate.

This thesis applies RMT's taxonomy to the climate change debate in the way that previously cultural theorists applied CT's taxonomy. This approach highlights the powerful role of one of Fiske's Relational Models, that of 'Equality Matching', in generating the so called 'Commons Dilemma' (Hardin, 1968) that lies at the heart of the challenge posed by climate change.

The above outline highlights the thesis' intention to synthesise some explanations that have been applied at the individual level and some previously applied at the social level. Chapter 3 discusses the challenges raised by combining different levels of explanation.

1.1.6 Scope of this thesis

The thesis analyses the climate change debate taking place within the UK. The issue is global, and material is drawn from elsewhere, but no attempt is made to provide a comprehensive or comparative account of the debate outside the UK.

1.2 Why study the psychology of the global warming debate?

Average temperatures on Earth have risen by 0.7° in the last 100 years (IPCC, 2007, p. 5). They are forecast to rise by a further 2-3° by 2100, and there are fears of higher rises beyond that date (Stern, 2007, pp. 67-68). Temperature rises in excess of 5° are predicted to have potentially 'catastrophic' consequences (Stern, 2007, pp. 67-68, 98), while others think that rises above 2° will be catastrophic (Hansen et al., 2007; McGuire, 2008, Chs 1-2). The principal cause of this warming is 'very likely' to be human behaviour, mainly the economic activities of energy consumption and agriculture and the consequent emission of Greenhouse Gases ("GHGs") such as CO₂ (IPCC, 2007, pp. 2-4). These conclusions have not gone unchallenged. Contrary views play a prominent role in the debate analysed in this thesis. However, careful reviews of the scientific literature testify to an overwhelming consensus position on the science (Oreskes, 2004; Oreskes & Conway, 2008). Recently, papers by the National Research Council (2010) in the US and the Royal Society (2010) in the UK have reaffirmed the central conclusions concerning the level of past warming, its probable causes, and the likely level of future warming.

The climate system is extremely complex. Feedback effects may lead to abrupt climate change, such as the switching off of the gulfstream. Judged unlikely before 2100 (IPCC, 2007, p.818) such processes are very difficult to predict, but they do remind us that in the long term the Earth as a whole, together with everything on it, will determine the course and consequences of global warming. Human activity is merely a part of that whole, acting within a world that responds in accordance with its own physical laws. In the shorter term however, certainly for the next century, it is fair to argue that human behaviour will determine the

progress of global warming (Falkowski et al., 2000; Steffen, 2010; Vitousek et al., 1997). Inevitably humans are also focussed on the impact of global warming on human beings and how humans should adapt to resultant changes. As local climatic conditions change, one of the principal effects of higher level warming will be human mass migration (Stern, 2008b, p. 8), an anthropocentric fear born of an anthropogenic problem. “[Climate change] starts with people and it ends with people” (Stern quoted in Kavalski, 2008, p. 437).

Human nature will therefore be the major determinant of the course of global warming over the next century. Humanity can reduce its activities; has opportunities to develop technological alternatives that maintain or grow activity levels but with lower consequent global temperature rises; or humanity can pursue a business as usual path very likely to generate severe temperature rises, and possibly attempt geo-engineering solutions to mitigate those rises. Different views of human nature will yield different answers to the question of whether humanity has a free choice as to which path it pursues, but human nature will be a principal determinant of the outcome. It follows that policy makers must anticipate how humans think about and respond to the challenge of climate change, and not merely instantiate in their own actions these ways of thinking and responding. Study of the psychology underlying the debate can contribute to making policy more effective.

1.3 What is the debate about?

There are a number of questions central to the debate:

1. Is the world getting warmer?
2. Is this warming anthropogenic?
3. (a) What are the possible consequences of the warming? (b) Are these a problem?
4. (a) Should we try to stop it? (b) Can we stop it?
5. What are the best policies for stopping it?
6. How do we share the burden of stopping it?

Given the possible consequences, the debate inevitably raises questions like ‘Whose fault is it?’ as well, but for the purposes of this summary that question can be treated within 2 and 6.

Appendix A provides a timeline of key events and publications in the development of the debate.

1.3.1 Questions 1&2

1. *Is the world getting warmer?*
2. *Is this warming anthropogenic?*

Section 2 above sets out the consensus answer to these two questions. Scientists started to link global warming to atmospheric CO₂ in the 19th century, and in the early 20th century suggested that the CO₂ produced by human industrial activity might cause increases in global temperature (Fleming, 1998 Ch 6). These hypotheses became warnings which eventually grew to reach public attention, perhaps most notably with James Hansen's testimony to the US Senate in June 1988 (Mazur & Lee, 1993). Public concern generated calls for something to be done. In due course the first IPCC report in 1990 led, via the 1992 Earth summit in Rio de Janeiro, to the establishment of the UNFCCC in 1994 (IPCC, 2004).

Since the theory of anthropogenic global warming ("AGW") was first proposed over 100 years ago, subsequent temperature data have vindicated the hypothesis. The neat simplicity of this 'experimental proof' feels particularly persuasive (Henson, 2006; King, 2005). The continuing accumulation of data resulted in the IPCC upgrading their conclusion in the most recent 2007 assessment that recent global warming was anthropogenic from 'likely' to 'very likely'. This probabilistic language does not help public understanding but the IPCC's conclusion is the definitive statement of a scientific consensus regarding questions (1) and (2).

However, the consensus conclusion has been and still is disputed to great effect by a vociferous scientific minority. These "deniers" are even eulogised in a book subtitled "The world-renowned scientists who stood up against global warming hysteria, political persuasion and fraud" (Solomon, 2008). The deniers are also successful: a 2008 UK survey showed 60% agreeing with the statement "Many scientific experts still question if humans are contributing to climate change" and only 41% disagreed with the statement "I sometimes think climate change might not be as bad as people say", (Ipsos-Mori, 2008) whilst the 'Climategate' leaked email scandal also achieved the presumed objective of the hackers in reducing

public trust (Lieserowitz et al., 2011)¹. There are four main thrusts to the sceptic case:

- a) attacks on the data,
- b) alternative explanations for the data,
- c) certainty and uncertainty
- d) generalised dismissal of the consensus position as wrong-headed.

There are many valid criticisms and debates to be had over the data: reconstructing temperature records from proxies such as tree rings and CO₂ concentrations from ice cores present many technical and interpretative challenges (Oreskes, Shrader-Frechette, & Belitz, 1994). Even the validity of modern temperature records has to be examined as formerly rural weather stations are swallowed up by urban development (IPCC, 2007, pp243-5). Other explanations for the data, principally variations in solar activity or in cloud formation, have not been disproven, merely shown to be unlikely to account for all of the observed warming: this feeds the third strand, which challenges suggestions that there is certainty, or consensus, over the science. Finally, many sceptics and critics draw strength from a conviction that history shows how humans have too often been prey to alarmists: the hard headed, truly scientific approach, is to remain sceptical while there is doubt.

A good case can be made for the opposite view, that climate change will actually be much worse than ‘people say’. Sociologist Brian Wynne argues that the scientific practice and institutional culture of the IPCC inevitably leads to a probable understatement of the risks (Wynne, 2010). The public debate can only reinforce this, with the scientific community cowed by the ‘Climategate’ scandal that claimed to catch scientists overstating their evidence. The Royal Society report of 2010 is touted as a climb down by sceptics (O’Sullivan, 2010) after prominent members of the society claimed that earlier papers had understated the uncertainties and presented an excessively ‘alarmist’ assessment (Royal Society, 2010).

Leading scientists who break away from the consensus position to sound the alarm much louder, such as James Lovelock (2006) or James Hansen (Brumfiel, 2008),

¹ In late 2009 leaked emails suggested that climate change scientists had knowingly overstated the case for anthropogenic global warming (Nature Editorial, 2009a).

are cast in the role of activist. The scientific propriety of their stance itself then becomes a topic for debate (Sarewitz, 2010).

In spite of the consensus on the overall trend, the science of global warming, and in particular the linkages through to specific consequences, is hugely uncertain (Schiermeier, 2007, 2010). Unfortunately, the status of science has encouraged the public to expect certainty: the IPCC process itself tends to promise greater certainty from still more studies, when there will always be plenty of uncertainty remaining (Wynne, 2010). As a result, in terms of public opinion, the scientific data often seems to be little more than a rhetorical football.

1.3.2 Question 3, pt1

(a) *What are the possible consequences of the warming?*

(b) *Are these a problem?*

General consequences, i.e. consequential climate change

Public understanding of the possible consequences of global warming is still more confused. Scientific and governmental reports describe predicted temperature increases both globally and in defined locations in the form of ranges qualified by probabilities. The public seeks to process predictions as if these were certain facts. A report issued by the Hadley Centre (2005) suggesting possible *seasonal peak* temperature increases of 11° was summarised in one newspaper as follows: “The world is likely to heat up by an average of 11°C by the end of the century..... far higher than the 2°C previously forecast” (Metro, 2005).

The same newspaper article succinctly summarises what the public understands to be the consequences of rising temperatures: “Such a rise... would see Britain endure tropical temperatures, flooding and devastating drought. It would change the weather patterns of the world, melt the polar ice caps and warm the oceans, causing a surge in sea levels threatening the lives of billions of people.” This public expectation of rapid melting and imminent inundation is not congruent with the IPCC prediction of 21st century sea level rises in the range 0.2 to 0.5m (IPCC, 2007, p.810)⁴. The melting of the Greenland ice sheet will occur if global temperatures rise by 3° but it will take at least 1,000 years for sea levels to rise by 7m as a result (Gregory, Huybrechts, & Raper, 2004), although Hansen (2007) argues for faster timescales.

Whether these consequences are a problem is debated. Bjorn Lomborg (2001, 2007) is perhaps the most prominent of those denying that these consequences present a severe problem. He argues that the consequences are not as bad as suggested, for example fewer cold periods will deliver greater benefits than the harms caused by increased heat waves. However, his principal argument is one of priorities: the consequences of global warming simply are not as important as those of more immediate threats such as malaria and poverty. On the other hand Stern has no doubts that a disruption to the world we are used to will have grave consequences (e.g. Stern, 2007, p. 25). Necessarily these two analyses go hand in hand with different policy philosophies: for the first, there has always been change and man has always adapted, usually prospering still more as a result; e.g. Lawson (2008 Ch 2-3) and Lomborg on the Maldives (2007, pp. 91-93). For the second the threat is serious and significant effort and resources should be committed to mitigating or preventing the threat (Stern, 2007, p. 649ff).

1.3.3 Question 3, pt2

(a) *What are the possible consequences of the warming?*

(b) *Are these a problem?*

More specific consequences - extreme weather events

Inevitably, certainty as to the extent and timing of the global consequences of predicted warming is less than certainty as to the level of warming itself. Certainty as to specific local consequences is even lower (Schiermeier, 2010). This is reflected in the debate over whether past extreme weather events, such as Hurricane Katrina or the European heat wave of 2003, are attributable to global warming (IPCC, 2007, pp. 308-312), and continued in the same question for more recent occurrences (Easton, 2009). These events are often taken as iconic evidence of AGW at work (e.g. Brown, 2003; Buncombe, 2005; Henderson, 2005; Hope, 2003). The IPCC will only go as far as to say that it is 'more likely than not' that there has been a human contribution to an increasing trend in droughts, higher precipitation events and intense tropical cyclone activity (IPCC, 2007, p. 52) The assessment takes pains to point out the great difficulty in linking specific individual events to AGW (IPCC, 2007, p. 53).

For the public, concrete specific events make an issue meaningful. The hot temperatures in the US summer of 1988 made early discussions of AGW resonate (Mazur & Lee, 1993). Recent cold snaps provoke humorous doubt over whether

global warming is really happening (Leake, 2009) or may be taken as further proof that it is not (Booker, 2009). Inevitably, the confusion over how to account for past events only deepens the uncertainty as to what the concrete future consequences of global warming might be.

1.3.4 Questions 4 & 5

4. (a) *Should we try to stop global warming?* (b) *Can we stop it?*
5. *What are the best policies for stopping it?*

Calls for something to be done have resulted in steps being taken. At the global level the UNFCCC created the Kyoto Protocol (United Nations, 1998) and the Copenhagen 'Accord' (Environmental News Bulletin, 2009). At the regional level the EU established the Emissions Trading System ('ETS', European Commission, 2008b), while at the UK national level governments are seeking to encourage energy efficiency and the installation of wind farms and other renewable sources (Committee on Climate Change, 2008). At the individual level, numerous websites provide tips on how individuals can cut their personal carbon footprint (e.g. www.direct.gov.uk/actonco2, www.liveneutral.org). The approach adopted here necessarily assumes that (at least some) individuals have a moral motivation to be frugal in their energy use of their own free will. Tax instruments, such as the Climate Change Levy, Fuel Duties and Air Passenger Duty, have also been used in the UK. The logic of tax instruments, as well as emissions trading schemes, is to raise the price of carbon, expecting this to promote efficiency, lower absolute consumption and encourage the development of non-carbon energy alternatives.

The Kyoto protocol necessitates costly investments and is widely criticised from diverse quarters. There are more pressing problems and better ways to spend the money (Lomborg, 2001, 2006); the measures will achieve nothing because of the impact of increasing emissions in the developing world (Booker & North, 2007 Ch 14, esp p. 389); adaptation is much better than mitigation (Lawson, 2008 Ch 3). Alternatively, focus on Kyoto's unachievable targets inhibits useful action by concentrating on the targets themselves (Victor, 2004 Ch 1) rather than on the need for high tech investments (Nordhaus & Shellenberger, 2007, pp. 113-115); the targets are nowhere near aggressive enough (McGuire, 2008, pp. 220-223; Monbiot, 2007, p. 48); the difficulties in achieving, let alone implementing, the global multi-party agreements needed to create a carbon market from a 'cold start' are just too great (Victor, 2004 Ch 2). The ETS has also faced criticism,

even from the UK government (EAC, 2007b, p. 22). While policymakers spend all this energy on global agreements, typically they treat individual efforts to cut personal carbon footprints as a laudable sideshow (Blair, 2006). The Stern Review (2007, pp. 448-452) gives individual preferences greater status in writing, but Stern himself can be candid when speaking: “this [issue] doesn’t have to turn on everybody changing lifestyles, and [I’m] making the politically pragmatic point that if it did we’d lose [the argument]” (Stern, 2008a).

At their heart the policy options have to engage with questions of sustainability. Can mankind’s economic activity and the concomitant consumption of natural resources be sustained at current levels or not?

1.3.5 Sustainability

The economic debate over global warming has emerged within the framework of arguments over sustainable development. The sustainable development described by the Brundtland Commission promises a reconciliation of conflicting goals: short term economic growth to enable human development for the present generation, together with the long term replenishment and sustenance of the resources that will be needed to provide human development to future generations (World Commission on Environment and Development. & Brundtland, 1987). Neoclassical economics repudiates the idea that these goals are in conflict, arguing that growth today generates the resources for tomorrow’s generations to manage their environment (Beckerman, 1995 Introduction). At its heart, belief in the need for sustainable development depends upon the deductive logic of Malthus (1798): at some point finite resources must be exhausted by growing demand. Neoclassical economics instead relies upon the empirical evidence that human ingenuity has so far adapted and successfully expanded resources and resource availability (Beckerman, 1995 Ch 4; Singer, 2006). Using inductive logic, the best assumption is that it will continue to do so. The past errors of the Cassandras mean we must dismiss their fears as alarmist. More broadly, this confidence in human progress emphasises the many material and health advantages enjoyed by many people today, and sees alarmism as threatening such continued progress and the delivery of those same advantages to the developing world (Durkin, 2007; Gardner, 2008, Ch. 12; Goklany, 2009).

Neither argument can be falsified (Neumayer, 2003 Ch 3). That the Cassandras have been wrong so far certainly does not mean that Malthus’ finite resources

argument is erroneous: the Greeks did sack Troy. That mankind does not have the technological capacity today to sustain 9bn people long term does not mean that solar energy and mediating technologies cannot make this possible. Some argue that mankind will inevitably find the energy it needs (Huber & Mills, 2006, p.181). Arithmetic can just as easily show that we 'only' need to cover 0.3% of the Sahara with solar cells to source all of Europe's electricity needs (Jha, 2008). Others argue that we will have no difficulty feeding a world population of 9bn, the issue will be to manage the environmental consequences (Nature Editorial, 2010). Malthus' predictions have been undone by successive agricultural revolutions and so far the world has fed itself, at least in the sense of supporting continuing human population growth.

To opponents, this unfalsifiability makes each position vacuous. Of course Malthus' theory is arithmetically correct, but the consequences of this, in the form of changes in population and consumption, will in themselves be a form of adaptation. Of course mankind will have found the amount of energy it actually uses, but this may have entailed radically adapting its needs in order to need, and use, less energy. One reason for this vacuity is the slippery distinction between precautionary mitigation and adaptation. Reducing fossil fuel consumption (usually called mitigation) can easily be described as an adaptation forced by increased atmospheric CO₂ concentrations: building flood defences (usually called adaptation) is a mitigation of increasing future flood risks. Looking forward to an uncertain future, precautionary steps typically mitigate risk. Looking back, steps taken were typically adaptations to the changing environment.

The important question is whether hindsight will judge that (1) the environment forced this adaptation painfully onto mankind, whether expressed as the nihilistic interpretation epitomised by Gray (2006) or the apocalyptic vision of Lovelock (2006); or (2) that humanity anticipated the threats and successfully managed a path to a less materially intensive form of economic growth, the interpretation anticipated by Huber and Mills (2006); or (3) a further alternative scenario sees the abandonment of economic growth as the focus of economic policy, replaced by a sustainable equilibrium level of economic activity (these are three of the alternatives represented by Jim Dator's four visions of the future, the final 'vision', (4), being a do-nothing response hoping for continued growth without radical technological or social transformations (Turney, 2010, p. 70). Clearly many who fear version 1 (catastrophe) instinctively look for the prescriptions of

version 3 (abandoning growth): believers in version 2 (re-engineered growth) may well pursue policies closer to version 4 (doing nothing). While the Malthusian pessimists and classical economics optimists clearly anticipate a different future, neither can demonstrate that the other is logically wrong in its predictions.

Much of the argument can be distilled into an equation:

$$I = PAT.$$

Environmental impact equals Population x level of Affluence x Technology of production (Ehrlich, Holdren, & Commoner, 1972). This forces the debate into an argument over which of the three right hand variables society has to reduce, unless we simply adapt to whatever 'Impact' arises. What is often neglected is that 'P', 'A' and 'T' are all part of the environment that is impacted - reduction in any one or all of them may happen irrespective of deliberate human efforts to reduce 'I'.

1.3.6 Question 6

How do we share the burden of stopping global warming?

In addition to complaints that the Kyoto protocol will not work, the treaty is also criticised as unfair. The differentiation between developed and developing world was used to justify the USA's refusal to sign (Sachs, 2008, pp. 108-109): on this argument the proposals are unfair on developed countries. On the opposing side, that of developing countries, campaigners look for much more aggressive 'convergence' in per capita emissions (McGuire, 2008, pp. 223-225). The Stern Review describes the effects of climate change as 'global, intertemporal and highly inequitable' (Stern, 2007, p. 31). The developed world has emitted the majority of past man-made greenhouse gases ('GHG's) and continues to emit much higher GHGs per capita than the developing world. However, the developing world will experience proportionately more severe consequences from AGW. In addition, these consequences will be borne by future generations. If action is not taken now they will be bequeathed both a higher stock of CO₂ in the atmosphere and infrastructure committing them to ongoing high emissions. These arguments, emphasising the obligation of present generations towards the future, are central to the philosophy of sustainability (above).

A contrary view holds that future generations will be wealthier and more technologically advanced, and so much better able to resolve and adapt to environmental problems that might arise in future from present actions. This view also assumes that the best way for developed nations to help developing nations is to speed up their economic growth, facilitating their ability to fend for themselves (Beckerman, 2003 esp Ch 7; Lawson, 2008 Ch 7) and emancipating their people (Ridley, 2010).

1.3.7 Fairness and Responsibility

Beyond the questions of whether AGW is real and if so what should be done about it lies the question of *who* should do what about it (Question 6 above). Sustainability raises the issue of intertemporal equity, whether this generation has obligations to the next. Policymaking today tends to be more pressed by questions of equity between developed and developing nations, rich and poor. The issue raises the other side of inter-temporal equity: who bears responsibility for past emissions? Developed countries such as the UK rather priggishly boast of their obligation to show leadership (EAC, 2007a, p. 3): this follows the recognition that developed countries have contributed much more to historic GHG emissions and currently emit far more per capita than lesser developed nations (United Nations Development Programme & Leiserowitz, 2007, pp. 40-43). Official documents emphasise the need for all nations to play their part (e.g. European Commission, 2008a, pp. 16-17) but developed countries are inhibited from lecturing developing countries.

The world's atmosphere is a common good. We all benefit from it, irrespective of who looks after it. In the long term we will all suffer losses if atmospheric CO₂ rises to concentration levels that engender dangerous global warming. In the short term poorer nations such as Bangladesh are likely to suffer greater negative consequences from AGW (Stern, 2007, pp. 65, 99), an example of the inequity described by the Stern Review.

Hardin (1968) described the social dilemma created by common goods as "The Tragedy of the Commons". A collection of self-interested actors all using a common good will be motivated to exhaust the capacity of the common good. An extensive literature has grown since Hardin's original article (Kennedy, 2003). This spans many of the social sciences, e.g. looking at the evolution of altruism, analysing pay-off matrices for different responses to social dilemmas, often

building on the tradition of the prisoner's dilemma in game theory, (Axelrod & Hamilton, 1981) while social psychologists have experimented with the social and contextual variables influencing responses to dilemmas (Dietz et al., 2002; Kopelman, Weber, & Messick, 2002). In the UK, the centrality of Hardin's formulation to the debate is evidenced by one word: "China" (e.g. Wilson, 2007). It makes no sense for the UK to 'go it alone' and cut emissions for the global good when China's fossil fuel CO₂ emissions increase each year by 80% of the UK annual total (using figures for 2000 to 2005 from Marland, Boden, & Andres, 2008), an argument referred to below as the 'China syndrome'. In the US this desire for fairness provoked great concern that steps to mitigate global warming would put the US at a competitive disadvantage against Asian economies. So much so that the US Senate legislated to enshrine the principle of not signing up to emissions treaties that differentiated between the developing and developed world (United States Senate, 1997).

Fairness and responsibility have always been central to environmental debate. 'Nimbyism', the tendency to object to any new development close to one's own residence, expresses an emotional judgement that it is not fair that 'we' are the ones putting up with an unpleasant or dangerous facility, or indeed any new development, in 'our' area. The 'Polluter Pays Principle' asserts that the fair attribution of responsibility for cleaning up pollution is for everyone to clean up their own mess. The China syndrome says that it is not fair, as well as being pointless, for developed nations to cut their emissions if China does nothing: if it is a shared problem, there have to be shared solutions.

1.3.8 An argument about science or ideology?

Ostensibly the debate about the science (Questions 1, 2 and 3(a)) is about questions of fact. The remaining questions (3 (b), 4, 5 and 6) are questions of both fact and value combining analysis and choice. Rationally, the scientific assessment might be expected to inform the choices. In practice, it seems that for many people their policy preferences come first and their understanding of the science is driven by a desire for the science to justify their policy preference, to provide a consistent picture. The result is a debate filled with accusations of irrationality - 'green' is the new religion (Lawson, 2008 Ch 8) versus myth-peddling faith in a "pro-carbon crusade" (Hari, 2005, 2007).

1.4 Making sense of the debate

This thesis will provide a description of the debate that maps many of these arguments onto different models of categorising social relationships and different conceptions of fairness embedded in those models. Relational Models Theory (RMT) offers a taxonomy of social relationships which is used here to analyse the arguments put forward by the different participants in the climate change debate. Underlying the different models proposed by RMT are different principles of justice (Fiske, 1992). RMT built on the taxonomy of justice suggested by Deutsch (1985) who argued that these different principles are irreducible to each other: hence the experience in the climate change debates that opponents are as impervious to reason as religious fundamentalists. For Deutsch the solution to this irreducibility is to redefine the situation so that a different framing of the problem - and a different principle of justice - can be applied. Only then can entrenched positions be reconciled². Exploration of the challenge of reconciling competing principles and traditions of justice is not confined to social psychology, but can be found in sociology (Boltanski & Thévenot, 2006) and philosophy (MacIntyre, 1988): both suggest, like Deutsch, that the different principles are incommensurable but often co-existent (Boltanski & Thévenot, 2006 Ch. 7; MacIntyre, 1988, Ch. XX).

This coexistence forces competing positions to be developed and framed as if in an argument with an opposing position (Billig, 1987; Boltanski & Thévenot, 2006 p.47). MacIntyre (1988, p.10) sums this up: “[Of the four traditions] each has entered into relationships of antagonism or of alliance and even synthesis, or of both successively, with at least one of the others”. This interaction and combination inevitably challenges this thesis’ proposal to disentangle the competing models. However, once the co-existence of these competing standpoints is acknowledged important implications for policy-making follow. Policy needs to be shown to meet the requirements of each of the different principles. Otherwise adherents to a standpoint not satisfied by policy proposals will ridicule particular implications of the policies or abuse them as immoral or contrary to voters’ interests. UK citizens, for example, will have to believe that it is fair for them to shoulder additional energy costs before developing countries do, and also that it is in their long term interests. Unfortunately they do not believe this is in their interest, and citizen action falls well short of citizens’

² Deutsch’s (1985) different justice principles are included in Appendix C.

concern (Ipsos-Mori, 2007; Retallack, Lawrence, & Lockwood, 2007). Although the public demand leadership, this gap between concern and action discourages leaders from decisive action. Indeed, fears of popular revolt against 'green' taxes are justified by the experience of the 2000 fuel protests (Porritt, 2008a). As a result policy-makers resort to indirect methods such as the EU Emissions Trading Scheme. The scheme will only bite slowly on consumers and only indirectly through the utility companies as intermediaries.

Public conception of policy options, however, seems to be restricted to individual voluntary efforts, taxation and government regulation: surveys typically do not even ask about the carbon markets policy-makers consider central to global solutions to the problem (Eurobarometer, 2008; Ipsos-Mori, 2007). In spite of this restricted view of policy options, citizens want to see something done to tackle the global challenge; they expect their leaders to take the responsibility to lead, and they want policies to be fair (Ipsos-Mori, 2007; Retallack, et al., 2007).

So what would be fair? This question is often reframed to be closer to 'What would be sensible?' The next sections of this chapter outline the mainstream social psychological analysis of how individuals, and society, establishes what is sensible.

1.5 Rationality in context

1.5.1 Rational actors maximising utility

Deutsch's taxonomy of justice proposes plural rationalities, each suitable to different situations or contexts (Deutsch, 1985, pp. 38-45). Much of the social psychological literature on environmental issues focuses on individual decision-making and proposes a single rationality experiencing different inputs. Inputs include individual attitudinal variables and contextual variables. The central character of this literature is the rational, self-determining inhabitant of the world of classical economics. The single rationality is one of maximising utility. In this world individuals make decisions based on the information available to them after weighing up the relative utilities of competing courses of action (Jackson, 2005 Ch 4).

Whilst this model has long been criticised for being too simplistic (Simon, 1955), it nevertheless provides the foundation for many models of individual decision-making. The deciding individual is modelled as an information processor analysing

utilities. Competing versions can offer alternative structures for the processor; they can debate what kinds of information are relevant to decision making, and they can offer alternative accounts for how a currency of values is established by which utilities can be measured; but the model is still one of inputs to a processor that outputs either an intention to behave in a certain way or the behaviour itself, even as the input variables multiply (for example there are seven input variables in Perugini & Bagozzi's (2001) Model of Goal-Directed Behaviour). The key objective of research of this kind is to facilitate policies that will change individual behaviour by identifying input variables that could be changed by policy. This leads to public information campaigns and debates over how to alter the normative environment or social context (McKenzie-Mohr, 2000) or consideration over how variations in the physical context affect behaviour (e.g. Tanner, Kaiser, & Wolfing Kast, 2004).

Attitude theory as a rationality model

Researchers often illustrate their models of the cognitive processor with flowcharts to illustrate the processor, at the heart of which is:

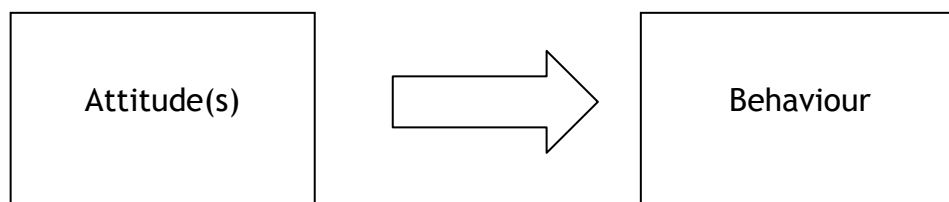


Figure 1-1: Attitude Behaviour Model

Many of the citations below include such flowcharts. Ajzen & Fishbein (1973) concluded that for attitudes to be predictive of behaviour, specific attitudes had to be relevant to specific behaviour. This conclusion led to a gradual accretion of specific situational variables as perceived by the individual decision-maker. Ajzen & Fishbein's Theory of Reasoned Action, "TRA", (1980) added 'subjective normative beliefs' to capture the influence upon decision-makers of their beliefs about what others thought about them behaving in that way. Ajzen & Madden's (1986) Theory of Planned Behaviour, "TPB" added 'perceived behavioural control' to encompass the decision-maker's perception of external constraints upon his/her accomplishing some intended objective. All of these developments anchor the relevance of an individual holding an attitude to an increasingly specific context.

The need for 'perceived behavioural control' is found in the Commons Dilemma. Here individual self-restraint (reduced material consumption) is felt to be pointless if others do not similarly restrain themselves: the individual feels they have no control over their objective because of the relative insignificance of their actions. This is a recurrent theme in individual surveys (Christie & Jarvis, 2001) as well as the public discourse of the China syndrome referred to above. This thesis will stress how the need for fairness creates the Commons Dilemma; but the fact that it is rational from a utilitarian point of view to conclude that there is no point acting alone as an individual is also core to the problem. It is possible to provide informative analyses of the dilemma both from a Relational Models perspective and from a rational actor perspective.

1.5.2 Irrationality, or a 'deficit' model of rationality

The problem with this model of the rational actor is that it is so obviously not representative of our everyday experience of individual decision-making (Simon, 1986 provides a succinct critique). Portraying each decision as carefully weighed up ignores heuristic judgement, biases, habits and emotional responses. Each of these additional elements has been welded into variants of processor models: heuristics, e.g. by Eagly and Chaiken (1993 Ch 7) and biases (Tversky & Kahneman, 1982b), habit, e.g. by Triandis or Bagozzi, (Jackson, 2005 Ch 10) and affective responses acknowledged by most theorists to a greater or lesser extent. Much subsequent literature approaches the topic by analysing how human decision-making deviates from pure rationality, essentially a deficit model. This is perhaps best illustrated by two standard reference collections of papers (Arkes & Hammond, 1986; Kahneman, Slovic, & Tversky, 1982). An important criticism of this 'deficit' model of rationality is that it tends to ignore the frequent practical advantages of 'irrational' cognition (Cosmides & Tooby, 1994; Gigerenzer, 2008)³.

Many formulations like TRA or TPB include socially derived influences upon individual decision-making. However, the foundational motivation of self-interest almost by definition prevents a satisfactory examination of 'pure' altruism. Indeed, some theories explicitly propose that altruism could be, ultimately, egotistic, enabling 'the purchase of moral satisfaction' (Kahneman & Knetsch,

³ Kahneman (Kahneman, 2011) vigorously rejects this criticism but it is hard to avoid reading his work as idealising rational deliberation while accepting the practical necessity of heuristic responses.

1992). The next section examines one attempt to integrate socially derived motivations into the rational actor model.

1.6 Values and Rationality

1.6.1 Altruism and individual decision-making. Stern's VBN theory

Concluding that unselfish acts must, ultimately, be selfishly motivated contradicts our intuitive sense that some actions are purely altruistic in motivation. Schwartz (1977) aimed to address this with a theory of norm activation. In this model the individual possesses a personal norm, a sense of moral obligation towards others, which is activated by individuals' awareness that their actions might have consequences for others and the degree to which individuals perceive themselves to be responsible for those consequences.

Paul Stern (1978) set himself a challenge "to identify, within each society, commonly held values which are consistent with the maintenance of common resources for the future" (p156). His own response was to expand on Schwartz' model (Stern, Dietz, & Black, 1986) until arriving at a detailed theory of environmentally motivated behaviour (Stern, 2000b; Stern et al., 1999), the 'Value-Belief-Norm' theory (VBN). This model proposed three distinct spheres of core values: biospheric, or concern about nature, altruistic, or concern for other people, and egoistic, or self-interest. The theory proposes a "causal chain [which] moves from relatively stable, central elements of personality and belief structure [ie the core values] to more focussed beliefs about human-environment relations, their consequences, and the individual's responsibility for taking corrective action" (Stern, 2000b, p. 413). A flowchart illustration of VBN theory, taken from Stern (2000b, p. 412) is shown below:

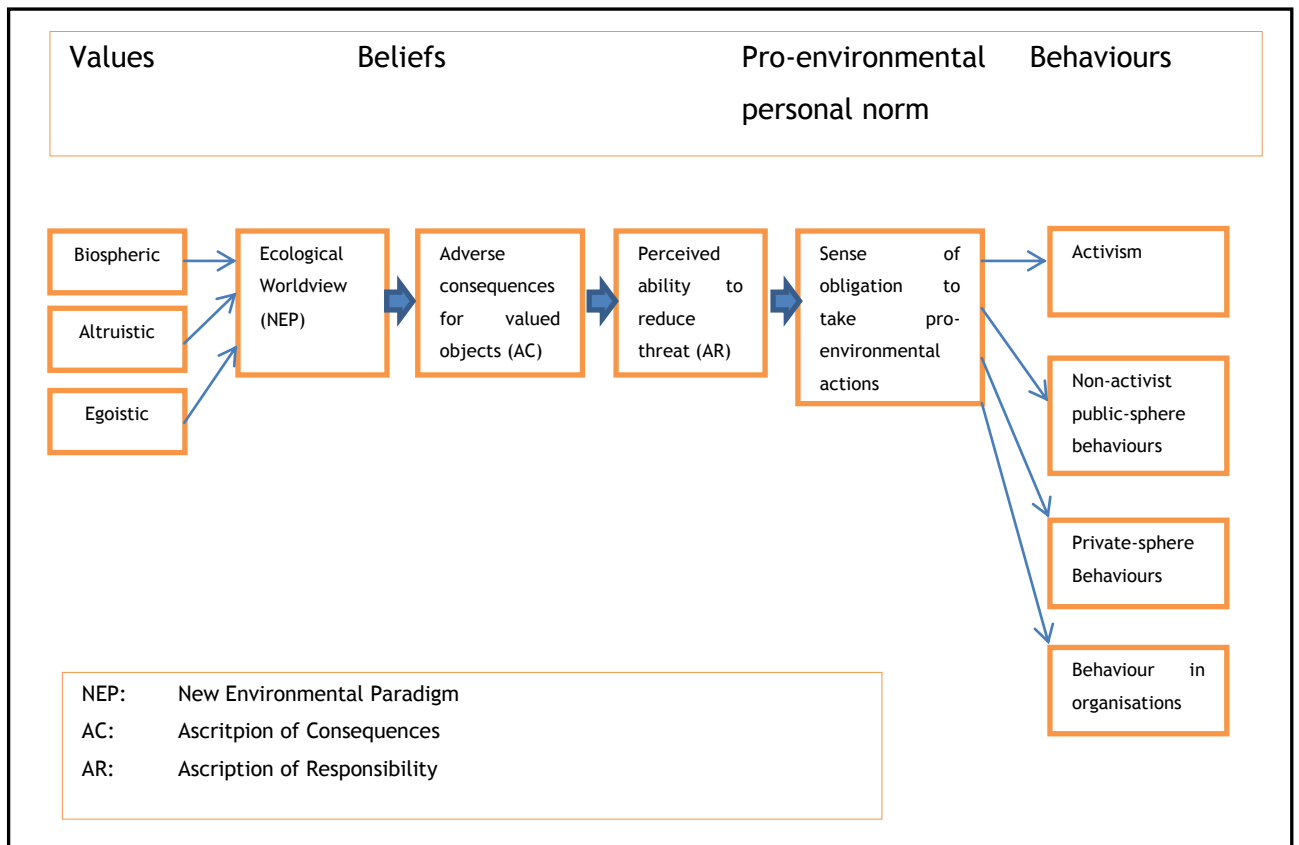


Figure 1-2: Stern's value belief norm model

The theory picks up the “New Environmental Paradigm” (NEP) which was first formulated by Dunlap in 1978 (Dunlap et al., 2000) as a variable that synthesises ideological factors contributing towards a particular orientation of concern for the environment. An important phase of the process described by the model is the awareness of consequences and ascription of responsibility: this is the nub of the Commons Dilemma. With remote consequences (weak AC) and an infinitesimal share of the responsibility (weak AR), the VBN model neatly encapsulates how individual consumers are not generally motivated to save the planet.

The policy consequences of VBN are similar to those of attitude theory. The focus is on improved information for citizens - in VBN terms, increasing ‘Awareness of Consequences’ - and on removing practical impediments to action, such as making recycling centres more available or improving public transport. One of the main ‘barriers’ to engagement with climate change is the perception that it is too difficult (Stoll-Kleeman, O’Riordan, & Jaeger, 2001) or that there are too few enabling initiatives (Lorenzoni, Nicholson-Cole, & Whitmarsh, 2007). These

studies show that barriers enable denial of responsibility. In VBN terms, removing those barriers increases 'Ascription of Responsibility' (Jackson, 2005).

1.6.2 Critique of the VBN model

Although Stern and his collaborators provide survey support for their theory in the works cited, more recent work by others has suggested that the original and more parsimonious TPB model has greater explanatory power (Kaiser, Hubner, & Bogner, 2005). A greater concern about VBN theory is that it merely tantalises by offering the 'biospheric', 'altruistic' and 'egotistic' values, when it is exactly the origin of these, and the ways in which they interact or compete with each other, that is of greatest interest.

Like most attitude based models VBN suggests a deliberative process in a controlled environment or context - or at least an environment in which only selected variables are treated as relevant. Although attitude theory fully recognises that there are short-cut, heuristic ways of thinking or reaching a decision (Eagly & Chaiken, 1993 Ch 7), models like the VBN, which break out sub-components into a logical analysis, necessarily imply a reasoned process proceeding from agreed premises in the form of the attitude cues. Again, this seems to stop short of the more interesting questions: first, where do these premises come from, and second, since the starting cues appear to be almost instinctive or to be articles of faith, what, cognitively, are they? Similarly, the policy implications of the VBN and other attitude models, such as improved information together with the removal of external impediments to behavioural change (Stern, 2000a) do not work (Verplanken, 2011). The focus on improving information to citizens fails to address the fact that people know about the environmental consequences of high energy consumption, are aware of practical steps that would enable them to cut back, but do not do so (Populus, 2006); awareness of and concern over the damage done to the environment by air travel does not translate into an intention to fly less often (Ipsos-Mori, 2007, p. 38).

1.6.3 Post-material values

One challenge for policy-makers is that the 'biospheric' values VBN posits appear to emerge over the long-term. Inglehart (1990) followed a Maslowian analysis and used extensive survey evidence to support his theory that citizens who feel secure and reasonably affluent place greater value on emancipative values and

environmental concerns. He documented a long-term post-war trend of increasing concern for the environment. Consistent with attitude theory, objective contextual factors also played a big part in his findings, with Russian citizens in the mid-1990's showing high concern for the environment despite low security and declining affluence, which Inglehart attributed to firsthand experience of extreme environmental degradation (Inglehart, 1995). Later extension of the theory ties socio-economic development and democratically delivered personal freedom into an overall 'human development syndrome' (Welzel, Inglehart, & Klingemann, 2003): again, if these are factors driving environmental concern, these phenomena will only change over the very long term.

Attitude theory suggests first that converting concern for the environment into action is difficult for policy-makers to achieve. Second it suggests that positive attitudes to pro-environmental behaviour derive from underlying value orientations: Inglehart's research suggests that individual policy-makers will struggle to drive those values so much as be driven by them.

These difficulties, however, should not deter researchers from trying to understand the foundations of environmental concern better. The following section describes the recent research which has, unsurprisingly, given particular attention to concern over climate change.

1.7 Social psychological accounts of concern about change debate

1.7.1 Introduction

Paul Stern described his early investigation of pro-environmental attitudes and values explicitly as a quest to understand the psychology of Garrett Hardin's Commons (Stern, 1978; P. C. Stern, 2009). His 1978 article was a general call to arms, mentioning a range of specific sustainability problems from pollution and water resource management, to energy conservation and fisheries. It is only relatively recently that the social psychological study of environmental concern has come to be dominated by the topic of climate change⁴. This section looks at this more focussed research.

⁴ Pidgeon (2010) stresses that public concern over climate change itself is not so new: the point here is that only recently has it come to dominate the overall field of research into environmental concern generally. Szerzynski & Urry (2010) also observe that 'climate

Social psychological study of the societal response to climate change starts with the assessment of public opinion, before looking at the determinants of public opinion and subsequently the determinants of behaviour change. The key questions may be summarised as follows:

- A. Is this is a subject the public are concerned about? Once a level of concern is established, two linked questions follow:
- B. What are the drivers of public concern?
- C. Does public concern translate into behavioural change? Answers to (A) and (B) look at both social psychological constructs and aspects of the social and physical context as possible factors and lead to two further linked questions designed to foster public engagement:
- D. What policy levers could best promote individual behavioural change?
- E. How should policy makers most effectively communicate with the public on climate change? Beyond these five questions a more fundamental issue, urged by both ideological and epistemological considerations, is always present, and sometimes explicitly addressed:
- F. Should the societal response to climate change emphasise changing individual attitudes and behaviour, or rather focus upon reordering the social context?⁵

1.7.2 A. Public opinion

1.7.2.1 *Studies of US public opinion*

Riley Dunlap (1991) comprehensively reviewed the emergence of US public opinion towards environmental attitudes. In line with the key events highlighted in Appendix A, public concern ‘developed dramatically’ (p285) in the late 1960’s, and declined in the 1970’s before increasing again in the 1980’s. In amongst the many surveys reviewed, the greenhouse effect starts to be included in the 1980’s

change’ has come to subsume other environmental dangers. This emphasis in the research fails to reflect public attitudes, where other environmental worries continue to have salience alongside climate change (Eurobarometer, 2008)

⁵ The literature usually addresses several of these questions at once: academic studies of public opinion (e.g. Brulle, Carmichael, & Jenkins, 2012) often also analyse drivers of public opinion. This analysis of the academic debate into these 6 questions should not be taken to imply that studies referenced herein are only addressing the specific question being discussed at the time.

and Dunlap shows a marked increase (from 26% to 52%) in the numbers identifying this as a 'high environmental threat' either side of 1988 (identified as a critical moment in the emergence of public concern over the issue in 1.3.1). Brewer (2005) analysed polls from 1989 to 2004 to show that concern (defined as worrying a great deal or a fair amount about global warming) fluctuated between 50% and 72%. With typically over 50% of the public concerned about global warming, researchers seeking to analyse public understanding of the issue found much confusion, particularly when it first came to public attention. Kempton (1997), reviewing data gathered from 1989 to 1992, found that the public tried to make sense of climate change within the framework of existing environmental issues such as air pollution and ozone depletion, or alternatively their experience of the weather. His finding that these framings led to misconceptions anticipates the interest in framing prevalent in much recent research (Brulle, et al., 2012; Maibach et al., 2011).

After recognising the success of the environmental movement in generating public concern over environmental issues (Mertig & Dunlap, 1995), Dunlap's subsequent research has focussed particularly on the efforts of the US political right to stem the growth of public concern over climate change (Dunlap & McCright, 2008, 2010; McCright & Dunlap, 2010). Their research inevitably segments the US public into partisan sub-groups with very different responses to the issue of climate change. Leiserowitz (2005) also segmented public opinion and identified two 'interpretative communities' (p1439) closely linked to political ideology at the extremes of concern; he dubbed these 'naysayers' and 'alarmists'.⁶ In subsequent work with Maibach and others, Leiserowitz developed this segmentation into 6 grades of concern about climate change (Leiserowitz, Maibach, & Roser-Renouf, 2010; Leiserowitz et al., 2011; Maibach, Roser-Renouf, & Leiserowitz, 2009). The authors defined these as 'Global Warming's 6 Americas'. Identifying these groups as 'Alarmed, Concerned, Cautious, Disengaged, Doubtful and Dismissive', their segmentation enables a subtler analysis of the factors influencing public opinion on the topic (e.g. Leiserowitz, et al., 2011) and a more sophisticated approach to communicating the issue (Maibach, et al., 2011).

The '6 Americas' studies show that concern about climate change peaked at the end of 2008, with the authors suggesting that the subsequent recession and the

⁶ In the same paper Leiserowitz also notes a 'confused' group who muddle up climate change with ozone depletion, echoing Kempton's (1997) findings.

release of the ‘climategate’ emails⁷ may explain the decline in concern (Leiserowitz, et al., 2011, p. 5). Brulle and others (2012) construct a time-series measure of US public opinion to generate a ‘Climate Change Threat Index’ that peaks earlier, in 2007. Regressing this index onto a number of factors hypothesised to influence public perception of the threat, they conclude that the cues provided by political elites and advocacy groups are the most critical factors. Like Dunlap and McCright (above), they find US climate change risk perceptions to be defined by political or ideological partisanship, just as suggested by the media analysts (e.g. Boykoff, 2008b; Boykoff & Boykoff, 2004). This political divide in risk perception is a distinctive feature of US opinion that is less noticeable in other countries (Pidgeon, 2010).

1.7.2.2 *Cross-national studies of public opinion.*

Dunlap and Leiserowitz have each also studied cross-national surveys of public opinion, (Dunlap, Gallup jr, & Gallup, 1993; United Nations Development Programme & Leiserowitz, 2007). Leiserowitz’s data showed concern about climate change to be considerably lower in the US than in Europe or many developing countries. Brechin (2010) shows rising concern between 2002 and 2007 in most countries. The more recent polls he reviews also show improved awareness and understanding of the issue, but when compared to economic concerns climate change remains a secondary issue. The worrying conclusion drawn by Brechin (p201) is that ‘respondents in the US, Great Britain, Russia and (urban) China were among the least concerned. This is quite troubling given that these are some of the major emitters’ (p201). Also important are his observations on the divergent relationships in different countries between levels of concern and support for mitigation policies. These necessarily suggest that in any country a complex mix of factors determines attitudes to and engagement with climate change.

Lorenzoni & Pidgeon (2006) also found lower levels of concern in the US when compared to the EU, and they too found that survey respondents rarely treat climate change as a pressing issue. As they go on to identify, climate change has little salience in most people’s daily lives. A recent Eurobarometer survey on climate change (2011a) demonstrated high levels of concern over climate change across Europe and indeed high levels relative to other issues but this was in

⁷ See footnote 1 on page 28.

response to a prompted list of global worries. The more general ‘Standard’ Eurobarometer surveys (e.g. 2011b) typically rate climate change well down the list of ‘most important issues’ facing Europe⁸. This suggests that the logic of the problem demands that it be taken seriously in principle, but it does not compete when set against concerns closer to our daily lives.

1.7.2.3 *Public Opinion in the UK*

Following the Rio Earth Summit in 1992, the British Social Attitudes Survey (‘BSAS’) regularly polled environmental attitudes (Christie & Jarvis, 2001; Taylor, 1997; Witherspoon, 1994; Witherspoon & Martin, 1992). These surveys repeatedly found British concern over the environment to be either superficial or incoherent. The disjunction between public concern and actual willingness to do anything about environmental challenges seems to have discouraged further BSAS polling. Not until 2010 did the BSAS include another environment module in their annual survey, although from 2005 the annual survey did include individual questions on the link between travel emissions and climate change: these show a decline in climate change concern over recent years (Taylor, 2012). The review of the 2010 survey links this decline to the climategate email leaks and, less conclusively, to the economic downturn (Taylor, 2012). Although belief in the phenomenon of climate change has declined, Poortinga et al. (2011) point out that in the UK scepticism is still not very widespread. Thus, in the BSA 2010 survey only 17% think that the statement “Every time we use coal or gas or oil we contribute to climate change” is definitely or probably not true (Taylor, 2012, p. 100).

Christie & Jarvis (2001)’s conclusion that UK environmental concern was incoherent could best be overcome by ceasing to treat public opinion as homogeneous. Defra (2008) used a social marketing approach to generate a segmentation of 7 different types of citizen engagement with the problem: like the 6 Americas studies the aim was to use this analysis to target communication better by showing that there was some coherence to the views held by those within the different segments. Most of the academic studies of factors driving

⁸ The first of the surveys asked ‘Which of the following do you consider to be the single most serious problem facing the world as a whole?’ Climate change, with 20%, ranked 2nd out of 7 prompts and other spontaneous suggestions, after ‘Poverty, hunger and lack of drinking water’. In the second survey, only 5% mentioned climate change in response to ‘What do you think are the two most important issues facing the European Union at the moment?’, ranking it 11th out of unprompted issues such as ‘the economic situation’, ‘terrorism’ and ‘crime’ (p24).

public concern are alive to these subtleties but inevitably the need to offer an overarching narrative, together with the availability of aggregate measures of concern, tends to pull in the other direction.

1.7.3 B & C: Drivers of public concern and behavioural change

Much of the research into the drivers of public concern and behavioural change can be loosely aligned to the components identified in Paul Stern's VBN model - values, beliefs, 'awareness of consequences', 'ascription of responsibility', norms and behaviours. The review below makes use of these constructs but is not rigidly demarcated by them since there are inevitable overlaps between them.

1.7.3.1 *Values and identity:*

The US studies of politically partisan attitudes to climate change, mentioned in 1.7.2.1 above, clearly suggest that values can be predictive of concern and willingness to act. Not only Paul Stern's work in respect of environmental concern generally (e.g. Stern, 2000b) but also other studies in the UK confirm this for at least some segments of survey samples (e.g. Christie & Jarvis, 2001; de Groot & Steg, 2010). Exactly how values translate into willingness to act and through what mediation continues to be explored. Marquatt-Pyatt et al. (2011) and Poortinga et al. (2011) show values as predictive of belief in, or scepticism about, AGW, while Shwom et al. (2010) show values as predictive of support for climate change policy. Leiserowitz (2006) shows links between values and both risk perception and policy preferences. Chapter 2 examines the role of values further.

The apparently powerful role of political partisanship suggests that values to some extent work through social identity: Malka et al. (Malka, Krosnick, & Langer, 2009) found that political partisans paid attention to expert sources they identified with, affecting the likelihood that new information about climate change will generate increased concern.

1.7.3.2 *Beliefs, consequences and responsibility:*

The preliminary review of public opinion above ignores the difference between belief in climate change and concern about climate change. People's affective responses to climate change are generally negative (see below). The bare logic of the phenomenon suggests that *if* survey respondents are aware of and accept the science they are likely to be 'concerned' about it: a survey respondent or

interviewee does not have to buy into the 'New Environmental Paradigm' to answer that they are concerned, at least in the abstract, about the future of the human race. Getting from belief to concern is less the issue than getting from abstract concern to concrete willingness to act and so a key focus of research is therefore on this second disjunction. In the terms of Stern's VBN model, the 'consequences' are spatially and temporarily remote, and the personal 'responsibility' is minimal. That the opinion polls reviewed reveal a rather abstract or superficial concern which does not compete with issues salient in daily life should not be surprising.

Yet knowledge of a potential threat does not automatically lead to perception of risk: Slovic showed how lay perception of risk differs from scientific assessment of potential harms (Slovic, 1987). He went on to identify the role of affective influences on risk perception (Slovic et al., 2002). Leiserowitz' studies apply this specifically to climate change and demonstrate a substantial affective component in climate change risk perception (Leiserowitz, 2005, 2006; Lorenzoni et al., 2006): others too attest the powerful role of emotions in negative evaluations of climate change (Stoll-Kleeman, et al., 2001).

Affective responses will inevitably be influenced by previous experience. Kempton (1997) found that people initially made sense of climate change by trying to fit it into models of previously encountered phenomena (e.g. weather) or ideas (e.g. pollution or ozone depletion). Bostrom and Lashof (2007) confirm that people have continued to conflate weather and climate, and Nicholas Stern (2010, 79th minute) believes that colder winters in the UK have much to do with the decline in concern over climate change. The logic of the 'availability heuristic' (Tversky & Kahneman, 1982a) suggests that we need the experiential confirmation of warmer weather to be convinced that the world is warming. Weber (2010) argues that personal experience is far more likely than statistical descriptions to generate 'cognitive uptake' (p333) and an enduring belief that humans are warming the world. Yet the interaction between direct weather experience and climate change beliefs is not straight forward. On the one hand:

- Spence and others (2011) demonstrate that experience of flooding impacts beliefs about climate change and indirectly willingness to reduce energy use

- The presumption that extreme weather events are experienced as the most salient aspect of climate change was taken as a common sense view in the American Psychological Association's (2010) review of psychological contributions to the challenge of climate change. The galvanising effect of Hurricane Katrina in making climate change a national security concern is one example of this salience (Center for a New American Security, 2007), the role of drought and bushfires in Australian experience of climate change another (Brechin, 2010, note 7).

On the other:

- The IPCC themselves stress that specific weather events should not be attributed directly to climate change, only the likely frequency of weather events (IPCC, 2007, pp. 299-316).
- Brulle's (2012) study of levels of concern found no connection with extreme weather events.
- Before Hurricane Katrina Lieserowitz (2005, p. 1439) concluded that 'few Americans associate global warming with extreme weather events'.
- Weber (2010) found that people tend to interpret present and remembered past weather in accordance with their pre-existing views on the climate - if you believe the climate is changing or stable you can adjust your interpretation of past weather to match.

As with the opinion polling, it is necessary to recognise both the heterogeneity and the reflexivity of beliefs. Not everyone's climate beliefs are influenced by current weather patterns, and while direct experience of weather plays a role in shaping climate beliefs, pre-existing beliefs play a role in shaping experience of the weather.

Personal experience is seen as important first because a major challenge of climate change is the remoteness, spatially and temporarily, of the threatened harms (Pidgeon, 2010), and second because predicted weather frequencies are too abstract to be meaningful or personally relevant (Marx et al., 2007). The remoteness of consequences is a significant barrier to engagement with the challenge of climate change, making it locally and personally irrelevant (Lorenzoni, et al., 2007; Lorenzoni & Pidgeon, 2006; Stoll-Kleeman, et al., 2001).

Remoteness, and personal relevance, is critical not only in respect of the ‘awareness of consequences’ of climate change but also in respect of the ‘ascription of responsibility’ for climate change. Irrespective of the fact that some people continue to show some confusion or uncertainty about the scientific arguments for global warming (Leiserowitz & Smith, 2010; Lorenzoni, et al., 2007), the personal barrier for many people is in connecting their own actions to the distant consequences. Stoll-Kleeman et al. (2001) highlight the many forms of this barrier amongst their strategies of denial (p112):

- “denial of responsibility: I am not the main cause of this problem
- rejection of blame: I have done nothing so wrong as to be destructive
- ignorance: I simply don’t know the consequences of my actions
- powerlessness: I am only an infinitesimal being in the order of things
- fabricated constraints: There are too many impediments”⁹

Lorenzoni and others (2007) also find that despite finding people were willing to acknowledge ‘moral responsibilities to address climate change’ (p449) their study participants also identified similar barriers as explanations for not actually engaging with climate change. Bickerstaff et al. (2008) define the problem as one of allocating responsibility between citizens and the state. The problem is a collective one, but the individual must act both as a citizen within the collective and also as an individual consumer. Aitken et al. (2011) emphasise that individual action is confronted with the powerlessness of the Commons Dilemma. On the other hand, with respect to collective action, the individual feels little trust in political institutions to deliver effective action (Lorenzoni, et al., 2007). Poortinga and Pidgeon (2003), however, introduce a more complex understanding of the role of trust, suggesting that a critical public that engages with institutional deliberation can be healthy. This flows from their finding that confidence in government sharing one’s values significantly influences levels of trust in risk regulation. Engagement is likely to raise confidence that government shares one’s

⁹ This is part of a list the authors take from Schahn, J., 1993. Die Rolle von Entschuldigungen und Rechtfertigungen für umweltschadigendes Verhalten. In: Schahn, J., Giesinger, T. (Eds.), *Psychologie für den Umweltschutz*. Weinheim, Beltz, pp. 51 - 61.

values. Gifford (2011) refers to a lack of such mutual understanding as 'discredence'.

1.7.3.3 *Behaviour:*

The constraints of survey and interview methods mean that most research analyses associations between the constructs above and self-reported behaviour or stated intentions to behave, or willingness to act. The latter follows Ajzen and Fishbein's compression of the Attitude-Behaviour-Cognition model to stop short of objectively measured 'behaviour' at 'intention to behave' (Ajzen & Fishbein, 1973). Studies look at both mitigation behaviour and willingness to take measures to adapt:

- Mitigation actions: e.g. Spence et al. (2011) show how personal experience does influence preparedness to reduce energy use; de Groot and Steg (2010) look at how subjects choose a car and how much weight they place on environmental performance; Ferguson & Branscombe (2010) consider energy conservation and willingness to pay green taxes.
- Adaptive action is typically defined for a specific social group within a specific locality reacting to specific circumstances, e.g. Swedish forest management practices (Blennow & Persson, 2009).
- Each study typically tests the links between its own psychological constructs and behavioural intentions. It does not do justice to them to squeeze them into the framework of the VBN model; however, for the purposes of this review this oversimplifying generalisation is fair. Some do draw on factors that clearly go beyond individual psychological constructs such as Wolf et al's (2010) study of the role of social capital in determining the elderly's readiness to take adaptive action in response to heat waves.

1.7.4 D: policy options

Research into behavioural intentions helps to determine the public acceptability of different policy options. Policy makers can influence the social context to respond to identified barriers to behaviour or to publicly expressed policy preferences. Barriers can include lack of information (Lorenzoni, et al., 2007) or lack of understanding (Weber & Stern, 2011). A major problem is the lack of enabling facilities or affordable solutions (Lorenzoni, et al., 2007). Policy

responses have typically emphasised providing information (Verplanken, 2011). Indeed, one element of the logic of market mechanisms and their response to the challenge of affordability is that prices do provide such information as well as incentivising the creation of new infrastructure. It is noticeable that the political presumption that the public will not stomach regulation (Lorenzoni, et al., 2007) actually contradicts the public expectation that CO₂ should be regulated (e.g. Leiserowitz, 2006).

However, it is noteworthy that policy options typically work with the grain of existing social institutions and practices: by continuing to emphasise the role of individual choice they are a form of business as usual even as they try to achieve social change (Shove, 2010b).

1.7.5 E: communication

As identified in the introduction, much of social psychological research expressly seeks ways to improve communication of climate change risks and opportunities for mitigation.¹⁰ The mass media are instrumental in generating public attitudes to climate change (Brulle, et al., 2012) and studies of the impact of films with climate change messages in both the US (Leiserowitz, 2004) and UK (Howell, 2011) demonstrate increased concern among viewers, albeit mainly in the short term.

Research hoping to improve communication is inevitably informed by studies of media coverage of climate change. Boykoff & Boykoff (2004) demonstrate how the US politicisation of climate change referred to above was played out through the media. In the UK Carvalho & Burgess (2007; 2005) and Ereaut & Segnit (2006) also showed vested interests pushing their agendas through the media. Boykoff (2008a)'s study of UK tabloid coverage echoes Kempton (1997)'s argument that people use familiar frames to make sense of climate change: for Boykoff, the tabloids rarely discussed the thorny issues of risk and justice, but rather used 'shock and awe' stories about 'charismatic megafauna' or potential economic collapse to stimulate attention (p557). Shock and awe may stimulate attention in the short term, but it is commonly observed that fear-inducing messages do not succeed in generating effective public engagement (Hulme, 2007; O'Neill & Nicholson-Cole, 2009).

¹⁰ To mention just a few articles where communication, information provision or public discourse is specifically referenced in the abstract: (Berkhout, 2010; Lorenzoni, et al., 2007; Maibach, et al., 2011; O'Neill & Nicholson-Cole, 2009; O'Neill & Hulme, 2009; Pidgeon & Fischhoff, 2011).

More generally, communicators try to frame the issue within familiar discourses. Politicians try to frame the issue within overarching narratives such as the national way of life (Kurz, Augoustinos, & Crabb, 2010). The press uses routine frames such as celebrity culture to address climate change (Boykoff, 2008a).

In a broader reflection on the role of the media, Boykoff (2009) points up the tension between media preference for a simple message and the complexity of the challenge. The uncertainties that abound in climate science are contagious: the uncertainties about exactly what the consequences will be allow motivated commentators to offer the simplified message that the whole phenomenon of AGW is unproven. When risks are shown to be exaggerated with alarmist rhetoric, the simplified conclusion is that the whole issue is overblown (Whitmarsh, 2011). As the studies of barriers to engagement show, the uncertainty and divergent messages provide the public with a ready strategy of denial (Lorenzoni, et al., 2007; Stoll-Kleeman, et al., 2001).

Yet research focussing on 'strategies of denial' underemphasises the principle barrier to 'engagement', the fact that changing habitual behaviour within a physical and social infrastructure that entrenches energy-intensive routines is very difficult. Verplanken (2011) uses the same social psychological theories as those above, namely Ajzen and Madden's Theory of Planned Behaviour and Stern's VBN model, to lay the foundation for a recent collection of papers on 'Engaging the Public with Climate Change' (Whitmarsh, O'Neill, & Lorenzoni, 2011): but he goes on to explain why information campaigns do not change habits and to argue for interventions that target moments of disruption in people's routines.

If fear-inducing messages and information campaigns do not work, what is the alternative approach to communication? Drawing together the research that (a) segments public attitudes to climate change, (b) identifies trust as key, or (c) rejects over-simplification and 'shock and awe' tends to encourage communication strategies that treat the public seriously and recommend deliberative involvement (Hobson & Niemeyer, 2011; Pidgeon, 2010) and tailored messages (Lorenzoni, et al., 2007). Those involved in deciding to behave differently are more likely to follow through with behavioural change (Lewin, 1958).

More challenging to the standard paradigm of rationalist policy-making are Pidgeon and Fischhoff (2011)'s suggestions that the scientific community needs to start listening to the public rather than simply offering information. Demeritt (2006) argues that the ritual invocations of 'sound science' as the basis for policy represent homage to a rationalist myth. He goes on to suggest that the IPCC's greatest achievement has been the deliberative involvement of a wide range of NGO actors and to ensure empowered participation by developing countries. The truth about climate change needs to be a co-production between scientists and society. Hulme goes further, arguing against the globalising tendencies of a single scientific 'knowledge' of climate change and for the importance of local understandings (Hulme, 2010b). Not only has the boundary between naturally produced weather and anthropogenic climate been dissolved (Hulme, 2010a), but so too has the boundary between sound natural science and culturally generated meaning in creating our understanding of 'climate change'. Berkhout (2010) also calls for a more 'open' boundary between the two¹¹.

1.7.6 F: Individual behavioural change and social change

Another boundary dispute emerges between sociological approaches to climate change and much of the social psychological research. In a 'deliberately provocative' paper sociologist Shove (2010a, p. 1273) attacks much of the social psychological literature for buying into the rational choice model of individual/societal interaction by framing the research objective as seeking ways to influence individual choices. Szerszynski & Urry's (2010) criticism of the social science contribution to the climate change debate, or lack of it (see 1.1.2), sits alongside another paper by Shove (2010b) in a special issue of *Theory, Culture and Society*, in which she describes a 'gulf' (p284) between the psychology on which policymaking depends¹² and critical social theory.

Whitmarsh et al. (2011) responded robustly to Shove's critique. They concede the validity of sociological approaches that explore how infrastructure and cultural practices perpetuate unsustainability (see on routines and habits above); they acknowledge too that emphasis on individualistic models of social change facilitates the redistribution of 'responsibilities our institutions and governance

¹¹ Latour's approach to the generation of scientific knowledge is foundational to this kind of analysis (Latour, 1999), although in these papers neither Hulme nor Berkhout specifically cite Latour while Demeritt (Demeritt, 2006) does.

¹² Shove specifically identifies Jackson (2005) and Defra (2008) as examples of this kind of psychology.

structures should arguably shoulder' (p259). But they reject the presumption that climate change must be subsumed within a critique of society generally and seen 'through the lens of panacea/opportunity for radical change'.

This is an age old problem, echoing Bem's (1967) challenge to the assumption that behaviour follows attitudes: do you seek to change from within, taking as given that we live in a consumer society, and try to work with the grain of existing values?¹³ Or do you insist that the social context must be fundamentally changed because, as the strategies of denial attest, it is simply too difficult for individuals to change within the existing context? If you change how people think and feel, do you change what they do? Or if you change what they (have to) practice, do you change what they think and feel? The cognitive dissonance literature (Festinger, 1962; Festinger & Carlsmith, 1959) indicates that if we change practices attitudes should follow. In recent years we have not changed practices in spite of widely held credence in the anthropogenic driver in AGW: as a result Pidgeon (2010) plausibly suggests that dissonance reduction may be one factor underlying the recent decline in the belief in climate change.

1.7.7 Attitudes and behaviour; habits and identity

Attempts to separate out the constituent part of a cognitive and behavioural model inevitably struggle with oversimplified boundaries. Bem's (1967) challenge to the 'attitude -> behaviour' sequence encourages the common sense reflection that consistent attitudes and behaviour will intensify each other. Repeated behaviour can be seen as becoming part of who one is. Charng and others (1988) first proposed this for blood donors, but similar findings have been made for pro-environmental behaviour (Whitmarsh & O'Neill, 2010).

If repeated behaviour can create a pro-environmental identity, campaigners can hope that engaging in one type of behaviour can generate spillover effects by leading to other pro-environmental behaviours (Crompton & Thøgersen, 2009; Whitmarsh & O'Neill, 2010). However, the high structural barriers to behaviour change can in fact lead to the opposite result: those engaging in one pro-

¹³ The idea of working with the grain of existing values is central to the policy advocacy in 'Common Cause' (Crompton, 2010). This report stresses that people do hold strongly pro-social values and not just individualistic ones, and it is the pro-social values that need to be appealed to. But inevitably those critical of prevailing values fear that working with the grain of existing values inescapably perpetuates business as usual (see e.g. Swyngedouw (2010)).

environmental behaviour can ‘rest on their laurels’ and not take the next, maybe harder, step (Crompton & Thøgersen, 2009, p. 18), excusing themselves by claiming ‘I protect the environment in other ways’ (Stoll-Kleeman, et al., 2001, p. 112).

1.7.8 The direction of social psychological research into concern about climate change

Whitmarsh and Lorenzoni (2010) set out a research program in their editorial commentary to the second issue of WIRE-climate change. While the ‘social mediation of climate risks’ (p160) is included in their definition of the domain of study, the principle scope of the domain is clearly individual perceptions and responses (including individual perceptions under social influences). Pragmatically we have to work with the grain of an existing culture that privileges individual choice.

But it is noticeable that social psychological researchers do often seem to feel constrained by working within this paradigm. Leiserowitz & Fernandez (2008) wrote an impassioned conference report entitled ‘Towards a new consciousness’, making it very clear that only radical change will do. This is not new. Paul Stern (1978) concluded his call to arms by pleading:

“We need to learn more about the process of creating new institutions in a way which can increase group consciousness and future consciousness. The whole proposed research effort assumes the advent of major social change, but social change can occur in ways which increase or decrease group consciousness” (p158).

And he goes on to prescribe the same deliberative engagement that today’s researchers advocate:

“Available knowledge suggests that social change is most likely to increase group consciousness when it maximises participation in planning, increases communication between people, democratizes decision-making, and increases autonomy for local groups in the management of locally available resources” (p158).

This hope for a new consciousness, a step change in the social response, echoes the physical science discourse of climate tipping points (Nature Editorial, 2006; Russill & Nyssa, 2009). But talk of tipping points is easily attacked as alarmist

(Risbey, 2008), just as calls for a social revolution are hard to square with wanting to work with the grain of existing values.

1.7.9 'A new consciousness' or 'consciousness as usual'

For Shove, working within the paradigm of policy facilitating individual choice maintains consciousness as usual. For social psychologists who have explored human values, targeting a new 'group' consciousness is targeting a consciousness already available to us and regularly accessed by us in many contexts.

The point of 'Common Cause's' insistence that we work with the grain of people's values is that those values are not restricted to individualism. They include the altruistic 'group consciousness' and the biospheric 'future consciousness' that Stern went on to include in his VBN model. The challenge is to activate these values in a social context which is constantly intensifying the competing value of individualism. Chapter 2 discusses some of the theories that have addressed the plurality of values that humans bring to bear on social problems.

Before moving onto these theories, however, it is important to examine how persistent utilitarian rationality, the prevailing 'consciousness as usual', can be.

1.8 Values rationalised

1.8.1 'Consciousness as usual'

It is worth reflecting on the way that the consciousness represented by 'individualism' rationalises values. The rational actor model accounts for values as revealed preferences. Post-material values attribute higher utility to quality of life and environmental concerns and some aspects of the behaviour of affluent western societies provide evidence for this. For this reason, a considerable amount of pro-environmental attitude research tests 'Willingness to pay' (Christie & Jarvis, 2001; Kahneman et al., 1993) for environmental improvements. If citizens prefer to spend their money on flying rather than saving the planet, the impression left by current surveys (e.g. Ipsos-Mori, 2007), and if the citizens' representative government chooses to expand airport capacity (Department for Communities and Local Government, 2008; DfT, 2009), society's post-material anxieties appear to be shallow. A society's true values can be determined by where it spends its money. This approach encourages policy-makers to use price signals, whether taxes or market mechanisms, to influence environmental

behaviour. As described in Part 1, public intolerance for green taxes has led governments down the indirect, and gradualist, market mechanism of Kyoto.

The rational actor model assumes that the different goals of different actors can be made commensurate through a utility calculus. Policy-making targets the maximisation of utility for 'all'. Inevitably, this leads back to the debates identified in Part 1: (a) how should the utility of future generations be factored into this equation, and (b) if *all* really is to mean *all*, should we also try to achieve an equitable distribution of this maximised utility? These appear to be questions of value that the rational actor model cannot, on its own, address.

1.8.2 Self and other

As suggested above, many feel instinctively that the rational actor model does not accurately model how human beings think and behave. The origin of this model may be found in Adam Smith's *Wealth of Nations* (1993 originally published in 1776; referred to below as "WoN") in which he pictures society as an aggregate of competing individuals pursuing their own ends, their desire for material self-improvement driving the economy as a whole. The individual "intends only his own gain" (WoN p292) and "neither intends to promote the publick interest, nor knows how much he is promoting it" (WoN p291). For Smith's rational economic actor, self-restraint makes sense if longer-term ends justify it. Restraint occurs because the prudent individual consumes only what he must of his 'stock', and seeks to generate revenue from the balance (WoN p162).

It is with this analysis that Smith has held so much influence over modern social and economic theory. Yet his analysis of individual morality in *The Theory of Moral Sentiments* presents a different picture (Smith, 2006 originally published in 1759; referred to below as "TMS") .

A feature of models of individual decision-making is that they take the same shape as an individual's own post-hoc rationalisation of how he/she came to a decision. The individual *self*-justifies his/her actions as if to *others*, almost as if to a jury of others in a court of law. Foucault's analyses of this objectification of the self show how it was a direct and fundamental consequence of the Western Enlightenment (e.g. Foucault, 1984, 1986).

The understanding of the self through the eyes of others is encapsulated by Smith's "impartial spectator". It is one of the ironies of individualism, an ideology of *self*-realisation, that its explanation of individual conduct necessarily resorts to the viewpoint of the *other*. For Smith, the viewpoint of the other, the impartial observer, explicitly constructs the self's morality: "We endeavour to examine our own conduct as we imagine any other fair and impartial spectator would examine it. If, upon placing ourselves in his situation, we thoroughly enter into all the passions and motives that influenced it, we approve of it, by sympathy with the approbation of this supposed equitable judge" (TMS p111). Enlightenment's dualism is taken to the logical extreme: "When I examine my own conduct, ...it is evident that, in all such cases, I divide myself, as it were, into two persons, and that I, the examiner and judge, represent a different character from that other I, the person whose conduct is examined into and judged of" (TMS p113). From a historical distance, our perspective is that this *moral philosophy* crystallised into the suffocating etiquette of Victorian society, a world of excessive concern for the good regard of others, a perspective that emphasises the self as a prisoner of the society it finds itself in. Looked at as if from the present however, Smith's *psychology* is closely related to the interactionism of GH Mead (1967, originally published in 1934) which sees the self formed through interaction with others. Smith's opening passage on 'Sympathy' shows that, just as for Mead, a self independent of others would be unintelligible. Unfortunately, although Smith recognises that the individual's values are essentially socially derived norms, his interest in what 'socially derived' might mean hits a contemporary buffer. He short cuts his enquiry into where these norms come from by rationalising that God would require an altruistic concern from each of us.

The implied selfish materialism of classical economics has been decried by Smith's detractors. With his more complex view of the individual Smith himself would not have recognised the narrow caricature his critics have made of his economic actors. For him the "impartial spectator" represents a very powerful conscience. He takes it as given that "The wise and virtuous man is at all times willing that his own private interest be sacrificed to the public interest of his own particular order or society" (TMS p236). This reliance on the essential goodness of human nature is equally evident in Milton Friedman's advocacy of Smith's free-market economics: see, e.g. Ch 7 on Capitalism and Discrimination (Friedman, 2002).

What Adam Smith's reflections emphasise is how difficult it is to integrate motivations, and morality, derived from concern for others with motivations, and morality, derived from the rational actor's self-assertion. This does suggest that models which accept a plurality of motivations, as well as competing and incommensurable principles of justice, may provide a more useful account.

1.9 Conclusion

This chapter has outlined the issues that are central to the public debate over climate change. It has also set out the terms of much of the social psychological research into the climate change debate. Most commonly this focuses on individual choices and as such is closely tied to a rationalist framework that relies upon utilitarian values. Although the existence of competing values seems to be self-evident, it is hard to reconcile these with individualism. Chapter 2 looks at the alternative account provided by two different theories. The first, Relational Models Theory, hypothesises that these divergent 'values' are in fact an exercise of social cognition tools. The second, Cultural Theory, emphasises the social forces that determine which values carry the greatest weight in particular contexts.

Chapter 2 ***Two theories of multiple rationality***

Chapter Outline

As described in Chapter 1, much social psychological analysis of pro-environmental behaviour uses the economic model of the rational actor. Some versions of this model attempt to integrate deeper underlying values as motivating the actor. Two important weaknesses stand out in these accounts. First, the origin of such values remains unclear. Second, the resolution of conflicts between competing values typically collapses apparently incommensurate values into a single currency of utility and self-interest. An alternative approach rejects the rational actor model. Theories in this tradition instead propose multiple rationalities. Typically, these theories propose that individuals, and societies, employ multiple analyses of social situations and problems, and that these analyses rely upon underlying value principles that cannot be reduced to one another. Such theories propose that pro-environmental behaviour is commonly motivated by different rationalities from that of the rational actor seeking to maximise utility.

Before going further, it is worth clarifying what is meant by plurality of values and plural rationalities. The hegemony of enlightened self-interest has tended to equate rationality with the pursuit of self-interest. On this basis rationality equates to the hedonic or utilitarian calculus. If instead we suppose that there are plural end-values other than self-interest, it is possible to use rational means to try to achieve those end values. Alternative end values, such as maintenance of the existing order, or the absolute primacy of the group to which one belongs, logically impose different normative imperatives. For example, the ‘rationale’, or justification, of putting the family before oneself may contradict self-interest, as might prioritising seniority over merit¹⁴. Each rationale or end value will generate a cluster of linked prescriptions: the phrase plural rationalities is used to describe these coherent, but incommensurable, clusters.

¹⁴ As described in Section 1.8, the rational actor account deals with this argument by redefining ‘self-interest’ such that the primacy of any particular goal is revealed as the self-interested preference of the individual. Even pursuing the perceived good of one’s community through suicide bombing can be incorporated into the utilitarian calculus using this circular argument.

This chapter has five parts:

- “*Background to pluralist approaches*” contrasts some of the underlying assumptions behind utilitarian and pluralist approaches, and introduces some of the social psychological literature proposing plural rationalities
- “*Cultural Theory*” provides an outline of the theory as well as criticisms of the theory, and an account of recent developments and applications. This is followed by a review of how Thompson, Rayner and others have used the theory to analyse the climate change debate
- “*Relational Models Theory*” provides an outline of Alan Fiske’s theory, and examines existing criticism of the theory as well as making some new criticisms. The section notes how the theory has been applied to date and justifies using the theory to give an account of societal level phenomena.
- “*Detailed Mechanics*” suggests that similarities between the two theories prompt similar questions. How do other cognitive and social processes relate to those that the two theories hypothesise? Cultural Theory proposes a 2x2 dimensional matrix structure to generate its four ‘worldviews’ while Relational Models Theory proposes four independent unipolar categories, but is the structure of either of them satisfactory when attempts are made to map them onto real life variety?
- *Conclusion* establishes the research questions raised by the challenges observed in Chapter 1 and the review of the literature in chapter 2. The conclusion also claims that the four models of Relational Models Theory offer a better analysis of the climate change debate than Cultural Theory’s use of worldviews.

2.1 Background to pluralist approaches

2.1.1 Is economic progress the progenitor of environmental concern?

Section 1.6.3 explained that Inglehart’s Maslowian analysis suggests modern environmental concern is largely a luxury enabled by freedom from material want (Inglehart, 1990). In the logic of classical economics this can be accounted for by arguing that, in a time of material plenty, ‘quality’ of life is the scarce commodity. Increased spending on holidays, leisure and aesthetic objects reveal this new preference, and Damien Hirst makes millions while over-producing dairy farmers are left pleading with their supermarket customers.

Yet this account of concern for the environment seems to ignore centuries, even millennia, of folk-lore celebrating the sanctity of the land or the transcending bond of kinship or tribal affiliation. A society that gives primacy to either of these values will experience normative imperatives for behaviour apparently irreducible to a simple utilitarian calculus. Respect for the land and nature is a logical response to being at the mercy of the seasons and the experience of material insecurity; indeed, fruitless striving for a security that could not, maybe cannot, be obtained could be regarded as maladaptive. It is only because modern society has given primacy to material security, perhaps because it now appears attainable, that environmental concern has come to be regarded as the fashionable whim of a spoilt and capricious public. Downs tartly titled his article arguing precisely this 'Up and down with ecology: the issue attention cycle' (1972).

2.1.2 Or has there always been environmental concern?

The progressive confidence of materialism treats the modern conditions giving rise to environmental concern today as new and different. By contrast, pluralist approaches often start by looking at the universal concerns of human existence. They argue that there are a number of basic challenges human beings have to face at all stages of history, and that there are likely to be a number of basic ways in which such problems can be faced. This is well expressed by Kluckhohn and Strodtbeck (1961, p. 10):

“First it is assumed that there is a limited number of common human problems for which all peoples at all times must find some solutions. This is the universal aspect of value orientations because the human problems to be treated arise inevitably out of the human situation. The second assumption is that while there is variability in solutions of all the problems, it is neither limitless nor random but is definitely variable within a range of possible solutions.” [italics in orig]

Kluckhohn and Strodtbeck (1961, p. 12) go on to provide a taxonomy of values, listing 5 distinct domains in which values orientate people's thought and behaviour:

- i. Human nature - is it evil, good or neutral, is it fixed or mutable?
- ii. Man's relationship with nature,
- iii. Time,
- iv. Activity - 'being', 'being-in-becoming' or doing

v. Social relationships

For the purpose of this enquiry into the origins of environmental concern (domain (ii) above), they hypothesise three alternative orientations, with Man either subjugated to nature, in harmony with nature or the master over nature. As they note, mastery over nature is the dominant value orientation within this domain for modern Americans.

Fundamental to the pluralist approach is the assertion that modern materialism, and its assumptions about humanity's relationship with nature, is only one possible human value orientation.

2.1.3 Some other plural value theories

Both Kluckhohn and Strodtbeck's postulation of five distinct domains of orientation, and their belief that individuals' value orientations vary according to context and role contrasts with two more recent and influential value taxonomies (Tsirogianni, 2009). Rokeach (1973) hypothesised 18 x 2 distinct values, while Schwartz (1994) proposed ten. Both build taxonomies that rely on psychometric methodologies; although both address the process of change, the necessary presumption that a snap-shot psychometric profile gives a picture of the individual's enduring values inevitably emphasises the static rather than dynamic. Rokeach quite reasonably asserts from the outset that it is part of the essence of a 'value' that it is enduring while not completely stable (1973, pp. 5-6).

Rokeach's aim was to provide a definitive, objective account of values and value systems. He explicitly distinguished his concept of value from Kluckhohn & Strodtbeck's because of their separation of values into five separate dimensions. For Rokeach "The notion of value system, in contrast, implies a rank ordering of terminal or instrumental values along a single continuum" (1973, p. 22). On this view, having a 'system' precludes the possibility of incommensurability, since the purpose of the individual having a system is to resolve possible conflicts.

Schwartz explicitly sought to reveal an underlying structure to human values. He proposed a continuous 'circumplex' of ten values, with the ten grouped within two bipolar dimensions (Openness to change versus Conservation; Self-enhancement versus Self-Transcendence). Like Kluckhohn and Strodtbeck, Schwartz starts from observing universal human needs (biological, social interaction and

group cohesion) and recognises that fundamental to any scheme of values is the inevitable competition between incompatible objectives. However, the focus on an individual's values guiding their behaviour emphasises self-actualisation and relationships between the individual self and other people. The human relationship with the physical and temporal world appears subsidiary to an understanding of values as modes of agency and *self*-expression. Schwartz also presents the circumplex as a continuum. A typical individual can be mapped onto the circumplex with a scatterplot of value scores, implying that these can be averaged to locate the individual in some part of the diagram. This could not be done in a scheme which takes plural values as disjunctive and incommensurable.

As a consequence, Schwartz's system can still be reconciled to an overall modernist materialism. End-values of transcendence or harmony with nature may compete with values of self-enhancement, but could still be explained as revealed preferences within individual utility.

The desire to pinpoint the individual's belief system inevitably underplays three factors:

- The role of long term social context in stimulating alternative values or priorities: in affluent societies environmental concern rises (Inglehart, 1990)
- The role of short term social context: it does seem likely that individuals willingly live out different values in different situations (Tsirogianni, 2009)
- The relationship with the physical environment: the emphasis on the 'self' tends to treat the 'other' as social, and constraints upon the self as social. Environmental values are characterised as the self positively seeking harmony with the physical world, but the physical world can be experienced as 'other' too. The issue of climate change may return us to experiencing the physical world as constraining. For all the cross-cultural studies, Schwartz' circumplex feels too contemporary to capture such a shift.

2.1.4 Plural Rationalities and Heuristic Reasoning

The utilitarian calculus is a key element of materialism. As shown above in 2.1.1 the calculus can provide a backward looking analysis using revealed preference to subsume other values. Typically, alternative forms of decision-making are treated

as biases (Kahneman, et al., 1982, see section 1.5.2), or deviations from rational logic. On this account, short-cut heuristic reasoning is used when there is insufficient information or time to complete a full utilitarian calculus.

It is possible to view heuristic reasoning differently. Rather than treating heuristics as deficient from an ideal rationality, this approach also embraces plurality. It follows the same logic as Kluckhohn and Strodtbeck by arguing that recurrent problems may have given rise to ‘fast and frugal heuristics’, thinking tools that facilitate people’s ability to tackle problems in real time when a ponderous calculation of utilities is impossible (Gigerenzer, 2008). Just as Kluckhohn and Strodtbeck proposed a set of discrete value orientations that are not reducible to each other, Gigerenzer suggests a toolbox of multiple but discrete tools that equip people to deal differently with recurrent but different situations.

This thesis will not address an important question: are these two pluralities, alternative methods of reasoning and alternative end values, different? A plurality of values can provide different ‘base currencies’ (ie not just utility) but the methods of reasoning how to achieve the divergent values can be the same between values. Multiple heuristics are different cognitive processes - critically they are not trying to achieve a best guess at the answer a utilitarian calculus would produce. They perform an analysis by their own rules. Yet in many ways ‘values’ perform the function of heuristics, guiding real-time decision making. Determining whether ‘values’ operate cognitively as heuristics is beyond the scope of this thesis.

2.1.5 Cultural Theory and Relational Models Theory

Both Cultural Theory and Relational Models Theory follow Kluckhohn and Strodtbeck’s lead in proposing a limited number of solutions to recurrent human problems (Fiske, 1992; Mamadouh, 1999). Each originates from anthropological observation that prompted a desire to map the universals common to social relationships in any society or culture.

The contrasting origins of pluralist and materialist accounts predetermine their approach to accounting for the arguments that societies have over contested knowledge such as risk assessment. The pluralist account argues that different situations or environments call for different human responses, which implies that

the environment determines which human response is the appropriate one. The materialist presumes that human agents are seeking to control as best they can their circumstances: seen from the subjective perspective, the agent is always trying to optimise the utilitarian calculus. Faced with famine or storm, blaming the gods is mere superstition not an alternative rationality; what you need is a cool head to regain mastery over the environment and your own fate. For the materialist, the only *real* social problem is restraint on freedom of action, either self-imposed by the agent's own lack of aspiration, or imposed by others.

2.2 Cultural Theory (“CT”)

2.2.1 There are different versions of Cultural Theory

Before outlining Cultural Theory (“CT”) it is necessary to warn that there are different versions of the theory (Douglas, 1999; Mamadouh, 1999) . Like other pluralist accounts, the theory proposes a typology of social relationships and associated values, but different versions claim four or five different ‘types’, while application of the theory to specific social dilemmas tends to focus on the role of only three of the types. Different theorists also assert a hard version, in which the typology is claimed to be exhaustive. Thompson, Ellis and Wildavsky (1990, hereinafter referred to as 'TEW') set out this hard version very clearly. The soft version makes less grand claims advocating the typology as a parsimonious capturing of the most influential and enduring ‘types’ (Douglas, 1999).

The theory's originator, Mary Douglas, made very clear that she was explaining how societies behave and argue. She was not providing an analysis of individual cognition, so it is generally recognised that the theory applies at the social level (Renn, 1992). Yet several researchers have used the theory to carry out psychometric surveys that explore the extent to which an individual's adherence to one or other of the different cultural ‘types’ or so-called ‘worldviews’ might affect attitudinal and behavioural dependent variables (Dake & Thompson, 1999; Kahan et al., 2007). Inevitably all cultural theorists resort to illustrating the social level typology with individual level ‘vignettes’ (Douglas, 1999; TEW).

These differences are important. Douglas's soft version is hugely influential (Milton, 1996, Ch3). Most of the criticism of CT is actually directed at the hard version. The criticism also exploits this apparent confusion over which level of explanation the theory is operating at, individual or societal.

2.2.2 Brief outline of Cultural Theory

Cultural Theory hypothesises two bi-polar dimensions, high/low 'Grid' and high/low 'Group'. When these interact they provide 4 possible relational types, together with a possible 5th null or disengaged type (Mamadouh, 1999). The Grid concept represents the extent to which an individual is bound by predetermined rules and the extent to which social roles are pre-defined. When social roles are sharply defined and separate, this is 'high Grid'. Where social roles are interchangeable and fluid this is 'low Grid'. The Group concept 'refers to the extent to which an individual is incorporated into bounded units' (TEW p5). Douglas herself (1982b, p. 3) refers to Group as a measure of 'commitment' or 'allegiance' to a group. Thus in a 'high Group' society individuals are absorbed into and nurtured by the group; their identity is largely that of membership of a group. In a 'low Group' society individuals define themselves independent of group membership.

Combining these two dimensions produces a 2x2 typology (Douglas, 1982a; Mamadouh, 1999). For example, a 'high Grid' and 'high Group' society is typed as a 'hierarchical' society, in which members know their roles and status and see these as fixed. They also rely on the community, and their certainty as to their place within it, for their well-being and identity. The different types are described as cosmologies (Douglas, 1982a, throughout), 'ways of life' (TEW, Verweij et al., 2006), 'social solidarities' (Thompson & Rayner, 1998), 'worldviews' (Gaskell & Allum, 2001) or even 'ways of organising' (Thompson, 2008 Ch 5). This trouble with naming the types derives from the fact that the types both describe how a society is organised and how the prevailing ideology deems society should be organised. Douglas's central argument is that how a society is organised determines how its members think it should be organised (Douglas, 1999). She goes further, to argue that the function of the society's dominant worldview is to reinforce the prevailing form of organisation (Douglas, 1982a; Douglas & Isherwood, 1996).

The 2x2 formulation begs for illustration which is provided typically in the form below (e.g. Douglas, 1982b, p. 4; Mamadouh, 1999, p. 399; Thompson & Ellis, 1997, p. 3). Each box contains one of the four worldviews and its place in the 2x2 grid/group matrix:

Fatalist	Hierarchist/Bureaucrat
High Grid, Low Group	High Grid, High Group
<i>Nature capricious</i>	<i>Nature perverse/tolerant</i>
Individualist/Entrepreneur	Egalitarian
Low Grid, Low Group	Low Grid, High Group
<i>Nature benign</i>	<i>Nature ephemeral</i>

Figure 2-1: Cultural Theory 2x2 illustration

Subsequent versions of the 2x2 map frequently incorporate four different ‘myths of nature’ nature as included above (e.g. TEW Ch 1, Gaskell & Allum, 2001). Thompson derived these from the work of ecologists such as C S Holling who had developed a taxonomy of different ways of conceptualising nature (Holling, 1986, TEW p.23)¹⁵. This emphasis on the interpretation of nature and man’s relationship with it dovetailed with the early application of Cultural Theory to the societal interpretation of risk (Douglas & Wildavsky, 1982). The combination encouraged the application of CT to the analysis of environmental risks as well as to the interactions between economic and technological development and the natural world (e.g. seat belts, Adams, 1995; water resource management, Gyawali, 1999; climate change, Rayner & Malone, 1998; nuclear power, Thompson, 1982).

Expanding on the ‘myths’ of nature:

- top left, nature capricious, takes the fatalist view that human activity is unlikely to make much difference to nature but that natural events could easily affect humanity.
- bottom left, nature benign, takes the view that nature can cope with whatever man throws at it, and man should continue the Promethean scientific project through trial and error experimentation.

¹⁵ Holling (1979) observes that mankind needs myths to deal with uncertainty. With the environment the empirical method of exploring uncertainty by trial-and-error experimentation is often too risky.

- bottom right, nature ephemeral, sees nature as fragile and at risk from human activity, mandating the precautionary principle.
- top right, nature perverse/tolerant, emphasises that while nature is there to be enjoyed there are limits to what nature can put up with from humans, requiring the authorities to identify those limits through science and then regulate human activity to stay within those limits.

As indicated above, and discussed below at 2.2.4.1, the argument that connects each worldview to a specific myth of nature is functionalist: the worldview needs to take the relevant view of nature to maintain its preferred social order.

2.2.3 Some complications to the outline of Cultural Theory

From the outset Thompson's (1982) own exposition adds a third dimension and a fifth way of life or type. This third dimension seeks to measure the degree of engagement with the world; the fifth way of life is that of the disengaged or autonomous hermit. Throughout his writing Thompson (e.g. 1982, 2008) makes extensive use of topology to explore how the dimensions combine with each other, how the ways of life relate to one another and how changes in worldview come about. Thompson's more complex framework has never caught on, even though it gets to grips with the charge that Cultural theory grossly oversimplifies how we make sense of the world (Renn, 1992). Mary Douglas herself (1982a, Part 1, Introduction on Method) admires the ingenuity of Thompson's approach: but Grid-Group was originally conceived as an analytical tool (Mamadouh, 1999) and the parsimonious simplicity (Douglas, 1999) of the 2x2 matrix is what seduces and is what has influenced more generalist writers (e.g. Hulme, 2009; Mulgan, 2007).

The strongest, and most provocative, claim of CT is that the five ways of life (if one includes the disengaged way of life) represent the *only* "viable" ways available to societies (TEW p84). Unfortunately CT undermines the confidence of this claim because there is not just blurring at the edges of the framework but also uncertainty over its core structure. In one of the early versions, Douglas and Wildavsky (1982) compress the types to two, the 'centre', located in the Western world on the individualist-hierarchist axis, and the 'border'. Much of the later work on institutions and policy-making explicitly excludes the fatalist way of life as having no impact on policy, effectively reducing the typology Cultural Theorists use to three (Thompson, 2008, p. 19; Thompson & Rayner, 1998, p. 285; Verweij, et al., 2006, p. 8). Uncertainty over the status of the disengaged way of life or

worldview - is it 'a way of life' or something different; how does it relate to the 'Group' and 'Grid' dimensions? - further clouds the picture. Attempts to integrate other typologies are also imperfect: Thompson's myths of nature, and their topological illustrations (TEW Ch 4), do not in fact match Holling's original formulation which has no equivalent of 'nature capricious' (Holling, 1979)¹⁶.

The lay concept of a 'worldview', namely a coherent cluster of beliefs through which an individual or society makes sense of the surrounding social and physical world and builds the principles by which life should be led, represents the heart of CT. The social context is what conditions how the individual learns to make sense of the world (Douglas, 1982b). Inevitably this process is recursive. The social context moulds prevailing worldviews, and worldviews construct the social world. The functionalism is also reflexive, the dominant worldview helps members who embrace it thrive in a particular society, and so maintains the prevailing order. CT, in typical anthropological style, seeks to unpick these constructions. This approach is evident in Douglas & Wildavsky's account of Risk (1982). For them societies do not encounter objective risks to which they respond. Societies *select* those potential dangers that they are going to be concerned about and deem these to be *risks* that should be managed (Rayner, 1992). Risks do not correspond to exact probabilities of dangerous occurrences in the physical world. The function of risk selection is to reinforce the prevailing cultural order (TEW p63). The approach is also applied to consumerism (Douglas & Isherwood, 1996) to show how societies endow consumer goods with meaning. Societies' choices as to what is of value and what is not also serve to reinforce the prevailing cultural order. This formulation of cultural reproduction with its Marxist overtones encourages criticism. Less provocative would be to argue that societies interpret and engage with the flow of contingent events in ways that do not undermine themselves. The need for coherence motivates at the social level as well as the individual level, and for both will sometimes trump the need for correspondence.

If society continually reproduces itself, then how does change occur? Cultural Theory has constantly wrestled with balancing its apparently determinist account of a static society against our experience of dynamic social change and the desire to incorporate free individual agency in any theory. This point is addressed below at 2.2.4.2.

¹⁶ Holling's list is Benign Nature, Ephemeral Nature, Perverse/tolerant Nature and Resilient Nature (p97).

2.2.4 Basic Criticisms

It is unfortunate that in providing illustrations CT laid itself open to the accusation of rigid stereotyping (e.g. Boholm, 1996; and see Rayner, 1992) and oversimplification (e.g. Renn, 1992). In early expositions of CT, the 4 types are illustrated by prototypical individuals (e.g. TEW Ch1 pp5-11). This frequently leads to circular, or vacuous, accounts (Boholm, 1996; Jackson, et al., 2004) - e.g. the high-caste hindu is cited as a typical hierarchist because he lives in a caste-based society.

2.2.4.1 *Basic Criticism - tautology*

This criticism is unfair. Boholm (1996) claims that cultural theory is essentially tautological, that its conclusions are entailed in its premises. This fails to understand one of the great strengths of Cultural Theory, its exposition of the links in argumentation between fundamental value premises and applied policies. It is not tautological to unpack the many ways in which someone committed to a hierarchical social order ‘thinks’ hierarchically. Boholm complains: “People of culture A habitually do X because they share this culture A that prescribes that they do X. Observations of behaviour are used inductively to extrapolate features of culture, features that are then used to explain the very same behaviour that was used to formulate the theory” p72. Yet this manner of explanation is a necessary consequence of TEW’s theory that there is a closed system - it is necessarily circular. TEW’s mistake is not in their logic but their tendency to ignore the context surrounding the closed system. This is particularly evident in their metaphor of society as a flock of starlings (TEW Ch 5): this is used to illustrate the way that the unstable tensions between the different worldviews engender change. Change is theorised to come from within the system itself simply because it is unstable, more than because the system is surprised and challenged by interactions with its surrounding social and physical environment.

Boholm acknowledges that other cultural theorists such as Rayner suggest a much more fluid story, in which “the person is portrayed as a mosaic of ways of life, each enacted in its proper context” (Boholm, 1996, p. 77). This more nuanced version feels more realistic, but it does then prompt the second order question of how context and ‘way of life’ or worldview interact, beyond recognising simply that they do. If CT’s central thesis is that ‘worldview’ constructs the social

context, and vice-versa, the dynamic account has to allow space for some parts of the social context to emerge unconstructed by the dominant worldview.

TEW make no bones about the fact that their theory is a functionalist one, using forms of explanation “in which the consequences of some behaviour or social arrangement are essential elements of the causes of that behaviour”, (TEW p2), quoting Arthur Stinchcombe. Boholm, like many others, takes for granted that any functionalist approach is flawed (Boholm, 1996, p. 79). This dismissal is unhelpful. It is reasonable to argue that natural and social phenomena persist in the form they have ‘because this form works’, but only provided a detailed account of *how* it works is provided. The same objection of tautology was raised by Popper against adaptationist analysis in biology - the fittest are fittest because they survive (Curd & Cover, 1998 Ch 1); and the same objection can be rejected provided an adequate account is given of how the fitness does fit the environment successfully, and, better still, an adequate account of the mechanisms whereby this is achieved, just as Mendelian genetics suggested mechanisms whereby selection might be effected.

CT falls short of providing this much substance to its analysis of social phenomena, but functionalism per se is not a reason for rejecting it. Typically, (e.g. Verweij & Thompson, 2006) the 2x2 framework provides a tool to structure rich descriptions of how different groups within societies tackle significant problems. Nevertheless, the reasoning is still circular, even if rich and ‘unpacked’. Such theories really only move from ‘thick description’ to ‘satisfactory’ explanation when some plausible account of the *original* cause of phenomena - either in the social or biological field - is given. TEW’s reliance on social construction within a closed system precludes this.

Lastly, although it is a weak argument to throw criticism back at competing theories, 2.1.5. above identifies that this accusation of circular reasoning applies equally to the rational actor account. Revealed preference relies on empirical hindsight to argue that societies value what they happen to have chosen in preference to alternatives. Further, the view from the standpoint of individual rational agency necessarily believes in human possibility (utility optimisation) and opportunity when interacting with the physical world, rather than identifying the physical limits oppressing a passive victim. For CT, this is a clear example of an

Individualist worldview, that of the rational individual begat by the Enlightenment, shaping the social context to sustain itself.

2.2.4.2 *Basic Criticism - determinism*

The theory is also criticised for being deterministic (see Douglas, 1999; Milton, 1996, p. 97; Rayner, 1992, p. 106), a charge which TEW work hard to rebut. They picture social systems as closed but dynamic, with constant tension between the different worldviews played out in the public sphere. Each worldview needs the other, and, as later work on policy-making stresses, defines itself in its opposition to the other (Douglas, 1999; Thompson, 2008; Thompson & Rayner, 1998). This tension, and an ever-shifting balance between competing worldviews, is essential to hold society together. Despite being closed, any system is necessarily situated within a context, most obviously within the physical world. The constraints imposed by the physical world (TEW p25) or a wider social context introduce surprise which, if powerful enough, forces a change in worldview (TEW Ch 4). This unpredictable, fluctuating dynamism is very different from the determinism of teleological accounts such as that of Marx.

The role of 'surprise' reflects the influence of ecological interest in 'surprise' disturbing states of ecological equilibrium (Clark, 1986; Holling, 1986; Thompson, 1986). CT's recognition of context, and externally induced change, appears to contradict the point made earlier that CT over-emphasises change driven by forces endogenous to the closed system derived from its inherent instability. This is an issue of balance. CT asserts that much of the external world, at least in so far as society interacts with it, is socially constructed (TEW Ch 1). Inevitably such a theory stresses the importance of endogenous forces over exogenous forces. What is developed, for each worldview, is a coherent body of beliefs that aggregate into a worldview formed around the basic architecture for each of the 4 (or 5) social structures posited by the theory. As with scientific theory, a paradigmatic worldview will only be revised rarely when driven to do so by the accumulation of new, surprising or anomalous data (Kuhn, 1996). This is precisely the account provided by CT (Mamadouh, 1999).

The criticism of determinism exploits the tendency of CT to use individual level illustrations when the theory applies at the social level. At the individual level, it seems clear that individuals should be swapping between different worldviews

according to different contexts relatively frequently. At the social level, however, we should expect that change in fundamental outlook, and the fundamental organisation of society, is only slightly faster than glacial. A useful theory is going to stress the relatively static aspects of any dominant worldview.

2.2.4.3 *Basic Criticism - Reductionist Relativism*

Shrader-Frechette (1991) vigorously attacks Douglas & Wildavsky's "Risk and Culture" (1982) for taking the view that because culture does influence risk perceptions, then there can be no objective bases for risk assessment. Again, this has to be an issue of balance. For those willing to accept the dualism of some objective reality and some socially generated meaning, the balance should be struck by pragmatic considerations. How useful are the assertions made by the partisans on either side?

2.2.4.4 *Basic Criticism - Incoherence*

Mamadouh (1999) identifies incoherence as the most important charge against CT. Both Jackson et al. (2004) and Boholm (1996, 2003) come close to saying that the theory is too muddled to be truly useful.

The charge stems from three problems that have already been mentioned. First, there are different versions of Cultural Theory - the different typologies with two, three, four or five 'types' (2.2.3. above) suggest that the actual number chosen is almost arbitrary, which would make absurd TEW's absolutist claims for the schema they propose. Second, although Douglas makes very clear that worldviews operate at the societal level, the extensive work done by theorists on worldviews at the group (organisational) and individual level appears to contradict this. Third, CT tries to achieve a balance between a static and a dynamic account of society and between change engendered by endogenous and by exogenous forces. Frequently, an over-emphasis on one of these appears to contradict those occasions where theorists have stressed the opposite aspect.

2.2.4.5 *Basic criticisms -the source of the problem*

Verweij (2007) puts his finger on the source of much of the criticism of Cultural Theory. CT is explicitly trying to go beyond, or perhaps between, the dualism of the individual and the collective. Most rival approaches are committed to the

primacy of one or the other. CT tries to establish a middle way that synthesises the two. This has important methodological consequences, since it identifies the 'worldview' as the unit of analysis, not individual cognitions (attitudes available for psychometric testing), nor institutions and organisations. As many have found, trying to steer a middle course between well-established antagonists tends to provoke both. It does not help to tell them they have been fighting the wrong battle all along.

When treated like this, the 'worldviews' have similarities with Social Representations (Bauer & Gaskell, 1999). Both are present at the level of individual cognition and at the level of social interaction. Both are argued to have a powerful coercive force upon individuals. Both, offered as a unit of analysis, suggest a way around the dualism of the individual and the collective. CT could only be synthesised with Social Representation Theory (SRT) by arguing that the worldviews drew together coherent clusters of representations. SRT typically looks at the dynamic on-going generation of representations amongst communities and individuals confronted with new objects of knowledge (Jovchelovitch, 2007): CT, as shown above, pictures a more static communal shaping and interpretation of information.

2.2.5 Methodological issues

Section 2.2.4. encapsulates how frustrating Cultural Theory is to work with. On the one hand, the broad idea of the interconnection between how a society is organised and the prevailing worldviews, even ideologies, within that society is powerful. Further, the four, or five, worldviews posited by the theory's taxonomy do indeed seem to capture the essence of the core worldviews available in most societies. Yet it is hard to know how best to operationalise the theory or to test it.

Gross and Rayner (1985) recognised this challenge. They felt that Douglas' reliance on 'ethnographic and literary sources' (p16) did not adequately address their desire to make Grid/Group theory really useful; "One wants to know exactly what kinds of observable social behaviour indicate either grid or group constraints, and how grid and group constraints can be definitively distinguished" (p16). They proceeded to construct a fictitious case study to look at local attitudes towards a nuclear reactor in a putative New England town. In this they show at length how documenting - enumerating and categorising - types of

behaviour could provide quantitative data with which to map the presence of Grid and Group within the sub-cultures or groups present within the town. It is surprising that this fictitious exercise has not drawn more scorn from CT's critics, since it seems to encapsulate CT's fondness for stereotypes, for distilled theory over granular reality. Suffice to say, no one has implemented the proposed 'paradigm' in a case study.

Mary Douglas herself understood the problem. Her introduction to Gross and Rayner's book (Douglas, 1985) stresses that what is measured is relationships and differences of opinion, not individual attitudes. In spite of this CT researchers have used psychometric attitude surveys (Dake & Thompson, 1993; Kahan, et al., 2007): CT's use of individual stereotypes emphasises CT's assertion that dominant worldviews in a society do indeed manifest themselves in individual sense-making.

Tansey & O'Riordan (1999) claim that for Douglas, Cultural Theory itself represents a rejection of the presumption of methodological individualism: but Douglas is actually wishing to have the best of both worlds (Douglas, 1997). She hopes to marry societal level evidence, such as case studies, with individual level data that demonstrates the impact of societal worldviews at the level of individual cognition and inter-individual interaction. The trouble is twofold: first, evidence for CT at individual level is weak (Jackson, et al., 2004; Marris, Langford, & O'Riordan, 1998; Rayner, 1992); second, the hegemony of methodological individualism specifically acts to depoliticise risk even as Cultural Theory tries stresses that all risk is political. Douglas recognises the strengths of the risk research that relies on psychometric data, typically individual attitude surveys (Slovic, 1992), because much of this can be construed as consistent with her view that social forces significantly impact risk assessment. Equally, however, the psychometric data can be construed as saying that individual attitudes to risk are distorted by those social forces, justifying an emphasis on expert calibration of 'objective' risks (Douglas, 1997).

2.2.6 Recent research directions

It can be seen, then, that CT finds itself in the middle of a conventional contest between a constructivist outlook and a positivist one, with criticism from both sides. Unfortunately, CT researchers tend to be drawn to define their work according to this conventional boundary. For the constructivists, the richness of the insights provided by the analysis justifies the approach. For the positivists,

empirical data suggest that ‘worldviews’ have limited predictive power for individual attitudes and behaviour.

The result has been a divergence in the development of the theory. Down one route researchers have sought to improve the empirical results and have found a more fruitful way of using the theory to predict individual attitudes (Braman, Kahan, & Grimmelmann, 2005; Kahan, et al., 2007). These authors treat Grid and Group and the four worldviews in a similar way to deep lying values in attitude models. Like PC Stern’s VBN model outlined in Chapter 1, they are proposing alternative underlying cognitive variables of ‘Grid’ and ‘Group’ values and argue that these have predictive power^{17A}. This approach accepts the hegemony of positivism: Douglas (1985) noted that one response to this hegemony would essentially be if you can’t beat them join them.

Down the other path the constructivist approach has been emphasised to provide rich accounts of institutional behaviour and policy-making.

This latter approach is more obviously within the mainstream tradition of Douglas’s ideas and anthropological research. Douglas’ disciples commonly published their work alongside a paper or a short introduction by Douglas herself, and almost up to her death proponents of this approach continued to collaborate with her (e.g. Verweij, et al., 2006). They abandoned the early accounts that appeared to lock individuals into worldviews that were hard to shift: at the individual level the idea of rigid or static worldviews clearly flies in the face of the common sense experience that most individuals can marshal each of the worldviews but may probably be predisposed to access one more than the others according to context¹⁸. Instead, the focus on the policy making process, backed by good historical data, has been used to provide more compelling arguments that CT can illuminate our understanding of the policy-making process at the social level (e.g. Adams, 1995 Chs 7 & 8; Gyawali, 2006; Prins & Rayner, 2007b). This work argues that the plural worldviews present in society need to be reflected in

¹⁷ Endnotes, denoted by letters, are found starting on page 430.

¹⁸ The early exposition of CT fully acknowledged that individuals accessed multiple worldviews according to context, TEW (p265ff) has a short section towards the end entitled “The Multiple Self” which recognises exactly this. Yet it reads as an afterthought to the main thrust of their argument. A theory whose roots lie in the study of traditional societies inevitably emphasised rigidity and constraint upon individual thought and action. Certainly most readers (e.g. Fiske, 1992, p. 715) take CT’s social constructionism to be fairly rigid: ie the political structures in a particular society determine how members frame their social relationships mentally.

institutions, providing what are called 'Clumsy solutions for a complex world' the title of Verweij & Thompson's book (2006).

2.2.7 Analyses of climate change policy-making

Rayner & Malone's 4 volume 'Human Choice & Climate Change' (1998) represents a sustained use of the CT approach to analyse the climate change debate. Although they do not yet use the term 'clumsy solutions', the 1998 study advocates the same philosophy that policy should be shaped to respond to multiple worldviews. In their joint chapter, Thompson & Rayner (1998) elaborate the way in which three of the worldviews construct arguments about the threat of anthropogenic global warming (AGW), and in particular the policy preferences that flow from each worldview. They explicitly omit the fatalist (p285) and hermetic worldviews since, although motivated differently, neither engages actively in policy discussions: this omission will be returned to later in the thesis.

What their analysis does is to show the logic that connects policy preferences with fundamental worldviews. They are able to summarise these in the following matrix (from pages 327 and 329):

	Market (Individualist)	Hierarchical	Egalitarian
Myth of nature p284	Benign	Perverse/tolerant	Ephemeral
Diagnosis of AGW p294	Pricing	Population ^B	Profligacy
Policy bias p294ff ^C	Libertarian	Contractarian	Egalitarian
Distribution p318 ^D	Priority	Proportionality	Parity
Consent p320	Revealed	Hypothetical	Explicit
Liability p318	Loss spreading	Deep pocket	Strict fault
Intergen responsibility	Weak	Balanced	Strong
... ie	Present>future	Present=future	Future>present
Discounting	Diverse/high	Tech standard	Zero/-ve
Time perception ^E	Short term	Long term	Compressed
Risk management ^{19 F}	Proof required	Regulatory Balance	Precautionary

Figure 2-2: Cultural Theory: Matrix of Climate Change policy preferences

Thompson & Rayner's account (1998) builds on this matrix by providing illustrative explanations of a number of the proposed logical connections between the policy preferences and the underlying worldview. Rather than explain each entry in the matrix individually, some examples of how the matrix can be used are given below:

Those committed to a market-based interpretation of relationships typically require a high burden of proof that a risk will, rather than might, materialise before acting upon it; they prioritise present generations over future and they expect future losses to be shared rather than allocated according to historic fault (Beckerman, 2003 Ch 5 & 7; Lawson, 2008 Ch 7).

By contrast egalitarians take a precautionary approach to protect against risks that may materialise; they prioritise future generations over the present and they expect losses to be attributed to those that generated them - in other words the developed world owes the developing world. Most of the environmental movement analyses climate change in this way (e.g. Juniper, 2008), and indeed the UN's own analysis embodies this approach (United Nations Development Programme & Leiserowitz, 2007, pp. 39-46).

¹⁹ This is an addition to their list. This, and various differences between the above and Fiske's own (1992) matrix are discussed in the Endnotes.

- So-called ‘hierarchists’ focus on mending the deficiencies of the prevailing order so that it can be preserved. Thus Nicholas’s Stern’s diagnosis of ‘market failure’ rejects individualist calls to adapt as and when the problem materialises (Stern, 2007). This leads to proposals to remedy the failure while preserving global free markets: it explicitly rejects egalitarian proposals to reduce consumption and rein back economic growth. It places great faith in the IPCC experts and the established organisations like the UN, while looking to the deep pockets of the developed world to shoulder the burden. This worldview takes a long term stewardship perspective, and advocates discounting mitigation costs by a technical method designed to support a long term view, hence the extensive debate over Stern’s discount rate (Atkinson et al., 2009; Beckerman & Hepburn, 2007; Yohe & Tol, 2008).

Some of the entries in the matrix are less than obvious and are open to challenge: these are discussed further in the endnotes.

A consequence of the closed system within which these worldviews operate (according to the theory) is that they define themselves in relation to each other. Thompson and Rayner’s analysis is particularly effective in showing how the worldviews establish their more specific attitudes and detailed preferences in ‘contradistinction’ to each other, and Douglas (1999) herself emphasised how important this element of the more developed theory is. Worldviews, like ideologies, are developed as an argument with alternative points of view.

CT’s analysis is powerful, developed in some detail, and persuasive. By making the worldview the unit of analysis Thompson and Rayner (1998, p. 333) can develop coherent clusters of beliefs gathered around each worldview as they do in the matrix above. What remains problematic when embracing a pluralist perspective is that it is difficult to become a policy advocate. Rather like the theory’s own hermit, standing on the sidelines observing the contest between the antagonists, the realism implied by accepting as valid competing worldviews reinforces the status quo, which is to take little action. A similar problem is faced by other critics of the monolithic UNFCCC framework such as Victor (2004): realistically we can only expect gradual change; pluralism’s tolerance of competing viewpoints vindicates ‘clumsy’ gradualism (Prins & Rayner, 2007a, 2007b), but how do you overthrow gradualism if it simply will not be fast enough?

CT's determinism justifies the pessimism of those who judge that humanity is incapable of meeting this challenge (Gray, 2002, 2006).

CT's focus on the internal logic of the worldview often leads the theory to neglect external context, as noted above. CT's focus on the internal logic of each worldview, and the positioning of each worldview in contradistinction to each other, encourages a socially constructivist understanding of social change and neglects the possibility that outside forces may well engender change. It is as if in a nation with liberal and conservative factions, the actions of the two factions will be the only factors that drive change, when in reality activity in outside countries, or natural changes in the physical world, will both play their part too. Thompson and Rayner retain the TEW formulation of a closed system sustained by constant dynamic interaction between the different worldviews: "which means that instability and conflict are inherent to the framework, as they are in real life, and do not require the action of an exogenous agent for changes in social organisation or the values that support it." (Thompson & Rayner, 1998, p. 328) It is more comfortable to hope that we can voluntarily prevent major climate change than to anticipate that we will have to respond to extreme weather events and to adapt to major long term changes, and that only such external shocks will force mankind into significant change. But the conclusion flies in the face of basic behavioural science and in the face of reality, as well as in the face of CT's own use of the notion of surprise (2.2.4.1 and 2.2.4.2 above): Hurricane Katrina had a role in shifting US attitudes to climate change (for example a US think tank's report on the "foreign Policy and National Security Implications of Global climate Change" regularly refers to Katrina (Center for a New American Security, 2007), and hot summers brought global warming to the attention of the US public in the late 1980's (Mazur & Lee, 1993) and Europe in 2003 (Stern, 2007, pp. 16-17 reflects this link). Behavioural science asserts that behaviour will respond to changed environmental stimuli: this, after all, is what adaptation means.

Although mankind has developed techniques to manipulate the environment and has developed greater and greater ability to anticipate changes in the environment, nevertheless, these advances still leave society as a subset of the total physical world, not a separate system closed off from it. Deductive logic enabled Aarhenius to argue for anthropogenic global warming over a hundred years ago, but without empirical stimuli such as actually rising temperatures and extreme weather events, there would be no human behavioural change. Even

today enhanced scientific predictions combined with actually experienced consequences do not appear to constitute sufficient conditions to generate change.

2.2.8 Mainstream use of Cultural Theory

Cultural Theory is frequently acknowledged within discussions of risk (Hood, Rothstein, & Baldwin, 2001, Ch1; Renn, 1992; Rosa, 2003), but it is fair to say that it has remained marginal. It gets no mention in most of the mainstream social science accounts of the climate change debate (e.g. Giddens, 2009). There are signs that this may be changing, even if only slightly. Leading UK meteorologist Mike Hulme (2009) explicitly uses Cultural Theory to develop his view on his title problem 'Why we disagree about climate change'. Social theorist and one-time labour policy adviser Geoff Mulgan (2007) also sees Cultural Theory's pluralist insights as essential. Leading statistician and risk researcher David Spiegelhalter also cites the recent research by Dan Kahan's group as good evidence of the impact of worldviews on risk perception (Spiegelhalter, Pearson, & Short, 2011).

Cultural theorist Steve Rayner has provided policy advice to the UK government (Rayner, 2004): but as mentioned in 2.2.7, a pluralist point of view is good for identifying the difficulties in others' policy prescriptions but is a difficult platform from which to advocate decisive policy oneself.

In spite of these green shoots of influence, it is hard to escape the conclusion that some of the problems identified in Cultural Theory above are contributing to this lack of meaningful impact. Section 2.3 now looks at an alternative pluralist theory; a synthesis between this and CT could alleviate some of these difficulties.

2.3 Relational Models Theory

2.3.1 Outline

Fiske's Relational Models Theory, "RMT", (Fiske, 1992) posits four basic models of social relationships. The theory grew out of Fiske's anthropological work in Burkina Faso, but Fiske connects each of the four models to a wide range of analyses of social relations from Marx to Adorno, from Durkheim to Polanyi and many more. In the 1992 article summarising the theory he traces these connections to classic theory for each of the four models before leaping to a bold conclusion along the following lines for each: "The inference is that all of these

aspects of social relations exhibit the same form because, in every case, people are using a common psychological model” (Fiske, 1992, p. 700).

The four different relational models (“RMs”) are:

- Communal sharing: within a “CS” relationship people treat each other as equally entitled members of a shared group. The needs of the group as a whole come first and members are entitled in so far as they are members of the group. People know where they stand by knowing to which group they belong.
- Authority ranking: within an “AR” relationship people associate with each other in accordance with a ranked hierarchy. People know where they stand; both in terms of obligations upwards to their superiors and in terms of obligations of protection downwards to their inferiors, as well as in terms of the obligations of others towards themselves.
- Equality matching: within an “EM” relationship people require and expect to both give and receive exact equivalence in reciprocation. People take turns in games, demand an eye-for-an-eye to compensate for offences, or feel obliged to reciprocate dinner invitations at a finely judged interval. People know where they stand in relation to whose turn it is.
- Market Pricing: within an “MP” relationship “social transactions are reckoned as rational calculations of cost and benefit” (Haslam, 1995b, p. 43) between free agents. What is common in the relationship is the accepted use of a common scale such as money to provide comparisons of value. People know where they stand by reference to the scale.

The four models are essentially models of social exchange. Fiske (1992, pp. 708-710) identifies two additional possible types of interaction between people where no proper exchange takes place, ‘Asocial’ and ‘Null’:

- Asocial: when a protagonist is aware of a counterpart’s sociality but makes no commitment to any form of relationship with them.
- Null: when the protagonist does “not recognise any shared standards or ideals as governing the interaction, any more than one does when stepping around a tree” (p708).

Labels come with baggage attached. Fiske's labels for the four RMs carry plenty of preconceived notions, in some cases obscuring the essential elements of the model. To avoid confusion this thesis retains Fiske's labels, but later chapters will try to unload some of the baggage. Similarly, lists come in an assigned order. The RMs are always listed in the order CS, AR, EM and MP. Fiske considers that this order follows a developmental path but, like the labels, a rigid order tends to obscure some of the links between the RMs. This thesis will on occasion vary the order in which the RMs are presented and analysed.

2.3.2 Cognition

Exactly what form of cognition is taking place when an individual applies these models to a relationship, or perhaps more accurately to a situation in which social relationships play a part? Haslam, one of Fiske's closest collaborators, proposed that the application of an RM was an act of categorical representation (Haslam, 1994). He contrasted this with what he termed prototypical representation and dimensional representation. Dimensional representation refers to cognitively placing an instance between two extreme poles. Prototypical representation refers to cognitively comparing instances to a never exactly matched ideal-type: it is similar to dimensional representation in that instances lie on a continuum, either far or near to the ideal type. Categorical representation, in principle, is a binary belongs/does not belong allocation to a group, tempered by possible blurring at the edges in instances of uncertainty.

Fiske, Haslam and Fiske (1991) asked 24 people to maintain diary records over 7 to 10 days of occasions when they misremembered people's names. Subjects classified the relationships with the people misnamed and the people whose names had been erroneously substituted were categorised (by the subjects) according to the 4 different relational models. Out of 115 reported misrememberings, 77 held 'constant the mode of relationship with the two people confused' (p662). A further study, reporting 60 misrememberings, was used. This produced the same results and was also used to establish that this 'concordance' in the relationship mode of confused persons was independent of confusions based upon gender, race or roles. A further study of non-verbal actions towards others found similarly that subjects mistakenly performed actions towards counterparties in the same relationship mode as the intended counterparty.

Haslam (1994) asked 50 students to identify 40 relationships they were party to, from which 10 were selected for analysis. Students then ranked these 500 relationships against 48 7 point likert scale descriptions of the nature of the basis of exchange between themselves and each counterparty. These descriptive statements included some representative of each of the relational models as well as some representative of Foa and Foa's alternative resource-based categorisations (Foa, 1993). Haslam used analyses of the covariance of these appraisals of the relationship to argue that the relational models were categorical representations rather than dimensional or prototypical representations. He also used the analysis to argue that the relational models had greater utility and information value than Foa's resource-based categorisations.

Haslam (1995a) conducted a factor analysis on the same data. These suggested a two dimensional factor space of communality and inequality, with the four models distributed within this space, albeit with only Communal Sharing demonstrating a tightly coherent profile and, at the other extreme, Equality Matching, appearing to be something of a composite between two modes of relating (equality and turn-taking). This rather inconclusive outcome prompted further work. Haslam and Fiske (1999) conducted a similar study with 42 participants from diverse backgrounds (i.e. not recruited from a student population), each naming 40 relationships from which 10 were chosen. Again 52 descriptions of the relationship were ranked on a 7 point likert scale (from not at all true to very true). Using 33 of these statements the authors used confirmatory factor analysis to show that a framework based upon 4 unipolar, but inter-correlated, relational models provided the best summary of the data. This conclusion regarding the structure of the four RM's and how they relate to each other contrasts with the structure of the worldviews hypothesised by Cultural Theory. The differences are explored later in this chapter.

2.3.3 Relational grammar

An alternative way of looking at the type of cognition taking place when an RM is applied is to look at the function they perform. Haslam suggests (1994, 1995b) that the RMs act as an innate relational grammar. He draws the analogy of Chomsky's universal grammar. On this analogy the RMs taken together would function as a 'Culture Acquisition Device'. Fiske does not use this term but in later accounts describes the RMs as 'Cultural coordination devices' (Fiske, 2000). The RMs enable children and new immigrants to co-ordinate their experience of

the ambient culture (Fiske & Haslam, 2005). In themselves the RM's are 'empty of any specific content' (Fiske, 1991, p. 142): the prevailing culture specifies the implementation rules of the RMs, for example who is included within the CS community, what constitutes equality in an EM exchange, how to determine AR status or the underlying assumptions about property and contract rights manifested in MP relationships.

This recursive interaction (Fiske, 1991, p. 150) between cognitive structure and ambient culture implies that the mental architecture reflects and is reflected in the structure of ambient culture. A seductive suggestion within Fiske's (1992) elaboration of the relational models is that they follow the logic of the 4 basic arithmetical measurement scales (nominal, ordinal, interval and ratio). This would imply that there is a close alignment between how human perception of the physical world is structured and how human perception of the social world is structured, although this idea has not been taken further by Fiske or his followers. Setting aside possible connections to perception of the physical world, Fiske's account of recursive interaction between the RMs and ambient culture encourages the belief that RMs share the pragmatic virtue of *correspondence* to the external world that, according to Gigerenzer (2008), explains the ecological success of cognitive heuristics.

2.3.4 Correspondence between levels of analysis

The account of Cultural Theory given above highlighted the challenge of connecting a theory of societal level phenomena with individual level evidence. Social psychologists are rightly cautioned to be mindful of the difficulty of moving between different levels of analysis.

However, this issue is unavoidable with both theories. CT contends that societal forces shape how a society's members make sense of the world. Thus it expects that the worldviews constructed at a social level will be manifested in individual sense-making. By contrast, RMT contends that certain observed patterns of individual cognition can also be observed in how societies make sense of relationships. A taxonomy hypothesised at the individual level is also hypothesised to be manifest at the social level. Both theories effectively assert that the interaction between the two levels is recursive. Both also implicitly rely on the adaptationist logic that the correspondence between the way the social world is put together and the way individuals make sense of it is inevitable: it can

not work for an individual to try to understand family relationships in terms of market pricing.

This highlights a fundamental assumption of this thesis: that there is a correspondence between RMT's hypothesised models and their social manifestation, for the purposes of this thesis in the public discourse over climate change. The thesis does not attempt to provide a causal explanation for how phenomena at either level bring about change in phenomena at the other level. In a book chapter entitled 'Relational Models Theory 2.0' Fiske (2004b) breaks down the RMs into the innate cognitive 'proclivities', which he terms 'mods', and the specific cultural, situational instantiations and expressions which he terms 'preos'. Social exchange is co-produced by these two constituent parts of the Models: ie an Authority Ranking *Model* is situated in a particular time and culture, drawing upon the core logic of the predispositional '*mod*' and the local '*preos*'.

However, in this thesis the approach is closer to that adopted originally by Fiske, which sidestepped the question as to what the causal connection between the social and individual manifestations of the phenomena might be, restricting itself to the suggestion that the similarities between the two cannot be co-incidental (Fiske, 1992, pp. 700, 702, 705).

2.3.5 Criticism of RMT

RMT has not attracted the level of criticism described above for CT. Mainly, this reflects the fact that there are many researchers proposing models of the mind comprising cognitive modules or tools (e.g. Gigerenzer, 2008; Hirschfeld, 1998; Sperber, 1996 Ch 6; Tooby & Cosmides, 1992). Humans have many tools in their cognitive toolbox, as acknowledged by Fiske (2004a, p. 127): usually other researchers can treat the RMs as further tools that are complementary rather than competitive to their own hypothesised tools. RMT can then be usefully adduced as corroborative evidence simply to support the general argument that the mind is an evolved toolbox (e.g. Pinker, 2008, pp. 400-414).

Fiske (1991, 1992; and in private correspondence 2008), makes clear that the individual cognitive modules have counterpart manifestations in the social realm, but this has not been the focus of subsequent research activity. If RMT had been treading on sociological toes, we might expect that there would have been the same sort of sustained criticism that CT has been subjected to.

One cogent critique has come from CT itself. Verweij doubts that RMT's four models in the classification are "jointly exhaustive as well as mutually exclusive" (Verweij, 2007, p. 9). He offers examples of social arrangements which represent overlaps between EM and MP, AR and MP, EM and CS, and EM and asocial relationships. These examples do not disprove RMT, which explicitly hypothesises that the RMs combine to create social arrangements (Fiske, 1991, pp. 21-22) so that we should expect to diagnose multiple RMs in specific real world circumstances. However, it does remind us of the limitations of any simplifying classification when applied to the apparently infinite complexity of the real world. This obviously poses a problem for RMT. On the one hand, the thrust of research has to be to break down social relationships into constituent RMs, still the main aim of Fiske's more recent writing (Fiske, 2004a Ch 3). On the other, much of the analysis of real life situations offers combinations of RMs at work. For example, a Market Pricing defence of bankers' bonuses rests on the operation of the free market correctly valuing the worth of the bankers' efforts. The extreme MP position attacks authoritarian interference and government regulation of free markets, so that the MP arguments are often set up in opposition (or in CT language, 'contradistinction') to an AR standpoint. However, government defence of its own reluctance to regulate bankers' bonuses typically relies on asserting a defence of the status quo, the existing 'order' of the global market, effectively creating an alliance of AR and MP arguments. Any one RM can assert that pursuing the goals of another RM is a means to achieving its own ends: just as utilitarians can define any pursued goal as the revealed utilitarian preference of the pursuer. Yet Verweij must be right to insist that, in a truly pluralist system, when push comes to shove people have to choose between the incompatible values implied by different models.

Unlike CT, RMT has been tested in studies of individual cognition to try to demonstrate the presence of the four RMs (see 2.3.2 above). Like CT, RMT has been used to provide powerfully insightful thick description in the anthropological field (Fiske, 1991). So RMT is exposed to the same challenge as CT: on the one hand, the taxonomy frequently seems to oversimplify the infinite variety of the real world, on the other, when the theory is broadened to admit proliferating combinations of the RMs its explanatory power is diluted. Equally, it is inevitably difficult to demonstrate in the field the presence of combined RMs and opposed RMs as well as the RMs themselves.

2.3.6 Relational models manifested at the social level

Fiske concentrates his presentation of the RMs as phenomena occurring at the individual cognitive level: much of the empirical work to support the theory tests phenomena at this level (Haslam, 2004 provides an overview). There is also empirical work at the group and organisational level (Haslam, 2004, pp. 37-44), but there is little analysis of social level phenomena using RMT. This is not because Fiske does not think this an appropriate use of RMT (Fiske, 2008). Rather, Fiske makes clear by drawing support from similar typologies in social theory that he sees the logic implied by each RM as constantly and ubiquitously manifested in social phenomena. So much so that he generates a matrix mapping the four RMs onto various social domains such as war, property rights, distributive justice and the world of work (Fiske, 1992, pp. 694-696)²⁰.

As described above, Cultural Theory also extrapolates a small set of relational principles onto different social domains to generate a matrix of the logical arguments that each principle will deploy within each domain (Thompson & Rayner, 1998). Chapter 3 explains how a synthesis of these two matrices has been used to provide the framework for the empirical studies in this thesis.

2.3.7 Relational Models Theory and the climate change debate

Subsequent to Fiske's original anthropological research, RMT has not been used to analyse societal level phenomena²¹. What differences can be expected between an analysis using RMT's typology and Thompson and Rayner's analysis using CT?

A noteworthy feature of Thompson and Rayner's approach is the conscious exclusion of the so called 'fatalist' worldview from the analysis of the debate. TEW (pp93ff) regarded fatalism as a passive worldview, with only Hierarchism, Egalitarianism and Individualism having an active role in policy making. This approach is justified by the fatalist's view that policy is pointless. TEW try to account for the role of fatalism as providing a reservoir of potential recruits for active worldviews.

RMT does not differentiate between the four RMs in this way. The only suggestion is that Market Pricing may not be fully present in some societies (Fiske, 2004b, p.

²⁰ The matrix is readily accessible at subscribing academic libraries via <http://psycnet.apa.org/journals/rev/99/4/689/>.

²¹ Section 3.1.3 discusses the levels of explanation that this thesis seeks to address, following Doise (Doise, 1986).

15). The different forms of exchange embedded in each RM all have a role to play. What role will Equality Matching, the nearest equivalent RM to fatalism, play in the climate change debate? Section 1.3.2 showed how the Commons Dilemma plays a central role in the debate. The logic of the dilemma follows that of Equality Matching, namely that carbon emitters are unwilling to give up their emissions without certainty that they will get reciprocal action from others. Cultural Theory may be partly right in so far as the Commons Dilemma works negatively, discouraging effective policy. Yet the Commons Dilemma can hardly be described as passive in this debate, so one of the opportunities of this thesis will be to examine whether integrating the Equality Matching model into the analysis provides a better analysis than Cultural Theory's exclusion of fatalism.

2.4 Detailed mechanics

The broad shape of both RMT and CT offers many parallels to much prior theory and feels plausibly consonant with much daily experience. Yet the cold detail of the theories inevitably leaves loose ends unresolved and begs new questions.

1. Are there really *only* four ways of thinking relationally? The theories are underspecified in respect of how the RMs on the one hand and the worldviews on the other combine with each other and interact with other individual cognitive and social processes.
2. The internal structure of the hypothesised variables - four distinct unipolar RMs, or the 2x2 Grid/Group matrix of worldviews (together, in each case, with some form of disengaged position) - begs questions as soon as attempts are made to map it onto the infinite variety of social phenomena.
3. Although the four RMs appear to map readily onto the 2x2 matrix of CT, at least one RM, Equality Matching, shows significant differences from its pair, the 'fatalist'.
4. There are also differences between CT's Individualist worldview and the Market Pricing RM. The RM underemphasises the importance of free agency to the model - a necessary condition of the MP model is that individuals should be free to gain the benefit proportional to their efforts. Instead RMT focuses on the exchange *system* within Market Pricing and seems to lose some of the human relating in the process.
5. Both theories hypothesise a non-social relationship, for CT the 'hermit' and for RMT asocial and null relationships. Although both theories do provide

accounts of these disengaged positions, both leave unanswered questions with respect to the status of this outside position viz-a-viz the four main positions.

These five issues are discussed below.

2.4.1 One, few or many: how many rationalities?

Both CT and RMT claim to evade the snares of dualism, and both draw strength from the parallels observed in categorisations proposed in prior theory especially amongst some of the classics (Verweij, 2007). This reasoning is both powerful and problematic. Prior theory can only provide circumstantial evidence and corroborative detail. The repeated appearance of similar patterns in past analyses of social relationships feels impressive and convincing. Yet if we précis this as ‘all these theorists across history have observed (similar) social relations and come up with similar analyses: it cannot be a coincidence’, then it sounds less impressive. In addition, the similarities are only partial. Durkheim proposes a binary distinction between mechanical and organic solidarity (Durkheim, 1984 Book 1, Chs 2 & 3). Weber resolved upon a three-way split for the forms of leadership, traditional, legal and charismatic (Weber, Roth, & Wittich, 1978 Part 1, Section 3). There are some theorists whose 4-way classifications do feel particularly close to RMT, such as Udy and Polanyi (see account in Fiske, 1992), but there are many theories with only passing resemblance.

Inexact parallels may be tempting, but both RMT and CT claim an absolute status to their 4-way taxonomies²². Each parallel that is not a perfect match therefore demands reconciliation. There are theories not cited by RMT and CT which, by virtue of their subject matter, also demand integration; yet, when they seem irreconcilable, they provide evidence against the rigid structures proposed by RMT and CT. For example, Dunbar’s social brain hypothesis (1998, 2003) sets forth a well supported developmental account of sociality, matching cognitive capabilities to the size of social group. He argues for as many as six stages in terms of group size (Dunbar, 1998), and argues for mental development based upon levels of

²² As noted in 2.2.1 Douglas (1999) advocated a softer version of CT that avoided this absolutism. Yet this is probably only politically astute nuance: Douglas still regarded the four worldviews of Cultural Theory as fundamental and distinguished them from other possible worldviews by the simple observation that no other worldviews could be seen to have achieved any longevity.

intentionality. Emerging from similar theoretical roots, namely hypothesising evolved individual cognitive capacities, RMT should be able to integrate Dunbar's hypothesis if it is to justify its overarching 'framework' claims. Yet it will not be straightforward to reconcile Dunbar's theory, based upon intentional complexity, and RMT, based upon exchange relationships.

Parallels in other theory, therefore, do suggest that cognitive processes argued for by RMT (and by implication CT) fit into the same jigsaw as cognitive processes implied or hypothesised by other theory. However, they tend to suggest that RMT and CT are wrong to claim framework status as if their postulates have overlordship as organising principles. Theories that claim both to provide exhaustive analyses and to hold a higher status to other theory inevitably provoke a hostile reaction. As noted above Fiske has presented RMT with a diplomatic modesty that disguises the fact that its claims are no less ambitious than CT²³. It also helps that RMT sits comfortably alongside much individualistic psychology and evolutionary theory, complementing rather than competing with others. CT takes the field in competition with the likes of Marx and Adam Smith (TEW Ch8 and p35), offending the followers of both.

Thompson (2008) is now much more explicit that his unit of analysis is a way or relating or organising relationships, as opposed to a simultaneous analysis of the individual and society. Unfortunately the impression of deterministic stereotyping of individual people engendered by TEW 1990's presentation of the theory has done lasting damage. Even in a seminar launching his latest book (on 11 December 2008), Thompson was criticised first for attacking a straw man (voiced along these lines: "of course there are plural rationalities: who would doubt that?") and then for having the temerity to cut the plurality off at three, four or five oversimplified caricatures of the individual participants in the social realm ("there's infinite variety out there").

Both TEW and Thompson (2008) propose variety from within the CT schema, by mapping out 4x4 matrices of how each worldview interacts with the others. These interactions are of course important. Yet the true source of infinite variety

²³ The claims of RMT are bold: "With this set of four models, the relational models theory provides an integrative framework for a great deal of research and theory across core social science disciplines" (Fiske, 1992, p. 717); but advanced with diplomatic modesty "There is much work ahead.. and the final shape of the theory remains to be determined, but here is something to build on" (p717).

can be expected to emerge from the interaction of the schema - whether framed in RMT or CT terms - with other elements of the mind, society and the physical world:

- at the individual level, with other cognitive and affective mechanisms such as in-group/out-group categorisation (e.g. Tajfel, 1982), essentialism (Hirschfeld, 1998), agency attribution (Heider & Simmel, 1944);
- at the social level, the formation of groups (Tajfel, 1982), social influence (Asch, 1956) and the internalisation of power relationships (Elias, 2000; Foucault, 1977);
- at the level of the physical world, the flow of contingent events.

With respect to group and societal level phenomena it is possible to anticipate how the relational logic of RMT's models could be used to explain the formation of groups and the exercise of power. CT's account claims that interaction between the mind and the outside world, in the form of social and physical events can create sufficient 'surprise' to force a shift from one worldview to another. The theory stresses that it is actually the shifting, perpetual imbalance between competing worldviews that will frequently prompt such events: just as the irrational exuberance of rampant free-market individualism engenders a crash and subsequent calls for more egalitarian arrangements and/or stricter regulations by the authorities, alongside *schadenfreude* amongst the fatalists (Thompson & Taylor, 2010)²⁴. CT does recognise the importance of intergroup dynamics in driving the different worldviews to define themselves in contradistinction to one another (Thompson, 2008).

At the individual cognitive level, interaction within the mind between different, possibly competing processes, has not yet been addressed by RMT. The in-group/out-group dynamics manifested when RMs or worldviews compete are not a subset of the worldview schemas or the RMs. The bonding and hostility observed

²⁴ By focussing single-mindedly on the dynamics hypothesised within the CT schema, the theory justifies much of the criticism aimed at it. The approach encourages CT theorists to helicopter above the anthropological field as if it were a closed system, giving the impression that change is a kind of Brownian ebb and flow, not an act of will on the part of subjects within the system. Necessarily its proponents know that there is more to the mind and sociality, but by claiming overlordship the theory fails to engage on equal terms with other theory.

by Tajfel (1982) in the minimal groups or Sherif (1966) at Robbers Cave needed no worldviews to form opposed categorisations. Rather, it seems more likely that the motivations generated by social identity formation help to drive adherents of a particular worldview, or indeed those applying a particular RM, to define their positions in contradistinction to one another. This suggests, as indicated earlier, that RMT will need to place its models within a wider framework such as a cognitive toolbox (Gigerenzer, 2008) or theory of mental modularity (Sperber, 1996).

Similar difficulties to those above emerge from RMT's and CT's accounts of the structure underlying their proposed taxonomies.

2.4.2 Diagonals, horizontals and verticals

Haslam and Fiske (1999) argued that the RMs were unipolar categorical representations. By contrast, CT is hypothesised as a 2x2 matrix derived from two underlying dimensions, Group and Grid. For RMT, therefore, there should be no underlying structural connection between any one RM and another. For CT, the egalitarian worldview is connected to the individualist worldview in that both are 'Low Grid', just as the fatalist is connected to the individualist in that both are 'Low Group': by implication there should be no overlap between the fatalist and egalitarian worldviews and the hierarchist and individualist worldview²⁵.

Both theories seem to oversimplify. Recapitulating the diagram of cultural theory, but this time with the associated RM's added, helps to illustrate this:

²⁵ Thompson's (1982) expansion of CT into 3 dimensions, mentioned in 2.2.3, enables him to suggest that each worldview has some common ground with each of the others.

Fatalist	Hierarchist/Bureaucrat
High Grid, Low Group	High Grid, High Group
<i>Equality Matching (EM)</i>	<i>Authority Ranking (AR)</i>
Individualist/Entrepreneur	Egalitarian
Low Grid, Low Group	Low Grid, High Group
<i>Market Pricing (MP)</i>	<i>Communal sharing (CS)</i>

Figure 2-3: Cultural Theory: 2x2 illustration with Relational Models

The logic of the relations addressed by both the RMs and the worldviews allows connections to be drawn between the different quadrants across verticals, horizontals and diagonals (for simplicity the RMs are used as reference points below):

- (*horizontal, left to right*) on right hand side, the rules governing AR and CS relationships are appropriate for within-group relationships. On the left hand side, the rules governing EM and MP relationships are appropriate for exchanges between strangers. In the absence of trust derived from shared group membership, tit for tat equality, do-as-you-would-be-done-by, is the safest default mode of interaction (EM). Communality emerges from shared adherence to the rules of EM relationships. Alternatively, though not part of one's own group, if the 'other' is willing to abide by the rules of an external yardstick, exchange can be benchmarked against this external measure. Communality is temporarily conferred by mutual acceptance of the external measure (MP).
- (*vertical, top to bottom*) on the top, EM and AR relationships require a rigid adherence to rules. Exactly one man one vote; a Colonel is senior to a Major, whatever the circumstances. On the bottom, there is greater fluidity. Participants to MP market exchange are theoretically free to negotiate according to whatever each needs to get from the transaction at the particular time. Members of a CS community determine shares according to the group needs of the moment.

So far, this really only maps out the expectations of the 'Group' and 'Grid' dimensions: but the diagonals also appear to have shared properties:

- (*diagonal 1*) the EM relationship has some of the characteristics of a CS relationship, once it is accepted that the shared community or group is 'humanity'. The 'other' may be a stranger, but there is a shared membership underpinning the equality expected in interactions between the parties. Each of EM and CS is focussed upon achieving equality, eliminating difference. By contrast, MP and AR are interested in measuring and maintaining differentials²⁶. EM can thus become CS according to the group context - one man one vote for all citizens of country X, excluding, in varying contexts, some races, women, the underage, or the unpropertied.
- (*diagonal 2*) moreover, MP and AR are intimately connected. Much political theory analyses a balance, and pendulum swing between, free and regulated markets. Neither the CS commune nor an untrusting EM society²⁷ is expected to sustain an organisation or state of any magnitude. MP also requires that its system or currency be underwritten by the authority (AR) of the state²⁸. This seems to take us back to Mary Douglas' original formulation of a 'Centre' combining MP and AR and 'Border' combining EM and CS (Douglas & Wildavsky, 1982).

²⁶ This assertion requires some expansion since it contradicts the CT concept of 'Grid': the individualist, because Low Grid, is not interested in maintaining differentials. This is correct in one way - the individualist certainly believes in social mobility and progress rather than conservative preservation of the status quo. However, the individualist expects different inputs to be matched by different outputs - greater effort or investment will reap proportionately greater rewards. The individualist has simply changed the currency of the input from pre-existing status, group-membership or birth to work and property.

²⁷ Verweij (2007) usefully cites Banfield's "The Moral Basis of a Backward Society" as providing a powerful example of how, in the absence of trust, co-operative endeavour becomes nearly impossible because of the EM refusal to countenance any participant happening to gain more than another from the shared project.

²⁸ It is possible that some common properties shared by different RMs could be accounted for by reference to common properties shared by the underlying mathematical scales cited by Fiske (1991, 1992). Indeed, if as suggested by Fiske, the mathematical scales do play a role in the development of the cognitive processes represented by the RMs then the inter-connections between the mathematical scales suggest that the RMs cannot be as independent of each other as Haslam & Fiske's (1999) research claims.

What this suggests is that, although the four RMs may be in some way cognitively 'basic', their co-existence means that they are so deeply and culturally embedded that disentangling them is always likely to be an imperfect exercise.

2.4.3 The fatalist worldview and Equality Matching model

CT treats the low group high grid position as that of a passive subject of forces beyond his/her control:

“People who find themselves subject to binding prescriptions and are excluded from group membership exemplify the *fatalistic* way of life. Fatalists are controlled from without. Like hierarchists, their sphere of individual autonomy is restricted. They may have little choice about how they spend their time, with whom they associate, what they wear or eat, where they live and work. Unlike hierarchists, however, fatalists are excluded from group membership in the group responsible for making decisions that rule their life” (TEW p7)

This is fundamentally different from the Equality Matching RM. This RM is an active exchange which constructs relationships. It is 'low group' in the sense that it does not presume shared group membership beyond the assumption that a counterparty *could* play by EM rules. By achieving an EM exchange commonality is established and the foundations of a possible in-group are laid. If the counterparty does not play by EM rules the relationship will evaporate into an asocial or null reaction.

As suggested in 2.3.6, the inclusion of the Equality Matching RM, with this more active characterisation, may have greater explanatory power in an analysis of the climate change debate than CT's exclusion of it.

2.4.4 Individualism

In later elaborations of the Market Pricing Model, Fiske (2004a) focuses on the importance of abstract symbols when MP relationships are instantiated. The reference to an external yardstick of value reifies the relationships through all the trappings of market exchange, currencies, indices, rates etc. Can this model be present in less developed societies? In contrast to the clear-cut structure expounded in the early version, Fiske has become less sure:

“Many people have suggested that Market Pricing, in particular, is not innate, or that if it is an innate, socially specialised capacity, it has little or no inherent motivational force unless this is culturally fostered during development or early adulthood. My hypothesis is that MP is currently in the process of being assimilated into cognitive and motivational proclivities: It is becoming a mod (Fiske, 2004b, p. 15)”.

This is as unsatisfactory as CT’s denial of fatalism’s active role in societal struggles. It also appears to derive from the same source: relating through the EM and MP models is an expression of individual engagement with others external to the self. By contrast AR and CS, parallel to the High Group worldviews, express relationships within the group from which the self gains identity. Although EM and MP use fundamentally different principles for the exchange - strict equality (EM) versus proportional equity (MP) - the fact that they both effect a relationship for the individual *against*, in some sense, the group may mean they are hard to separate.

2.4.5 Null relationships and the hermit

As set out above both CT and RMT hypothesise a disengaged position from which no relationship with others or with society takes place. The status of these begs questions in each theory. For CT, how does its two dimensional structure account for something outside itself? For RMT, do null or asocial relations imply a two-step cognitive process: first a categorisation that a relationship is or is not social, then second, if social, a categorisation between the four RMs?

Fiske (1992) explicitly argues that the RMs emerge in children’s individual cognitive development in the order CS, AR, EM and then MP. This would not be the order in which *relationships* would develop. Only EM functions as a model for initial relationships between strangers or groups that have never encountered one another²⁹. Tit-for-tat does appear to be the default minimal relationship between individuals (Axelrod & Hamilton, 1981). The model seems to be a first step away from asocial or null relationships. If the EM model breaks down - one party does

²⁹ Societies can have well developed customs of hospitality for travelling strangers which might suggest a degree of fellowship, even shared humanity, that goes beyond the EM model. Yet these can be interpreted as notionally based on the EM model - you would want the same treatment if travelling yourself: the reciprocation does not have to be direct, and Fiske cites the Kula ring as a prime example of EM (1992, p. 702). The customs also exist following myriad successive previous interactions, and hence are not the first form of relationship.

not reciprocate - it appears likely that relationships would revert to asocial or null. On the other hand, if the EM model prospers it appears likely that the parties would begin to implement the CS, AR and even MP models in appropriate contexts. This would suggest a very different scheme to the 2x2 matrix.

Again, because this account suggests a layering of the different RMs or worldviews then untangling the different models is likely to be an imperfect exercise.

2.4.6 Detailed Mechanics - conclusion

This section has brought to the fore difficulties that each of Cultural Theory and Relational Models struggles with. CT sometimes offers ‘worldviews’ as a lens through which people make sense of the social world. RMT sometimes emphasises the quasi-grammatical role that the RMs play in forming the sense we make of relationships. Once it is accepted that the forms of relationship can combine or develop in opposition to one another, the theories are both confronted with the likelihood that the worldviews or RMs are somehow distorted in that process. The view through an egalitarian’s “lens” is subtly different when the egalitarian feels the authorities might be on his side compared to when he is a radical revolutionary. The EM relationship a divorced couple might form, (“it’s your turn to have the children”) after the collapse of their CS interactions may well be different from the EM relationship of neighbouring adults taking turns on the school run.

Each of the issues raised in this section on ‘detailed mechanics’ shows that distilling and isolating a pure form of each core worldview or RM in every situation will be an imperfect exercise.

2.5 Conclusion

2.5.1 Justifying a pluralist account

Throughout this chapter, the tensions between the pluralists’ goal of establishing patterns in the infinite variety of social relating and the risk of producing a shallow reductionist account too easily confronted with confounding examples has been evident. The review of both Cultural Theory and Relational Models Theory encourages us to expect that:

- individuals and societies produce in tandem relationships and the interpretation of those relationships
- this production, and reproduction, is a recursive and reflexive process, producing a layering of forms that may have made it impossible to unravel fully the constituent parts, both at the level of individual cognition and at the level of social organisation.

However, both CT and RMT successfully provide support for the idea that there is ‘regularity’ (TEW p xiii) to the variability we encounter, that there may be a limited number of possible solutions (Kluckhohn & Strodtbeck, 1961, p. 10), and that plurality produces a ‘constrained relativism’ (Verweij, 2007) rather than random chaos.

2.5.2 Defining the unit and level of analysis

Both CT and RMT make either the worldview or the RM the unit of analysis. This presents challenges when neither theory has successfully isolated four, five or any number of worldviews or RMs. Yet it also presents the opportunity to skirt around the problem of explaining phenomena at the individual level and at the social level. Section 2.2.4.5 noted that this approach has similarities to social representations research.

Trying to demonstrate the reality of the RMs after assuming that they are the unit of analysis appears to be circular, but this weakness is no different from methodological individualism’s assumption that the collective is only the sum of the individuals or indeed the circularity of constructionist self-reflections.

2.5.3 Way Forward

This analysis of CT and RMT has flagged up numerous loose ends. This thesis is not claiming to address all of these. Rather, the objective is to address two issues identified within CT and to extend the application of the relational framework offered by RMT.

For CT the lack of any suggested mechanics is a weakness. RMT hypothesises cognitive processes that account for how individuals think relationally, ie how processes akin to CT’s worldviews are instantiated within individual thinking. A further issue for CT is the exclusion of the so called fatalist worldview from the analysis of the climate change policy-making process. The fatalist worldview in

fact appears to be central to the climate change debate, expressed daily in the logic of the Commons Dilemma. By connecting the fatalistic worldview to the logic of the Equity Matching RM, the thesis expects that it will be easier to show how it has such an influence in the debate.

Although one aim is to address perceived weaknesses in CT, a further aim is to extend the application of RMT to social level phenomena. Chapter 3 explains how this thesis has synthesised a matrix of arguments within the climate change debate based on the matrices offered by both CT and RMT. This matrix has then been used to provide an account of media coverage of the debate and also of focus group discussions. It has also formed the basis for questions put to individuals in a survey. The thesis argues that taken together the arguments in the matrix form four coherent Standpoints within the debate.

2.5.4 Research Questions

The research questions generated by this review are:

1. Does this matrix provide a plausible account of the climate change debate?
2. Does an account that integrates the Equality Matching model have advantages over the account provided by Thompson and Rayner?
3. Does this account offer an answer to the question ‘Why has so little been achieved?’?

Going beyond these specific questions, the empirical studies will be used to explore further some of the weaknesses identified in both CT and RMT.

Chapter 3 Defining the Standpoints, and the methods to assess them

Chapter Outline

This chapter has four parts:

- Part 1 provides a general discussion of methodological issues
- Part 2 justifies the choice of empirical methods used to assess the validity of a typology of climate change arguments based upon Relational Models theory and set out at the end of the chapter. Chapters 4 to 6 include more detailed accounts of the specific procedures adopted
- Part 3 links the typologies of Cultural Theory and Relational Models reviewed in Chapter 2 to a proposed typology of ‘Standpoints’ taken in the climate change debate
- Part 4 sets out the steps taken in generating a matrix of the arguments that constitute these Standpoints
- A brief conclusion follows

The early stages of this research included a pilot media content analysis and three pilot focus groups. In general, these have not been treated as part of the empirical material analysed for the thesis. However, the lessons learnt from these pilot exercises informed the organisation of the subsequent empirical work. In particular, the pilot media content analysis supported the view that newspaper articles provided good proxies for the public debate over climate change. The 62 articles analysed in the pilot analysis are scheduled at Appendix B. References to individual articles in the pilot take the form #p1, #p2 etc. and can be identified in the Appendix.

3.1 Justification of the methodological approach

3.1.1 Where is ‘the debate over climate change’?

This thesis proposes that there is an underlying pattern to the arguments deployed in the climate change debate. To examine this claim, the empirical units of analysis must be the component parts of the arguments themselves. Examples of arguments might be:

- “Arctic ice is melting very rapidly: climate change is much worse than previously thought”
- “The science is so confusing, one just doesn’t know who to believe” or
- “Nuclear power will be essential in the fight against climate change”.

These arguments take place in many settings, from intergovernmental conferences to dinner table conversations to individual reflection and decision-making. This suggests a number of sites at which to observe and analyse them:

1. Participant observation of the arguments at the intergovernmental conferences and other public arenas
2. Analysis of the debate in written media, to include sources actively taking part and taking sides in the debate, and sources aware of the debate going on around them, potentially impinging on them, but not expressing active advocacy. As argued below, these media provide an effective proxy for the argument put forward in many parts of the public sphere
3. Analysis of focus group discussions in which arguments are constructed and discovered by participants, as proxy for the natural discussions taking place in small groups
4. Analysis of attitudes: Zaller and Feldman (1992) treated attitudes as the outcome of individuals’ reasoning using a range of considerations felt to be relevant to the particular context. As such attitudes can serve as a proxy for the arguments individuals hold, or have held, inside their heads.

Identifying the ‘arguments’ and their component parts as the empirical units of analysis is important. This approach offers a reconciliation of the different methodological traditions of the different theoretical frameworks upon which the thesis draws (3.1.2 below) in particular between traditions focussing on the collective and those focusing on the individual.

The approach is similar to that adopted by research using Social Representations Theory (SRT). Bauer & Gaskell (1999, p. 167) state that ‘Representations are embodied in communication and in individual minds, shared in a way similar to language’. This thesis does not explicitly use SRT, but in seeking to analyse the ‘arguments’ within the debate it follows the same path in addressing phenomena

that exist simultaneously at the social and the individual levels. This is discussed further at 3.1.3 below.

3.1.2 Methodological traditions

Three principal theoretical frameworks were discussed in Chapters 1 & 2: attitude theory, Cultural Theory (CT) and Relational Models Theory (RMT). Each of these has traditionally adopted different research methods:

- When applied to social issues, attitude theory, including PC Stern's Value Belief Norm model, has utilised survey data to poll individual attitudes (Christie & Jarvis, 2001; Dietz, Stern, & Guagnano, 1998; Kaiser, et al., 2005; Witherspoon, 1994). The unit of analysis is an attitude, so it is attitudes that are sampled and measured. A particular attitude can then be examined in relation to explanatory variables such as socio-demographic data and other attitudes. The implicit units of analysis are often the hypothesised deeper lying attitudes or values, typically detected through factor analysis, but these are not the units for empirical data collection.
- The research tradition of CT is ethnographic anthropology (Douglas, 1996; Douglas & Wildavsky, 1982). The unit of analysis is cosmologies (Douglas, 1996), 'ways of life' (Thompson, et al., 1990), solidarities (Thompson & Rayner, 1998), or ways of organising socially, (Thompson, 2008). Empirical evidence of these hypothesised entities at the social level can only be suggestive. Consequently, the theoretical framework has been deployed to provide a 'thick description' (Geertz, 1973) of various social fields such as consumerism (Douglas & Isherwood, 1996), environmentalism (Douglas & Wildavsky, 1982 Ch 6), Millenarianism (Rayner, 1982), or a local authority planning deliberation (Thompson, 2008 Ch 1). These studies have not constituted formal field research in the sense of deliberate data gathering followed by analysis, but other work by Cultural Theorists has (e.g. Jaeger et al., 1993 in the Swiss Alps). Most typically, the CT framework has been applied to pre-existing data (Adams, 1995 Ch 7 & 8) or to generally reported phenomena, such as the climate change debate (Thompson & Rayner, 1998).

- Like CT, RMT emerged from anthropological field work (Fiske, 1991). Research then moved to tests of individual cognition as described in section 2.3.2. Fiske and Haslam's studies analysed subjects ratings of their own relationships with others (Haslam, 1995a; Haslam & Fiske, 1999); later research has also included subjects' ratings of hypothetical 3rd party relationships described in vignettes (Houde et al., 2004). As discussed in Ch 2, the theory has been applied to organisational settings where ethnographic methods have been deployed (e.g. Connelley & Folger, 2004) but the theory has not yet been widely applied to social issues. In the existing research expressed thoughts (such as word associations and attitudes) or observed behaviours, such as ritual exchanges, have been used as the empirical units of analysis. The hypothesised underlying models, the RMs, being different ways of thinking about relationships, are treated as cognitive tools structuring cognition and as such are the theoretical unit of analysis.

This thesis draws on the methodological traditions of all three frameworks. However, this lays the project open to challenge: is the thesis providing explanations of individual thinking or of phenomena occurring at the social level?

3.1.3 Levels of explanation

Following the approach of Social Representations Theory (Bauer & Gaskell, 1999), this thesis takes as self-evident that the 'arguments' it is analysing exist at both the level of individual thinking and the level of social sense-making. Bauer & Gaskell go on to argue that this demands multi-method analysis, suggesting (1999, p. 177) 'observations for behavioural habits, questionnaires, free associations or interviews to explore individual cognitions; group interviews for informal communication; and documentary or mass media contents for formal communication'.

This contrasts with theoretical approaches that lay down a hard dichotomy of divergent epistemological commitments between methodological individualism versus collective level analysis. This division was recognised by Mary Douglas: as discussed in section 2.2.5, in its purest form CT rejects the methodological individualism implicit in attitudinal surveys (Tansey & O'Riordan, 1999), and much of CT's research is interpretative analysis of societal level phenomena. By

contrast, attitude research inevitably studies individual level phenomena, which may be aggregated to determine 'public opinion'.

Doise (1986) takes a similar approach to Bauer & Gaskell in articulating different levels of explanation. The notion of just two levels (individual and societal implied above) simplifies the four level schema (intra-personal, inter-personal, 'positional' - similar to inter-group - and ideological) offered by Doise. However, he did recognise a divide between his first two levels, the usual domain of social psychology, and the intergroup/ideological levels typically investigated by sociology but increasingly ventured into by social psychologists (Doise, 1986, Ch4). Doise, like Bauer & Gaskell, sees explanation at one level informing explanation at other levels. He also emphasises that social psychological explanation can only be partial: instead of testing 'if A, then B', research will only ever identify conditions and interacting variables that influence the likelihood of B, if A.

The very premise of social psychology is that the boundaries between phenomena at individual and societal levels are permeable: the problem is that we do not have the epistemological basis for carrying phenomena observed at one level over to explain phenomena observed at another. In practice, of course, the boundaries become very blurred: researchers using Cultural Theory have assumed that the posited 'worldviews' are present in some way in individual cognition and have analysed attitudes and behaviour as indicator variables for the presence of worldviews at the individual level (Dake & Thompson, 1993; Gastil et al., 2005). Paul Slovic's (1987) psychometric paradigm of risk perception explored how contextual variables - such as socially generated representations of new technologies - impact individual attitudes to risk.

Consistent with these previous boundary transgressions, this thesis does not claim to offer a causal mechanism to explain how social level phenomena *directly* influence individual level phenomena, or vice-versa. Instead, the claim is that there is a relationship of similarity between the phenomena at the two levels. Fiske (1992) proposed a pattern of cognition present at the individual level which assumed a typology of four Relational Models. He went on to suggest that this pattern was also observable in societal level beliefs and institutions across a range of domains. This thesis examines whether this pattern is observable at the societal level in the domain of the debate over climate change. It also uses a

survey to examine whether this pattern is observable in individual responses to climate change arguments.

The thesis eschews identifying the ‘arguments’ it analyses specifically as Social Representations. Typically SRT research pays particular attention to the establishment of common sense understandings of new concepts (Bauer & Gaskell, 1999; Doise et al., 1993; Farr & Moscovici, 1984): it emphasises the role of existing societal level groups and institutions in the communication process. In respect of the climate change debate, discourse analysts have similarly focussed on how vested interests, whether the scientific research community or the fossil fuel industry (Carvalho, 2007; McCright & Dunlap, 2010; Oreskes & Conway, 2008) have influenced emergent representation of the issues (Shackley & Wynne, 1996). These processes are compatible with this thesis’ claim that there is an observable pattern in the arguments used and that this pattern reflects the pattern suggested by Relational Models Theory: but the actions of vested interests or pre-existing groups and institutions in communicating and shaping representations (or arguments) are not the object of the research.

3.1.4 The methods adopted: focus on what is said over what is done

To analyse how a society ‘debates’ climate change and also what individuals within the society contribute to the debate, it is necessary to select empirically observable proxies as evidence. These proxies could be what societies and individuals **say** and what they **do**.

What people say is only part of social responses to climate change. What people do matters, and just as attitudes are imperfect predictors of behaviour (Eagly & Chaiken, 1993, pp. 155-156) debate and its conclusions do not predict practice. What people say about the environmental impact of behaviour does not convey the same information as data on actual car purchases, the number of flights a nation is taking or trends in the proportion of electricity generation coming from renewables. Yet, Chapter 1 has demonstrated that the challenge with climate change is to ask why has so little been **done**? Why does environmental concern not translate into effective public policy (Helm, 2010), or into changed individual consumption behaviour (Christie & Jarvis, 2001; Jackson, 2005)? The fact is that very little is **done**. Unless one dismisses most of what is **said** about climate

change as rank hypocrisy or irrelevant musing, then to analyse the debate requires a focus on what is said and written.

Nevertheless, restricting the formal analysis to what is said and written is a narrower subsection of the totality of social responses of which practice forms an important part (Bauer & Aarts, 2000, pp. 20-22). Analysis of the debate must remain informed by the context of practice, both in the form of legislation or regulations enacted and in the form of data on consumption behaviour.

3.2 Justification of specific methods adopted

This section looks at the specific methods used to address the four 'sites' of the climate change debate identified above in 3.1.1.

3.2.1 Participant observation

Participant observation can extend across protest marches 'against' Climate Change or 'against' government green taxes, NGO and Transition Town meetings, airport extension planning permission hearings, to advocacy speeches and debates on public platforms such as university lecture halls. Globally, the UNFCCC process seeks to formalise the debate: I attended UNFCCC working group sessions in Bonn in April 2009 and Barcelona in October 2009. Such sessions are fascinating, but the events are intractable for formal analysis - partly because so little is achieved at them, partly because they have taken on the tone of well rehearsed ritual. It is obvious that any meaningful negotiations take place behind closed doors, much to the annoyance of excluded parties (Environmental News Bulletin, 2009).

Much of the discussion at UNFCCC working group meetings comprises levels of detail that are far removed from the core issues. Debates might comprise the Chair devoting half an hour to get 194 parties to agree to remove a square bracket from a sentence in a drafting document, only for one party to reopen the issue and demand the bracket be put back in. The mere existence of this process is of course interesting, informative and readily open to criticism (as outlined in Chapter 1). Informative too is the ritual rhetoric on the floor which sees (inter alia):

- a) Spokespeople for indigenous peoples and for the Small Island States describing the impact of changing climate on their homeland

- b) The Bolivian delegate stating that developed world historic CO₂ emissions constitute a debt that needs to be repaid to third world countries
- c) The Indian delegate lambasting the EU for straying from the agreed principles of common but differentiated responsibility
- d) An OPEC country delegate insisting his country be compensated for the economic consequences of reduced oil consumption
- e) The US delegate from the then new Obama administration promising cuts (i) smaller than generally advocated and (ii) benchmarked against present emissions rather than the 1990 benchmark most delegates use as the comparator
- f) Many delegates 'insisting' that any measures must be founded on 'sound science'.

All of the above are received respectfully by the other delegates, with no immediate expression that some of these positions (b-e) are unacceptable to some of the represented parties. Attendance at the Stansted Airport Expansion planning enquiry during 2008 revealed a similar process. Even within the adversarial format of a planning enquiry, an Inuit spokesperson called to testify to the impacts of climate change on the Arctic was heard respectfully, and largely unchallenged. Again, the process is informative; despite extensive pro-environmental lobbying the enquiry found in favour of expansion largely because the regional plan previously approved by central government held precedence (Department for Communities and Local Government, 2008). The decision had already been taken.

The arguments in these environments can be simplistically divided into two groups: the first are ritual, rhetorical positions that were also found to be present in pilot media analysis and focus groups. The second are so buried under layers of reflexivity and awareness of counter-arguments that they are difficult to disentangle. Reflecting these considerations, participant observation has been used to provide much guidance and insight in the conduct of this research, but the events themselves have not been used as objects of separate analysis.

3.2.2 Analysis of print media

Silverstone (1999) answered his own question 'Why Study the Media?' in part by claiming that the media re-presented the texture of experience and reproduced

common sense. While acknowledging that his manifesto emphasised the importance of all media, including advertising and visual imagery, his arguments provide considerable justification for privileging the print media as a proxy for the public debate.

Potential written sources could include newspaper, internet or academic articles as well as books and internet discussions. This excludes secondary written material in the form of transcripts of oral media such as radio, television or focus group discussions. There are advantages and disadvantages to each source (examples referring to numbered items are taken from the pilot media sample listed in Appendix B):

- *Newspaper and magazine articles* on global warming are frequently reports about other people's arguments: for example the publication of new scientific findings (e.g. #p3, the "plankton effect"), the performance of musicians at Live Earth (e.g. #p50). This is reported in the form of factual information ('news') without the writer expressing an opinion. Necessarily the fact that a topic is news at all has meaning, but the mediated form of many of the arguments identified in the debate must always be borne in mind.
- *News and magazine articles* are frequently about multiple topics. An article about politics may include extensive references to climate change arguments but the author's selection of material and the nuance of expression are frequently driven by the presentation of the political story (e.g. #p23 on US differences with Europe).
- *Internet articles*, which are frequently *newspaper columns* or *opinion pieces* distributed through the author's personal website, are often pieces of ongoing arguments with specific individuals or interest groups (e.g. many of George Monbiot's columns in The Guardian are available on www.monbiot.com as blogs). Such material self-evidently constitutes a part of the public 'debate', providing a wealth of links between underlying values and arguments about climate change. However, the pieces are also situated in an infinitely regressing argumentative context. This lineage cannot be pursued ad infinitum, and drawing the line somewhere inevitably loses some meaning. Selection of authors for analysis would also be arbitrary.

- *Internet discussions* create the same difficulty in research as Internet articles. Individual blogs are often short rants directed not at an original article but specific issues or interest groups tenuously connected to the topic. On the one hand the material is a “goldmine” (#p 52) on the other the typical brevity of such pieces multiplies the risk of over-interpreting the context and the values and arguments ‘taken for granted’ by each author. Formal textual and argumentation analyses (Toulmin, 2003) of two blogs (BBC, 2007; BBC & Rowlatt, 2006) were carried out. These are not separately reported but were used to inform the eventual media content analysis conducted.
- *Natural science academic articles* form an important component of the debate. The formal content of natural science articles is normally less significant to this thesis than the context: for example Hansen et al. (2007) clearly wrote to create debate and to prevent the consensus solidifying at a position the authors found much too cautious. Others such as Rahmstorf (2006) and von Storch (2006) slugging it out in Science seem to be keeping the flame of personal animosity alive as much as publicising new research. The sustained commitment of each to consistently opposed views on future sea level rises hints at the expectation of this thesis that values help to constitute facts, but the content of individual academic articles will not demonstrate this.
- *Sociological academic articles* commonly target a similar level of analysis to this thesis: for example Pielke (2004) analyses the response to Bjorn Lomborg’s book “The Skeptical Environmentalist” (2001). Such articles can inform the thesis but it would be difficult to make them the object of the analysis without tying the argument into knots. Other social science articles intentionally do constitute part of the debate (e.g. Prins & Rayner, 2007a; 2007b) but their dual objectives of both analysing the debate and forming part of it suggest that they too should inform the research rather than be the object of it.
- *Economics and politics academic articles* commonly subsume the challenge of climate change within policy issues, such as how to allocate the cost of negative externalities, or how to achieve international agreements. Harrington and Morgerstern (2004) document the trend away from “Command-and-Control” regulatory policies towards economic incentives. Economist W. Nordhaus (2007) argues the case for taxation as the best

instrument for fighting global warming. Much of the literature is a dry analysis of which policy instruments are efficient or effective, ignoring the importance of political feasibility that Goulder and Parry (2008) identify in determining choice of policy instrument. Carter (2007, p. 340) stresses the political difficulties of 'eco-taxes' and reprises Blair's oft-quoted remark to the House of commons Liaison Committee: "How many politicians facing.. a potential election.. would vote to end cheap air travel" (Blair, 2005 Q133). Financier George Soros said "you need .. a tax on carbon emissions. But that is politically unacceptable" (Moyers, 2008). Helm (2010) describes carefully how the better route of taxation is supplanted by policies like trading schemes and technology subsidies that are open to capture. These detailed arguments for and against policy instruments rarely surface in the mainstream media: what does emerge is the reaction to those policy instruments. The Sun's response to the Stern review lays bare the political infeasibility of global warming taxes (Sun, 2006).

- *Books* could provide rich material, in particular because they tend to provide a more comprehensive picture of an author's argument, identifying (most of) the contextual and ideological factors leading towards the conclusion. However, the authors of most relevant books (e.g. Booker & North, 2007; Lawson, 2008; Monbiot, 2007; Porritt, 2005) do also write newspaper articles: their views can be captured for detailed textual analysis in shorter and more manageable form.

The considerations listed above demand considerable caution in the use of written material. Nevertheless, the practical advantages of using electronically stored written material sourced from the news media are considerable. The news media frequently carry views and arguments of those setting the UK agenda, whether they be politicians (Tony Blair writing a guest editorial in the Sun (Blair, 2006)), or government advisers like Lord Stern (2009b) or Jonathan Porritt (2008b). Their arguments can be captured both directly and indirectly, as well as arguments from those commentators such as Monbiot or Lomborg who have an influence on the agenda. Section 4.4.4 justifies the claim that the media sample used is indeed adequately 'representative' (Bauer & Aarts, 2000) of the debate as a whole.

Sections 3.3 and 3.4 explain how the coding matrix used to analyse the media sample was developed.

3.2.3 Focus Group Discussions

Chapter 1 identified that climate change is widely recognised as a significant problem, but one that is long term and that is not yet forcing significant change upon UK inhabitants. In day-to-day life it is a problem people can easily avoid 'making sense of'. Yet exploring how people make sense of the subject is a stated objective of the thesis. Focus Groups offer the opportunity to get people to make sense of the issue in discussion. They generate sense-making beyond that held by the individual participants and are more than the sum of their parts (Cronin, 2001; Gaskell, 2000). Further, the sites of the debate clearly include the conversations prompted by extensive media coverage of the topic. Focus Groups offer the most accessible proxy for these conversations. The Focus Group transcripts were analysed using the same Coding Matrix as for the media articles.

Focus-groups inevitably have their drawbacks. The group dynamics, and the degree of intervention by the facilitator, necessarily influence the 'sense-making' they achieve (Cronin, 2001; Flick, 2006, Ch15). There are also many choices to be made in establishing a focus group in respect of who is recruited and how the discussion is moderated, all of which have an impact upon the 'sense-making' achieved by the group. Section 5.1 assesses the impact of the choices made on the outcome of the focus groups.

3.2.4 Individual Attitude Survey

Fiske's formulation of RMT is at the individual level. Respecting this, the thesis uses a survey to assess whether individuals use Relational Models to make sense of the climate change debate. The method, detailed in Chapter 6, is to measure levels of agreement to arguments about climate change similar to those in the matrix used to code the content analyses. If individuals do use the Relational Models to make sense of the debate, the pattern of their responses should suggest that the Relational Models coherently account for the arguments addressed.

Section 6.2.3 describes how the survey method adopted is different from both the surveys used by Cultural Theorists (Dake & Thompson, 1999; Gastil, et al., 2005) and also those used by attitude researchers (Stern, 2000b; Stern, et al., 1986). Specifically, the approach adopted does not treat the Relational Models as if they were somehow fixed worldviews attributable to each respondent (the approach adopted within Cultural Theory) nor as deep-lying values (the approach adopted

within PC Stern's Value-Belief-Norm attitude framework). The survey is not designed to predict views on climate change based upon assigned worldviews, value orientations or indeed Standpoints.

3.3 The typologies in Cultural Theory, Relational Models and this thesis

Chapter 2 described the similar typologies proposed by Cultural Theory (CT) and Relational Models Theory (RMT). These typologies seek to encapsulate the different ways we make sense of the social world. CT focuses on how this sense-making is expressed in organisational structures at the social level. RMT proposes a typology of cognitive categories at the individual level which are also manifested in social domains. Both theories see their typologies as being expressed in diverse social domains, such as property ownership, attitudes to nature and justice.

The debate over climate change traverses many of these domains. This thesis examines whether a typology based on RMT is manifested in the climate change debate.

Both RMT and CT argue that there is a foundational logic to each of the four 'types' within their typologies. Applying this logic within particular social domains, both theories have been used to generate a matrix analysing how each 'type' is manifested in diverse domains (Fiske, 1992, as discussed in 2.3.5; Thompson & Rayner, 1998, version provided at 2.2.7). The researchers have drawn on three sources in generating these matrices:

1. Theoretical extrapolation of the logic of each 'type': for example, by asking how would a Relational Model founded on reciprocity be expressed in the domain of distributive justice?
2. Prior typologies with a partial fit to the theory's own typology, such as Durkheim's solidarities or Udy's forms of recruitment (section 2.4.1)
3. Case study evidence of contested social issues, where divergent standpoints can be mapped on to the theory's typology, or can be used to illustrate the applicability of the proposed typology.

This thesis proposes its own matrix to analyse how the Standpoints implied by the four Relational Models can be expected to be manifested in the climate change

debate. The generation of this matrix follows the same approach as above, but emphasising Step 2 first, ie starting with the prior matrices already generated within RMT and CT. The empirical evidence drawn upon for Step 3 is described in 3.4 below. Having generated this matrix of Standpoints, the thesis then uses it:

- a) As part of a coding frame to carry out a content analysis of media articles and focus group discussions
- b) As a checklist for the questions used in an attitude survey.

3.4 Generating a matrix of Standpoints in the climate change debate

Generating the matrix used in this thesis took the following steps:

- A. **Matrix in Appendix C:** Based on prior theory, as per Step 2 above. The foundation is an amalgamation of the CT and RMT matrices: for the purposes of the exercise, the 4-way typologies of the two theories are assumed to map exactly on to each other, ie the Communal Sharing RM onto the Egalitarian worldview, Authority Ranking onto Hierarchist, Equality Matching onto Fatalist and Market Pricing onto Individualist. Chapter 2 has already suggested that the RMs will not map exactly onto the worldviews - after all, CT often leaves 'Fatalist' out of the matrix entirely. Domains addressed by other typologies were also added. As in Step 1 above, the assumed logic of each Standpoint was extrapolated to suggest the 'Argument' that the Standpoint would take in each domain. The matrix consists of 4 Standpoints X approximately 50 domains.
- B. **Matrix in Appendix D:** The exploratory pilot content analysis offered a list of domains present in the debate over climate change - e.g. 'Adaptation', 'Alternative Energy', 'Consequences' etc. This effectively plays the part of Step 3 above by using empirical data. Using material from 'A' above, and following the same procedure of extrapolating the logic, the matrix then captures the Arguments each Standpoint uses to address individual domains. Necessarily this is exploratory and tentative at this stage. The individual Standpoints do not have an identified Argument for every domain. The pilot media sample was then cross-referenced to the cells in the matrix to identify instantiations of the individual Arguments, where this was possible. The results of this exercise are included in the Appendix. The matrix has also been cross-referenced to

significant examples in some of the advocacy literature - e.g. the Stern Review (2007). This matrix is 4 Standpoints X approximately 90 domains derived from the pilot coding frame.

- C. **Provisional Coding Frame:** The coding frame from the pilot analysis formed the basis for the coding frame for the main content analysis. The codes were re-organised so that existing codes, as well as some additional theory-derived codes, were attributed to the four Standpoints. This generated a sub-section of the overall coding frame for the four Standpoints, with 127 different RM codes as shown in the table below.

			Provisional codes	Revised Matrix
Communal Sharing			25	12
Authority Ranking			36	13
Equality Matching			23	14
Market Pricing			43	12
Total			127	51

Table 3-1 Number of Relational Model codes in coding matrices

Although coding was intended to be confirmatory, new codes proliferated. Eventually a revised, cut down coding matrix was produced with 51 ‘RM’ arguments as shown above

The final presentation of the RM codes in the exact matrix form below is an organisation applied after the fact. The arguments within the final matrix are largely the same as those within the revised version. However, the opportunity to simplify the presentation of the arguments by allocating them to eight principal domains for each Standpoint had not been immediately recognised. Therefore this final matrix of codes was reapplied to the texts: in effect the texts have been analysed twice, separately, with two different coding frames. A review to reconcile the two exercises provided a check on the reliability of the coding.

- D. **General thematic codes (not separately listed):** A large number of other codes were retained (examples: ‘Catastrophe’, ‘Consequences, Impacts, Effects’ or families of codes such as: ‘Natural Objects and Events’ with child codes such as ‘Glaciers’, ‘Ozone’ or ‘Storms, severe weather’).

E. **Final coding matrix (Appendix E):** The following table provides the matrix of 46 Relational Model codes used in the Content Analysis for both media articles and focus groups:

<i>Arguments</i>	Communal Sharing	Authority Ranking	Equality Matching	Market Pricing
Summary Standpoint on Climate Change	We consume so much that we are ruining our planet. We need to cut back to avoid catastrophic climate change.	We do need to act on climate change, but that doesn't mean a revolution: it means governments taking appropriate action	There's no point in the UK doing anything about climate change, when countries like China are growing so fast, so I don't see why I should be asked to pay higher taxes or give up things to stop it.	There has always been climate change. We will use technology to adapt to changes as we have always done.
Foundational Principle	CS1 Equality; Shared Challenge; all in it together	AR1 1.1: primacy of established Institutions 1.2: need for government	EM1 Reciprocity	MP1 Individual freedom, private interests
Approach	CS2 2.1: Can all do our bit 2.2: Mankind is/we are guilty	AR2 Restrictions and regulations, government control	EM2 2.1:What's in it for me? 2.2 I'm doing my bit 2.3:Commons dilemma 2.4: Nimbyism	MP2 Use the market to facilitate individual action, rational economic behaviour
Economics	CS3 Limits Over-consumption	AR3 3.1: Which policy instruments? 3.2:Business as usual 3.3:Ecological modernisation	EM3 3.1: Need for compensation 3.2: Polluter pays principle	MP3 Need to price externalities Commitment to economic growth
Nature	CS4 Nature fragile	<i>Included within Nature and Man</i>	EM4 Uncontrollable; Unpredictable	MP4 Nature 'bigger' = benign, bountiful
Nature & Man	CS5 Natural is good, pure Human limitations	AR5 Man as steward of nature Man's expertise measures nature:	EM5 Man powerless; 'the little man'	MP5 Man adapts nature, Adapts to nature
Knowledge, Wisdom	CS6 Natural wisdom Human lack of understanding	AR6 6.1: Targets, management by numbers 6.2: Sound science. Experts	EM6 6.1:It's pointless, too difficult. No alternatives 6.2:Logic of the Commons D.	MP6 Market rationality; Invisible hand
Other people	CS7 Duty to help others, those in need	AR7 7.1: Others as insiders, duty of care, instruction 7.2: Others outsiders: threat	EM7 7.1: Not fair. Stop bossing me 7.2: Why don't they solve it? 7.3: Blame others	MP7: Laissez-faire: others as rational self-interested agents; can fend for themselves
Outlook	CS8 8.1:Catastrophic unless 8.2: logical to co-operate 8.3:co-operation morally right	AR8 We need to manage the future	EM8 Pessimism, It's all too difficult	MP8: Optimism, opportunity Faith in technology

3.5 Conclusion

The thesis argues that the pattern of arguments in the climate change debate should reflect the four Relational Models. The three empirical methods adopted seek to assess whether this is the case at each of the societal, interpersonal and individual levels. Chapter 4 addresses the societal level by applying this coding matrix to media content. Chapter 5 addresses the inter-personal level by applying the matrix to focus group interviews. Chapter 6 addresses the individual level by using arguments from the matrix in an attitude survey. Chapter 7 discusses how successfully these three studies answer the research questions set out in Section 2.5.4.

Chapter 4 *Media Content Analysis*

Chapter Outline

Chapter 3 included a justification for using a content analysis of news media. This chapter provides a detailed account of the methods used. It comprises the following sections:

- 4.1 Justifies narrowing ‘news media’ to UK national newspapers for the content analysis
- 4.2 Describes the corpus construction and sampling method
- 4.3 Comments on the increase in newspaper coverage over time
- 4.4 Provides an outline description of the whole sample
- 4.5-9 Analyses the content of this sample using the Standpoints of the four Relational Models in turn
- 4.10 Asks whether the sample manifests the four distinct Standpoints of Relational Models Theory
- 4.11 Examines interaction and overlap between the Standpoints
- 4.12 Asks whether there are other themes in the sample that do not fit into an analysis based on the four Relational Models
- 4.13 Conclusion.

References to articles in the sample are by #number, i.e. #1, #2, #3...etc. In addition references to articles in the pilot sample are also by #number, as follows, #p1, #p2, #p3 etc. Appendix F schedules articles from the main sample: each article can be traced from the details in the Appendix through the Nexis database. Appendix B schedules articles from the pilot sample. Since the pilot sample helped to build the coding frame, references to the pilot are restricted to Chapter 3 and section 4.1 of this chapter which justify the method adopted.

4.1 Justifying narrowing ‘news media’ to UK national newspapers for the content analysis

4.1.1 Criteria for defining the corpus

The following 5 criteria have driven the definition of the corpus:

- *Breadth*: having restricted the analysis to news sources, it has to be shown that the news sources used capture divergent elements of the debate,
- *Depth*: despite excluding the in-depth discussions afforded by books on the subject (3.4.2. above) it has to be shown that the news sources used offer examples of extended argumentation within the debate
- *Representativeness*: practical considerations inevitably weigh heavily in defining the selection of a corpus from which to draw a sample. Nevertheless, it is desirable, within practical constraints, to optimise the

extent to which the corpus represents the wider public debate and the sample represents the corpus. In the broadest terms, Silverstone (1999) argued that the media do indeed do exactly that, namely re-present the public debate. Nevertheless, it is worth examining the extent to which the sources selected represent the debate in all its variety, and what elements tend to be left out.

- *Emergence*: Coverage of the early representation of ideas, before their embedding within pre-existing social institutions and ideas can provide additional insight. This process of transformation and reproduction of emerging ideas is central to Social Representations Theory (Jovchelovitch, 2007, pp. 45-49). Although, as noted in 3.3.3 above, the active shaping of this assimilation by vested interests is not the main subject of this thesis, the early expression of the ideas may provide additional information about their nature.
- *Accessibility*: the practical advantages of selecting material from a pre-existing database are so great that, providing the corpus achieves some acceptable score on the preceding four criteria, it makes sense to use such a database. Shortcomings in taking this route can be patched up (mitigated) with supplementary material if required.

4.1.2 Use of UK national newspapers

The source chosen for analysis was UK national newspapers. Do these achieve the necessary breadth, depth, and representativeness?

“Open any newspaper and the chances are you’ll find an item on climate change. Friday saw yet another flurry of coverage with the publication of the Intergovernmental Panel on Climate Change (IPCC) fourth assessment report on the science of climate change” wrote the UK’s Chief Scientific Adviser David King (2007) in *The Observer*. Not only the IPCC assessment reports, but plenty of new scientific evidence and arguments receive coverage in the UK newspapers (e.g. #p3, #p36, #p38, #p48). The deliberations of the UNFCCC and G8/20 meetings also gain substantive coverage (e.g. # p10, #p30, #p31). Significant developments in the debate over policies to combat climate change, such as the Stern review, are extensively covered (e.g. Blair, 2006).

Many of the leading voices in the debate, both pundits and politicians, contribute newspaper columns; to name only two, both George Monbiot and Bjorn Lomborg write or have written regularly for the *Guardian*. The newspapers also carry more philosophical ruminations over what climate change says about humanity and nature, and their relationship to one another (e.g. #p39). Although more extended treatments of the topic can be found in news magazines there would be

little advantage to including them within the corpus to be analysed. Similarly, there would not be any particular advantage to including local newspapers within the corpus. The national newspapers' attempts to make the topic of Climate Change more meaningful to their readers encourage a focus on the consequences of climate change in the form of floods, storms and heatwaves. Inevitably these involve local detail, whether in the Maldives (#p6), Ireland (#p32) or Oxford Street (#p18). The national newspapers do balance 'big picture' reviews of the issue with local detail.

Previous analyses of the media coverage of climate change have highlighted the expression of both sceptical and 'consensus' views on the science of anthropogenic global warming (Carvalho & Burgess, 2005; Ereaut & Segnit, 2006). Any excursion onto the internet blogs quickly yields pages of sceptical views ranged against just as much dismissive 'consensus' opinion. Newspapers too carry examples of both these positions, e.g. Jeremy Clarkson ridiculing climate change science (2006 and many other articles) or Johann Hari inveighing against climate change 'deniers' (2005, 2007). However, this tone, as well as sceptical views that are carefully argued rather than merely shouted, was not present in the actual pilot sample.

National newspapers do appear to achieve the necessary breadth, depth and representativeness called for in 4.1.1.³⁰ A further advantage to restricting the corpus to national newspapers is the need for corpora to be reasonably homogeneous (Bauer & Aarts, 2000, p. 31). Despite the different readerships of the different national titles, they address the British public collectively in a way that specialist titles and local newspapers do not.

4.1.3 Use of the Nexis database

Nexis provides a readily accessible electronic database of UK newspapers. For research purposes, it is not perfect. To generate a sampling frame requires the number of articles carrying search terms to be counted, and reproduction of the sampling frame over time can require laborious reconciliations as occasional revisions to the database's filing of articles occur. Two specific issues also affected sample selection from the corpus:

³⁰ The absence of sceptical views in the pilot sample raises the question as to whether the national newspapers are sufficiently representative of sceptical views. Section 4.4.5 discusses the level of scepticism in the media and in the main media sample.

- a) Some publications, for certain periods, have duplicate filings representing multiple editions, and these are not always eliminated by the facility within the database to ‘switch off’ duplicates: this affects the likelihood that some articles are selected by random sampling.
- b) Search terms occasionally pick an article based on Nexis’ coding of the content, which is appended to the article, even when the exact search term is not included in the article itself, but this is rare.

However, reviewing the populations generated by a number of different search terms did not suggest a systematic bias that could undermine the exercise. Issue (a) might have been significant, but when retrieving sampled articles from the database it is readily apparent if the selected article is one amongst duplicates, and this is very infrequent. Issue (b) was not found to be significant in the pilot sample³¹.

One particular shortcoming of Nexis cannot really be circumvented. The individual publications come on stream on the database at different dates, starting with the Financial Times in 1982 (Appendix F provides the sampling frame which displays the year in which each publication comes on stream). Fortunately, by the time the 1992 Rio summit was held the FT, Times, Guardian, Independent and Mail are all represented. By 2000 they have been joined by the Telegraph, Express, Mirror and Sun. As the sampling frame shows, even for publications on the database prior to 1990 the bulk of the articles in the corpus were written after 2000.

Set against these issues, the exceptional advantages of accessibility justifies use of the Nexis database to form the corpus.

4.2 Corpus construction and sampling

4.2.1 Emergence

Of the 5 criteria mentioned in 4.1.1, only emergence is not addressed above. The potential challenge of global warming only came to wider public attention in 1988 (Mazur & Lee, 1993). The Nexis database can therefore address the assimilation

³¹ Point B above raised the concern that sometimes the term appears in Nexis’ coding of the content, not in the article itself. In the pilot sample of 51 randomly selected #'s, this occurred in 3 cases: #'s p1, #p8 and #p17. #p1 includes the phrase ‘global climate is warming’; #p8 included ‘greenhouse effect’ and ‘reducing carbon dioxide emissions’ ; #p17 included ‘greenhouse gases’ ‘cut down gases’ and ‘carbon tax’. On this basis it is fair to conclude that this feature of the Nexis search process does not distort the compilation of the corpus.

of the issue by the general public. Sections 4.3.1 and 4.3.2 below charts the level of interest shown by the media in the topic as it emerged.

4.2.2 Creating the corpus and sampling frame

A search of the Nexis database of UK national newspapers from inception in 1982 to 31 August 2009 for all articles that included the terms “climate change” or “global warming” created a corpus of 75,229 articles. These search terms were chosen after some trial and error in preparing the pilot sample. Other terms, such as ‘Carbon Dioxide emissions’, the ‘greenhouse effect’ or the ‘Kyoto Protocol’ either added minimally to the scope, or started to increase the number of articles in the sample that were not relevant. By way of precedent, Carvalho and Burgess (2005) used the search terms ‘climate change’, ‘global warming’ and ‘greenhouse effect’. Others, such as the IPPR, emphasise the diversity of media sources and necessarily opt for self-selection of the articles analysed in amongst other material (Ereaut & Segnit, 2006; Segnit & Ereaut, 2007).

The population constituted by this corpus generated a sampling frame gridded by date so that each article could be identified by a unique number capable of random selection.

4.2.3 Sampling and selection of articles: Sample size

Given the interpretative nature of the exercise, and the shortcomings present in the corpus, there are few statistical arguments from which to determine sample size. A different approach would be to increase continuously the sample size until saturation is reached (following Bauer & Aarts, 2000, pp. 32-34). In this context saturation means that additional sample items no longer yield new thematic material. The use of *random* sampling is employed in part to give a feel for the relative frequency of particular arguments and themes within the corpus, without claims to statistical validity. It also gives a degree of certainty that rarer themes in the material have been covered: the chosen sample size of 150 gives a 90% confidence that material which occurs in only 1% of the corpus units (Krippendorff, 2004, pp. 121-122) has been captured. For the purposes of this evaluation the pilot coding exercise covering a random sample of 40, albeit covering a slightly shorter period (1984-2007) than the main sample, provides further assurance that all prevalent themes in the corpus have been captured: in effect a larger sample of 190 articles has actually been analysed. On Krippendorff’s measures would give a 98% confidence that material which occurs in only 2% of the corpus units has still

been captured. The proposed research pulls in both directions here: on the one hand a desire to identify themes that influence the debate suggests a search for dominant, in the sense of most frequent, themes. On the other hand, a theoretical stance that assumes many themes are implicit and unexpressed encourages pursuit of rarer material. The size of the sample was further increased with additional material from early years, described below.

4.2.4 Sampling and selection of articles: Stratification

Appendix G, summarised in Figure 4.1 below, shows that the corpus was dominated by material from later years. To achieve the desired coverage of the emergence of the debate, an additional sample from earlier years was taken. 30 additional articles were randomly selected, 10 from each of the periods 1984-1989, 1990-1994 and 1995-1999³².

In addition to items selected from the Nexis database, the pilot sample was extended to achieve the 'depth' of the material analysed by adding 11 opinion articles to the sample (in line with Bauer & Aarts, 2000, p. 33). In general these were selected from articles found in earlier searches of the Nexis database or from internet sites: 7 came from titles covered by the Nexis database, 2 from the Financial Times (not included in the pilot random sample) and 2 from internet sites. Not surprisingly these hand-picked pieces provided substantially richer analytical material than the randomly selected articles. However, the handpicked articles represented 26% (by word count) of the pilot material and generated 46% of the codings: although richer they did not dominate the exercise. As described below at 4.4.4, for the main sample, it was judged that an adequate level of saturation had been achieved and there was no need for supplementary material. Indeed, some of the challenges experienced in coding the dense, reflexive argumentation of these opinion pieces highlighted the difficult consequences of introducing more heterogeneity into the corpus (see 4.1.2 above).

³² For the pilot, this same stratification strategy was adopted with 5 additional articles from each of these periods, giving a total sample of 55. As a result of some teething problems when only halfway up the learning curve, 4 of the random numbers selected in the pilot actually failed to match a valid article number on the database, so that a random sample of 51 articles was analysed. No such difficulties were encountered in the main sample.

4.2.5 Corpus and sample dimensions

The table below summarises the number of articles present in the corpus and the sample by newspaper title:

NO. OF ARTICLES IN CORPUS AND SAMPLE							
Newspaper Title	Total			Sample			
	1982-1999	2000-2009	Total	1982-1999	2000-2009		Total
	Financial Times	2474	8804	11278	12	14	26
Times/Sunday Times	2568	10948	13516	13	16	29	
Guardian/Observer	3146	12817	15963	16	25	41	
Independent/loS	2735	8741	11476	6	19	25	
Telegraph/ST	0	5744	5744	0	19	19	
Mail/MoS	736	4562	5298	5	9	14	
Sun/NoW	9	3299	3308	0	4	4	
Mirror/SM	203	3163	3366	1	4	5	
Express, Star/SE,SS	26	5254	5280	0	17	17	
	11897	63332	75229	53	127	180	

Table 4-1: Number of articles in corpus and sample

The sample of 180 articles has in excess of 110,000 words. The pilot sample of 51 newspaper articles comprised approximately 33,800 words and the 11 supplementary opinion pieces approximately 11,700.

4.3 Increase in newspaper coverage over time

4.3.1 Emergence of the topic 1970-2010

A search of the Times Digital Archive and the Nexis database for the Times (1970-2010)/Sunday Times (1986-2010) provides a clear picture of the increasing media interest in the topic:

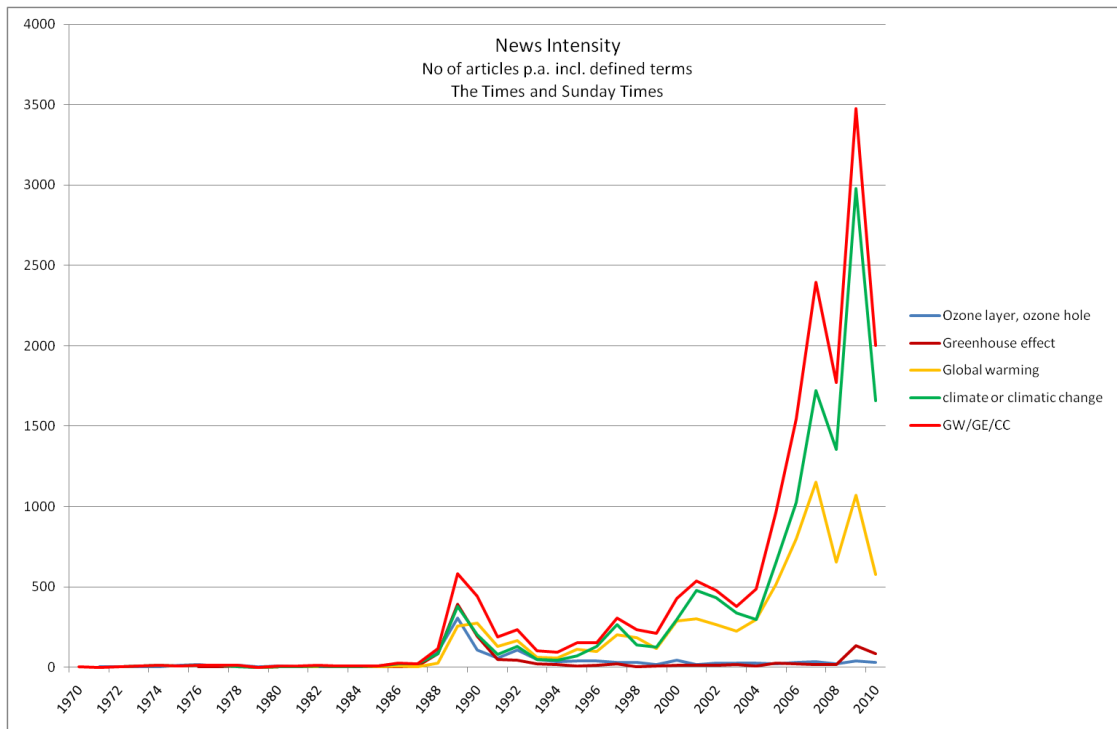


Figure 4-1: News intensity, articles per annum, 1970-2010

Appendix A provides a timeline for the climate change debate, identifying key milestones. In 1988 Jim Hansen’s testimony to the US Senate coincided with rising concern over the ozone hole as well as high temperatures and drought in the US. Then, the ozone hole was almost as significant a topic as climate change as the graph demonstrates. Subsequently, and especially after the Earth Summit in Rio in 1992, interest in climate change declined. The Kyoto Protocol in 1997 and the 3rd IPCC Assessment Report in 2001 re-stimulated media interest. In 2007, the aftermath of the Stern Review (published late 2006) and the IPCC 4th Assessment Report brought the topic centre stage, with interest peaking in 2009 running up to the UNFCCC Copenhagen summit.

Setting these numbers against comparators for other contemporary topics serves to demonstrate the high relative importance of the topic as covered by The Times/Sunday Times:

Year	Search terms	No. of Articles	No. of GW/CC/GE Articles
1989	Berlin Wall	270	583
1990	Berlin Wall	296	440
1990	Saddam Hussein/Desert Storm/Gulf War	4185	440
2003	Saddam Hussein/WMD/weapons of mass destruction	3766	380
2008	Credit crunch/credit crisis	5350	3477
2010	Credit crunch/credit crisis	1615	2002
2010	Budget deficit	2452	2002

Table 4-2: Frequency of comparative search terms on Nexis database

4.3.2 Emergence in different newspapers

Emergence over the last decade in different newspapers is broadly similar:

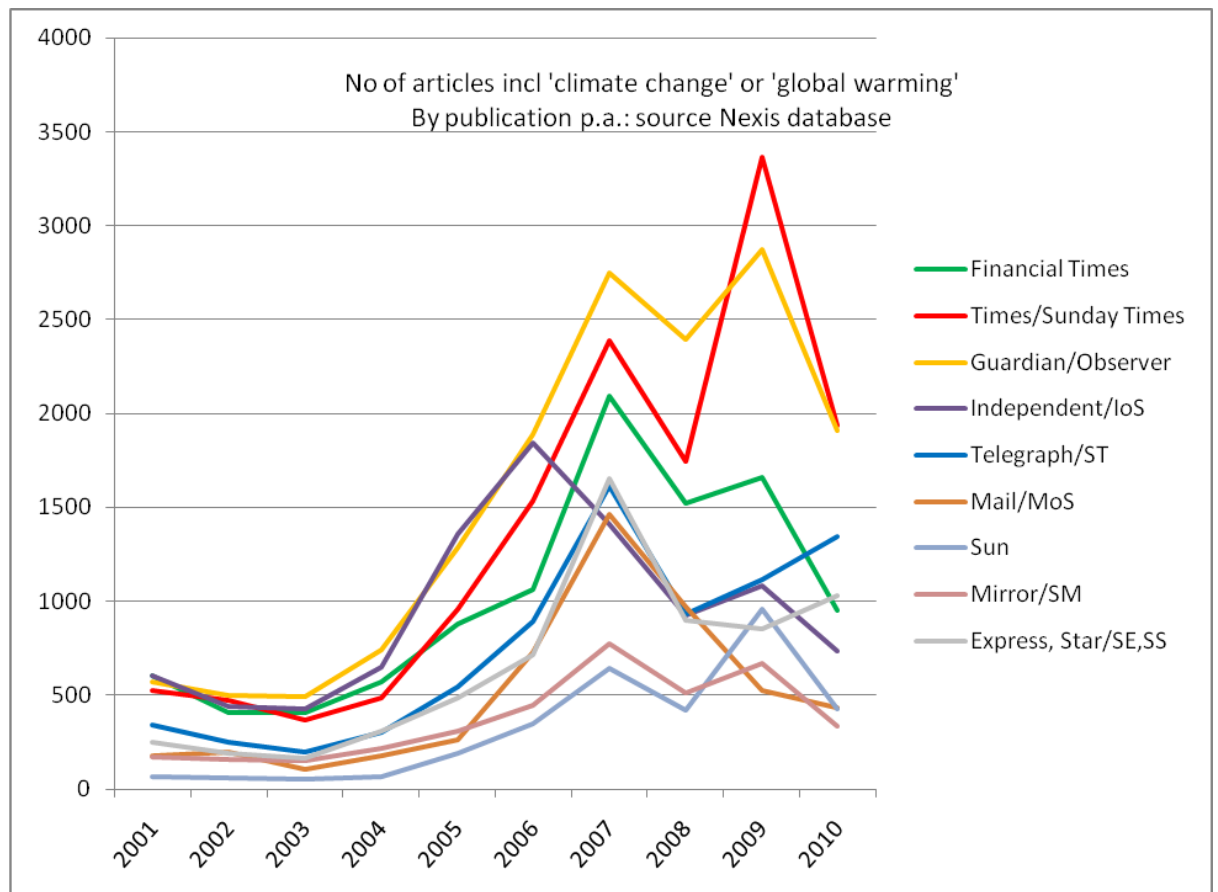


Figure 4-2 No. of relevant articles per annum by publication, 2001-2010

4.3.3 Overview commentary on emergence data

Carvalho (Carvalho, 2007; 2005) analyses the different stances taken by different newspapers to the issue from 1985-2003: they identify the campaigning role of the Guardian and the Independent, which took a lead in consciously trying to raise

awareness of the issue. This continued during the middle of the last decade. In recent years other newspapers appear to have been driven mainly by the salience of the issue within the UK political agenda - with high peaks after the Stern Review late in 2006 and in the run-up to the Copenhagen summit.

The year 2010 falls outside the Corpus sampled for detailed analysis. Generally interest declined in 2010. Four reasons can be cited:

- A. In the UK there was a political consensus on climate change (e.g. “All three of Britain's main political parties espouse low-carbon growth”(Lean, 2010, p. 24); the election battleground was the economy, inevitably squeezing out other topics.
- B. The Copenhagen summit at the very end of 2009 was judged a failure (e.g. Porritt, 2009; Vidal, Stratton, & Goldenberg, 2009). When so many had declared before Copenhagen that failure was not an option (King, 2009; N Stern, 2009), it was inevitable that afterwards public figures would be less ready to invest political or ‘celebrity’ capital in the issue.
- C. In late 2009 leaked emails suggested that climate change scientists had knowingly overstated the case for anthropogenic global warming (Nature Editorial, 2009a). On the one hand, this was a significant debating point, generating news coverage; on the other, coinciding with the failure at Copenhagen, it facilitated a decline in popular concern (McKie, 2010); “Brits so cool on warming” said the Sun (February 2010).
- D. Britain experienced colder winters in 2008/9 and 2009/10 as well as the early part of 2010/11. Stern is clear that this first-hand evidence apparently contradicting ‘warming’ has a significant impact on belief (Stern, 2010, 79th minute) and media references tend to support this (Booker, 2009; Leake, 2009). The literature on how personal experience of the weather affects beliefs is discussed in section 1.7.3.2.

Both the Telegraph/Sunday Telegraph and the Express group newspapers actually increased coverage of the issue in 2010. Because the period lies outside that covered by the main sample, it has been necessary to look at these articles separately. A review of the Nexis abstracts of Express group articles in March 2010 suggests that the new mood, driven by B, C, and D above, released pent up frustration over climate change. Swanson (2010) sums up the mood: ‘Where is your global warming now?’ However, this cursory examination cannot suggest why these titles seem to express this changed mood, while others do not.

An intriguing aspect of these figures charting the intensity of the climate change debate is that ‘Greenhouse effect’ is initially the most frequent of the three

terms searched. For a brief period in the early 1990's 'global warming' is the most frequent of the three, but by 2000 'climate change' is the most frequent term. In part this must reflect the fact that both the main international bodies for researching and discussing the issue, the IPCC and the UNFCCC, have 'climate change' in their titles. Yet it also seems likely that this trajectory reflects a shift down the causal chain from the physical mechanism (greenhouse effect) to the overall phenomenon (warming) to the consequences for readers (changes in climate). The Focus Groups in Chapter 5 support this emphasis on the importance of personal relevance to individuals.

4.4 Outline description of the main sample

4.4.1 Descriptive coding

Each article, as a whole, has been coded with the following descriptive characteristics:

1. **Style of content.** Was the article a news story, or a comment piece or a bit of both? Was the global warming content primary, secondary or minor in the piece as a whole? Eight codes, in table 4-3 below
2. **Thematic content of the whole article.** Ten different codes derived from the pilot sample, shown below in table 4-4, were used to identify which broad themes were present in each article - essentially identifying what was each article about. Codes were not unique - so each article could be coded as including several themes.
3. **To the extent that the article was about global warming, what was the principal global warming theme?** Ten further codes, also in table 4-4 below, some overlapping those in 2 above were used to identify which was the principal theme in each article. Codes were unique, with only one theme per article.
4. **Level of scepticism or belief in the science of anthropogenic global warming ('AGW').** Each article was coded to identify (on a scale from -3 'vehemently sceptical' to +3 'vehemently advocating the science') the attitude to the science of AGW. The scale includes a code of '0' for an explicitly neutral stance. In addition, a further 2 codes were required. The first captures the many articles that effectively take anthropogenic global warming for granted: they did not express an attitude but the content would be nonsensical if there was doubt about the reality of global warming and mankind's role in it. The second captures the many articles that simply do not give enough evidence to attribute an attitude to the science.

Appendix F schedules all of the 180 articles and the descriptive codes attributed to them, together with a short phrase describing the content, the publication, date and length of each article.

The coding process inescapably involves subjective judgement. The whole descriptive coding exercise was conducted twice on separate occasions and discrepancies were resolved, an approach which enforces some objective discipline within the process.

4.4.2 Style of content

The table below summarises the nature of the Global Warming content in the articles:

Style of content	No. Of Articles
Primary in news	48
Secondary in news	24
Primary in comment	32
Secondary in comment	17
Primary in news and comment	11
Secondary in news and comment	13
Minor or Derivative	31
Unassigned/not applicable	4
Total	180
Total 'primary'	91
Total 'secondary'	54

Table 4-3: No. of articles by style of content

The boundaries between news, news and comment, and comment are inevitably somewhat blurred. Similarly, there is a continuum from primary through secondary to 'minor or derivative'. Minor or derivative articles range widely. For example, in #19, a discussion of Margaret Thatcher's use of experts at Chequers seminars, mentions her holding such a seminar to look at climate change. There are many such pieces on politics which mention climate change as just one amongst a list of issues (e.g. #57, #125, #133, #141). Other articles

simply exist in a context where climate change is part of the contemporary milieu, maybe as material for jokes (#134), films (#73) or music (#83).

Four early articles really were not about climate change at all, including a geologist’s obituary (#20) and two articles about the weather (#2 and 4). #1 from 1983 is about UN plans to provide agricultural commodity price stability to developing world producers where climate variability may affect their fortunes: so it has many of the themes that will dominate the future debate, but it is not about climate change arising from anthropogenic global warming.

4.4.3 Broad thematic content

The table below summarises the broad thematic content by number of articles. ‘Thematic content’ codes allow for multiple themes in the article, even if the GW content is minimal. ‘Principal GW theme’ takes articles where the GW content is sufficiently substantial to enable a ‘principal’ theme to be allocated.

Thematic content	No. of Articles	‘Principal’ GW theme	No of articles
Science News	34	New science/debate	23
Scientific Debate	21	Political argument	41
Politics News, UK	42	What to do, generally	27
Politics News, Global	40	What to do, specific	34
“Policies” News	56	General scepticism	2
Consequences of GW	64	Specific consequences	34
Mitigation Measures	68	Economics, business	7
Adaptation Measures	14	Art, celebrities	8
Worldviews	95	Green consumerism	1
Unassigned	4	Unassigned/not applicable	14
Total	438		180

Table 4-4: Articles by thematic content and principal GW theme

The newspapers address the issue from several angles:

- Is there a problem/what is the problem? This is captured in science news and reports of the consequences of global warming. Science news can be narrowly specific, such as #49 on coral diseases. The consequences too can be very specific, such as the grass growing faster in Carlisle (#75) or

the possibility of new spiders in Scotland (#120). There are also broader discussions of the science and what it means (e.g. #122, #124).

- Given that there is a problem, what should we do about it? Again, this can be specific (energy saving tips at the Ideal Home Show, #101), or broad discussions about whether climate change represents a policy priority when compared to other issues such as national security (e.g. #140, #154). Discussion about ‘what to do’ sometimes focuses on actual policy initiatives, for example the role of nuclear in electricity generation (e.g. #70, #91): but very often the coverage is really about politics. Numerous pieces about US politics mention climate change as a policy area (e.g. #151, #163, #179) but fewer are principally about climate change *and* the US role in the discussions (e.g. #16, #41).
- Policy makers on climate change typically divide responses between ‘mitigation’ and ‘adaptation’ (1.3.5, 1.3.6). ‘What to do’ coverage can also be divided between how to prevent global warming with greenhouse gas emissions cuts (e.g. #93 on UNFCCC talks), and how to adapt to the consequences of climate change, whether with flood defences (#24) or by having to work harder cutting the grass that is growing faster in Carlisle (#75).
- A number of articles show the whole topic having been absorbed into different human activities: art represents and interprets climate change (#22, #111), consumers respond to the need to buy ethically (#76) and celebrities show them that “Green is the new black, darlings” (#97); businesses and investment advisers respond to the challenges (#60) and the opportunities (#119, #152).
- Roughly half of the articles evince the kind of ‘worldviews’ that Cultural Theory would recognise: presumed moral imperatives appear to influence the opinions offered. These can be trivial, such as efforts by pop stars to raise awareness of global warming (#132) through to intense discussions about mankind’s place on this earth (#68, #111).

4.4.4 Is the sample representative of the debate?

Section 1.3 described the debate as addressing the following questions. Against each one three articles which engage directly with the question are listed:

1. Is the world getting warmer? #28, #37, #116
2. Is this warming anthropogenic? *Relative importance of anthropogenic and natural causes* : #3, #17, #138,
3. (a) What are the possible consequences of the warming? *Wide variety*: #82, #139, #157
(b) Are these a problem? *Consequences usually presented as problems* #9, #22, #104,

4. (a) Should we try to stop it? *Some say no #54, #136; most think we should, #168*
 (b) Can we stop it? *Fears over not enough time #35, #128, #169*
5. What are the best policies for stopping it? #27, #56, #137
6. How do we share the burden of stopping it? *Developed world versus developing world #26; do individual actions make a difference? #76, #112.*

Not only does the sample address the breadth of the debate, it also includes numerous articles that consider the topic in depth. The following give a flavour:

- #7 is a Times editorial looking at environmental economics and politics after Margaret Thatcher brought the topic centre stage in 1988
- #17 is an article by the editor of Nature John Maddox, entitled “Let reason rule on global warming”. An extended look at the science and at the relationship between human progress and nature.
- #43 examines how the business and political worlds are responding post Kyoto
- #54 is a rant by Jeremy Clarkson, insisting “It’s not fair” on the trees to cut CO₂ emissions.
- #68 is an article by James Lovelock, also an extended look at the science, nuclear power and the relationship between human progress and nature.
- #98 has leading business coach Sir John Whitmore discussing how the motor industry can become more environmentally responsible
- #111 is a reflective look through Breughel and modern art at the relationship between mankind and changing climate
- #112 considers Tony Blair’s environmental credibility: what is it reasonable to ask individuals to ‘give up’?
- #121 Ryanair boss Michael O’Leary attacks environmentalists
- #136 is a rant by Richard Littlejohn about eco-loonies and the need to trust the market to solve social issues
- #170 is an extended look at Transition Towns and other community sustainability projects.

Overall, the apparent breadth and depth of the coverage of the debate suggested that the sample successfully represented the main elements of the debate. As a result, no further supplementary articles were added (see 4.2.3).

4.4.5 Levels of scepticism

Articles were rated for the level of scepticism expressed in them:

	Level of Scepticism	No. Of Articles
1	Vehemently sceptical	2
2	Quite sceptical	1
3	Slightly sceptical	0
4	Neutral	20
5	Supportive of science	25
6	Convinced of AGW	28
7	Vehemently advocating the science	16
8	Taking AGW for granted	58
9	Not assigned	30

Table 4-5: Level of scepticism by number of articles

The lack of expressed scepticism is striking. As described before, many studies have emphasised the media's role in promulgating sceptical voices (Boykoff, 2008b; Carvalho, 2007; Oreskes & Conway, 2008). In this sample there are two sceptical shock-jock style rants: #54 by Jeremy Clarkson, #136 by Richard Littlejohn. There is some deliberate expression of ambivalence: #153 in The Express comprises a 'for' and an 'against' letter. Yet a rant by the Ryanair boss against environmentalist hypocrisy actually engages with global warming as a problem by saying that we have to influence the developing world, not cut our own consumption. A carefully argued piece (#17) by John Maddox, author of a trenchant attack on Limits to Growth (Meadows, et al., 1972) entitled 'the Doomsday Syndrome (Maddox, 1972), actually accepts the reality of global warming while challenging the consensus policy responses to it. This latter strategy is similar to that of Lomborg (2001, 2007) who avoids arguing about the science but aggressively challenges the policy prioritisation of climate change. #124 similarly attacks doom-mongering by picking up on research that suggests Kilimanjaro's glacier is not retreating: but it is saying the whole topic is more complex, not that AGW is untrue.

Commentators whose job is to entertain are happy to suggest the science is nonsense: but the sample provides no evidence of any widespread expression of *serious* argument against consensus global warming science. This was the same in the pilot random sample, which only had one article expressing scepticism: #p14

discussed a challenge to the way climate change was being taught in schools as an accepted fact.

It cannot be denied that there are serious sceptical voices in the UK: the arguments of Nigel Lawson's (2008) 'Appeal to Reason' are frequently repeated in print by his journalist son Dominic. The TV programme 'The Great Global Warming Swindle' (Durkin, 2007) stirred up plenty of attention. One letter to the Sunday Express (#138) demonstrates the impact on the public of apparent controversy over the science. People are confused:

"Both sides can't be right, so isn't it time for someone independent to start doing some serious research into all this to establish the truth as a matter of urgency?"

However, in terms of quantity sceptical voices are a drop in the ocean. The vast majority of coverage accepts without challenge, advocates strongly or simply takes for granted the consensus position.

4.5 Different Standpoints in the sample

4.5.1 Outline of the next four sections

Section 3.4 set out a coding matrix generated from applying the four Relational Models (Communal Sharing, Market Pricing, Equality Matching and Authority Ranking) to the eight domains, namely:

1. The foundational principle of the RM,
2. The approach taken when applying the RM to the issue of climate change,
3. The RM's implied analysis of the economics of climate change,
4. The attitudes towards nature typical of the RM,
5. The RM's understanding of the relationship between Man and the natural world,
6. The kinds of knowledge and wisdom privileged by the RM,
7. The attitudes towards other people typical of the RM,
8. And lastly, the RM's outlook when faced by the issue of climate change.

As discussed in Chapter 3, each RM encourages particular arguments, or premises, in each domain from which to debate climate change. Taken together these arguments form a Standpoint within the debate. Each cell in the 4x8 matrix potentially represents a distinct argument or collection of arguments. The next

four sections consider whether and how each of the 32³³ potential ‘arguments’ are represented in the sample.

4.5.2 Interaction between the Standpoints

There are challenges to distilling the essence of each Standpoint. Most importantly, the Standpoints are not offered as stereotypes existing in isolation. The arguments offered by one Standpoint are commonly advanced against the arguments of another. Many participants in the debate will be seen to employ the arguments of more than one Standpoint. Sections 4.6 to 4.9 somewhat artificially separate out the Standpoints. Subsequent sections consider the interactions between them.

4.5.3 Arguments within the sample

Appendix H takes the coding matrix and populates it with article numbers from the sample where the relevant argument has been identified. This is not a comprehensive exercise: some cases are left out, while some of the inclusions are perhaps borderline. For example, in the domain of ‘Attitude to Others’, the Standpoint of Communal Sharing emphasises helping the needy, but not every mention of developed world assistance to the developing world nor every mention of obligations to ‘our children’s children’ is included. Given the interactions between Standpoints mentioned above, some cases are clear cut statements of an argument, others are not: self-assertion of individual freedom (a foundational principle of Market Pricing) regularly blends with rejection of uncompensated impositions by authority (an argument of Equality Matching in the domain of ‘Attitude to Others’).

The populated matrix identifies 531 arguments in 142 out of the 180 newspaper articles in the sample. 50 articles have ‘CS’ arguments identified; 70 have ‘MP’ arguments; 95 articles have ‘AR’ arguments identified and 57 ‘EM’ arguments. The subjective nature of this exercise should discourage reading too much into these numbers. However, since the national media pays particular attention to the words and deeds of governments and politicians it should not be surprising that the AR Standpoint is more in evidence: governments are less prominent in the focus groups (Ch5).

³³ 32 is the number of cells in the matrix: expanding the logic of some generated 46 arguments in the matrix in Appendix E.

4.6 Standpoint of Communal Sharing

4.6.1 CS1: Communal Sharing: foundational principle

The foundational principle of CS is one of equality within the group, especially when faced by a shared challenge. The very existence and constitution of the UN, and subsidiary bodies such as the UNFCCC, represents a global aspiration to fulfil this principle. The foundational principle of equality makes combating climate change a human rights issue, as #26, #40 and #86 identify. Within the sample, this idea of ‘all being in it together’ can be expressed quite blandly:

#35:

“It is going to affect every person on earth.”

In the face of the challenge, we must all pull together (**#8**):

“[Lord Cledwyn] said that vigorous international co-operation was needed if the potential catastrophe threatened by global warming, acid rain and damage to the ozone layer was to be avoided.”

#87 expresses the principle in more fully developed form with Simon Hughes setting out his political priorities:

“And a greener Britain, because uncontrolled climate change is the biggest challenge we face. Scientists differ in whether they think we have 10 years, or 30 years, to put in place the energy infrastructure that will make possible a sharp reduction in greenhouse gas emissions. Some think it may already be too late. But we have to try, not only for our own sake and our children’s, but for the sake of the poorest and most vulnerable communities everywhere in the world.”

4.6.2 CS2: Communal Sharing: approach to climate change

CS2.1: We can all do our bit

Since ‘we are all in it together’ the CS Standpoint insists that ‘we can all do our bit’ to combat climate change:

#112:

“At a press conference last night, Mr Blair said: "There's a massive amount individuals can do. In this building we have energy efficient lightbulbs now, we get all our sources of energy from renewable sources, we have been putting down the temperatures, we do recycling on a very large scale.”

Or **#145:**

“SCOTTISH SUN DOES ITS BIT
YOUR No1 Scottish Sun is printed using paper that’s 80.6 per cent recycled.
Paper is shipped from Norway to cut down on carbon emissions from flights.
We’re committed to renewable energy with power at our new Eurocentral print plant coming from 47 per cent landfill and 14 per cent hydro.”

The Standpoint also emphasises the importance of the mother earth on which we all depend. For James Lovelock this obligation to the environment transcends our human rights obligations. He writes in #68:

“The Green lobbies, which should have given priority to global warming, seem more concerned about threats to people than with threats to the Earth, not noticing that we are part of the Earth and wholly dependent upon its well being.”

CS2.2: Mankind is at fault

As CS’s analysis of mankind’s relationship to nature will show (4.5.5 below), we must all take responsibility for the land upon which we depend. Mankind, which Lovelock describes as ‘like a planetary disease’ (#68), is at fault:

#9:

“A tidal wave of guilt over the destruction of the environment is sweeping the Netherlands. The Dutch have concluded that their country’s neat, green appearance belies a harsher reality of polluted water, contaminated land and poisoned wildlife.”

This attribution of responsibility lies at the heart of CS’s economic analysis.

4.6.3 CS3: Communal Sharing: economics

Section 1.3.6 on Sustainability argued that the environmental impact of human economic activity is a function of the size of population, the level of affluence and the technological efficiency of the activity. This is expressed in the equation:

$$I = PAT$$

For CS, to reduce environmental impact *I*, society must reduce the levels of consumption implied by *A*. For CS this matters, because there must logically be a limit to how much CO₂ we can put into the atmosphere, just as Malthus argued that there must be a limit to how much we consume because logically resources must run out eventually. Joe Rogaly, writing in #34 sets out the case:

“Some of us fear that further industrial development, particularly in India and China, will so clog up the atmosphere that, in a century or two, global warming will be the least of our problems. We dispute the proposition that the ability of capitalism to create ever higher mountains of material goods will be of lasting benefit to the human species. We prefer giant Redwoods to John Redwood...
... We wonder whether every new product, from every busy laboratory, adds to or subtracts from life’s difficulties.”

#92 suggests the same:

“It’s a tenet of almost religious faith that humans are sawing away at the branch they’re sitting on.”

As does #97:

“it is just not acceptable to jet off to Barcelona for a hen weekend, or fly to Paris when Eurostar is so much kinder to the environment”.

Which means, according to #41:

“if the government is serious about global warming, it must aim to get people to cut their consumption of energy.”

4.6.4 CS4: Communal Sharing: attitude to nature

Cultural theory states that the egalitarian worldview endorses the ‘myth’ of ‘Nature Fragile’ (Section 2.2.2). This idea is frequently expressed, e.g. by James Lovelock in #68:

“climatologists warn a four-degree rise in temperature is enough to eliminate the vast Amazon forests in a catastrophe for their people, their biodiversity, and for the world, which would lose one of its great natural air conditioners”.

Or in a description of new coral diseases in #49:

“These are the little cries and whispers which, when you look at the ocean carefully, and really think about what is going on, begin to affront you with the dangers that lie ahead,” said Prof Porter. ‘As we went back through our data, we saw an alarming trend.’ “

4.6.5 CS5: Communal Sharing: relationship of mankind to nature

Yet the CS Standpoint on nature is almost inextricably intertwined with the presumption that mankind is destroying nature. It is often taken as a given that our “planet is wracked by devastation from pollution and poison” (#22). Again Joe Rogaly develops the idea fully in #34:

“The side-effects, the gargoyle faces, of seemingly infinite economic growth arouse suspicion in many of us. For some it is the traffic jam, or the juggernaut lorry; others wonder about strange new illnesses, the consequences of carefree prescribing of antibiotics, the air breathed from the walls of contemporary offices, the effect of jet travel on the biosphere, factory farming, genetic engineering, the rays from cathodes, and just about every new wheeze thrown out by the ever-expanding scientific invention machine.”

#42 is an extended discussion of the problem of forest fires, typically started by humans:

“The home of the Yanomami people, the largest remaining forest tribe in northern Brazil, is being destroyed around them. Wild animals that escape are seen running down roads, the only places not burning. Firefighters fear being bitten by poisonous snakes.”

4.6.6 CS6: Communal Sharing: knowledge and wisdom

Clearly, these examples are arguing that our behaviour is sheer folly. Indeed, in destroying our environment we are destroying our own closeness to the earth and

all the knowledge that intimate relationship gave us. #26 emphasises the wisdom of indigenous peoples:

“Much of the coca is grown by Indians, whose accumulated knowledge of environmentally friendly and sustainable agriculture has been ignored. The Maya, the Incas, the pre-Incas, the Aztecs and other ethnic groups had solved problems that the technologies of the north are still working on, or have failed to solve.”

While #170 bewails the developed world’s ignorance:

“We have farmed for 600 generations yet most of us have forgotten how to grow food”.

This article is a long discussion about the Transition Town movement, which seeks to foster a return to decentralised community projects and local self-sufficiency, consciously wanting to reconnect with nature:

“supplying our needs in the future will also need considerable movement in the other direction: dispersal of both livestock and humans around the country, not least so that all that human manure can be put back on the land.”

4.6.7 CS7: Communal Sharing: attitude to others

Broadly the CS Standpoint to other people is captured in the foundational principle of equality. There is an imperative to help those within the community. The community may be global, so that the developed world has a duty to the developing world (e.g. #24, #26, #169); the community may be future generations, our children’s children. The Bishop of Stafford expressed this in extreme terms (#158):

“In fact you could argue that, by our refusal to face the truth about climate change, we are as guilty as [the abusive Austrian father who kept family members locked in his cellar] is - we are in effect locking our children and grandchildren into a world with no future and throwing away the key.”

There are clearly important implications if we do not treat the whole of humanity as our ‘community’. If we treat some of humanity as lying outside the community, they become ‘they’, or truly ‘others’: we have no obligations to *them*. Section 4.9.7 examines where this leads.

4.6.8 CS8: Communal Sharing: outlook

From the CS Standpoint, the Outlook can be broken down as follows:

- CS8.1 It will be a catastrophe; the weak and our children’s children will suffer, unless we act.
- CS8.2 Therefore, co-operative action is logically the right thing to do, and/or
- CS8.3 Acting to prevent catastrophe is a moral imperative.

Visions of apocalypse are rife: ‘the planet is dying’ (#104); Queen Beatrix of the Netherlands warns in #9:

“the earth is slowly dying and the inconceivable - the end of life itself - is actually becoming conceivable.”

#112 brings together CS8.1 and 8.2:

“Environment Minister Ian Pearson said: ‘All countries need to urgently agree a global deal. People are already being affected. If we don’t act now, millions more will suffer.’

Greenpeace’s Stephanie Tunmore said: ‘This is a glimpse into an apocalyptic future. Time’s running out.’

Catherine Pearce, of Friends of the Earth, said: ‘Climate change is no longer just an environmental issue - it is a looming catastrophe threatening global security and survival.’”

These are good examples of what Cultural Theory identifies as the egalitarian worldview’s tendency to ‘compress’ time by treating *now* as a pivotal moment (Section 2.2.7, figure 5).

CS8.3 brings us back to the foundational principle, for example in the quote from Simon Hughes, #87 in 4.6.1:

“Some think it may already be too late. But we have to try, not only for our own sake and our children’s, but for the sake of the poorest and most vulnerable communities everywhere in the world.”

4.7 Standpoint of Market Pricing

4.7.1 MP1: Market Pricing: foundational principle

According to Relational Models Theory, in Market Pricing “social transactions are reckoned as rational calculations of cost and benefit” (Haslam, 1995b, p. 43). On this account, the foundational principles of market pricing are first the reliance on an objective standard or currency of value, and second the rationality of the calculation of worth according to the standard. On this basis, #51, might be expected to capture the essence of market pricing. In this article the bookmakers price the odds on what will cause the end of the world (global warming is a long shot compared to nuclear war or an asteroid impact).

However, this account misses a step. The Standpoint first and foremost is an assertion of individual freedom, and of the right of private interests to reap the benefit of their own efforts. The maintenance of a ‘standard’ or currency facilitates the allocation of rewards proportional to individual contribution and effort, consistent with the principles of equity.

Therefore, assertion of the individual right to choose is central to the Standpoint:

#112:

“Tony Blair tried last night to restore his green credentials by announcing that he would offset carbon emissions from his and his family’s holiday travel. Downing Street made the concession after the two lobby briefings yesterday were dominated by Mr Blair’s insistence that he had no intention of cutting back on personal flights”

Even this quote can be seen to exist as an argument against the CS point of view that the individual should make sacrifices for the greater good. However, asserting naked self-interest is just bad manners, unless coupled with the justification of resisting unwarranted restrictions. **#92** captures this with a description of those denying the reality of climate change:

“To call that truth into question is to align yourself with the kind of person who thinks it’s fun to run over snow leopards in a Hummer”.

In the context of climate change, the foundational principle of MP is therefore expressed more often in its rejection:

#33:

“World interests are too important to allow progress to be sunk below the apparently conflicting interests of different groups of countries”

Or **#98:**

“Some think that the environment is the Government’s problem, yet when it suggests controls on speed or fuel usage, they protest”

This makes it much easier to express the MP Standpoint less as a selfish assertion of the right to choose than as an explicit rejection of government infringement of liberty; e.g. Richard Littlejohn writes in **#136:**

“Socialists have only ever had a passing acquaintance with the concept of individual liberty and low taxation...
...The job of politicians is to ensure that we have a reliable supply of electricity. How we choose to use it is entirely a matter for us.”

4.7.2 MP2: Market Pricing: approach to climate change

Cultural theory argues that societies select risks that reinforce the prevailing worldview, or at the very least do not challenge it. The individualist worldview will therefore either deny outright the existence of anthropogenic global warming, or it will reject responses to the problem that inhibit individual freedom. On this

basis, the right thing to do is to allow people, relying on their ingenuity, to adapt to the environment as it changes. Section 4.4.5 showed that outright denial is rare. Instead, the Standpoint emphasises the need to trust individual rationality, and the need for society to facilitate individual efforts to thrive. This approach follows Adam Smith's reliance on human rationality and goodness and on the operation of the 'invisible hand' (as outlined in section 1.6.5). Littlejohn goes on in **#136**:

“People are aware of their responsibilities to the planet, and most try to conserve energy and recycle as much as possible”.

In 1991, **#9** suggested what laissez-faire meant in the business arena:

“The environment plan will continue to rely more on voluntary "covenants" with industry to reduce con-taminants than on legal norms”

Generally, however, the greater complexity of the problem is recognised. An editorial in the Financial Times spells out the approach, again setting MP against the context of government intervention, in **#7**:

“There is a respectable economic case for spending money on environmental protection. It rests on the need to counteract what economists call external diseconomies, or the additional costs borne by society that are not paid for by individuals or firms as they legitimately pursue their private interests. But here is the rub: the discrepancy between private and social costs that gives rise to pollution and other forms of disamenity has been used to justify the enhanced role accorded to the state in the 20th century - that same state whose regulations Mrs Thatcher has been so anxious to roll back”.

Unsurprisingly, MP's diagnosis of the problem is one of 'market pricing'. Society needs to facilitate individuals in making the rational choices they will naturally make by pricing into energy consumption the 'external diseconomies' or negative externalities. **#11**, **#56**, **#157** express this argument, as does a blithely optimistic **#43** from 1998:

“One of the most intriguing aspects of the Kyoto legacy will be the emergence of a global market for carbon dioxide emissions. This gives companies and countries the flexibility to reduce emissions when, and as, it is most cost-effective for them to do so. So excited are its proponents that a UN conference gathers in London next month to try to hammer out the rules of the game even before the concept is agreed at Buenos Aires.”

4.7.3 MP3: Market Pricing: economics

Economic policy preferences

The economic analysis underlying the approach of the MP Standpoint emphasises a preference for policy that facilitates individual decision making. This manifests itself in two specific ways:

- A strong preference for marketable instruments such as emission permits (e.g. # 43, #56, #81, #137, #165, #177)
- A commitment to economic growth (in contrast to CS's assertion of limits to growth). #7, #23 and #110 record advocates of economic growth in priority to environmental protection. Part of the logic for this is presumed economies of scale (#121):

“Mr O’Leary still claims Ryanair is the greenest airline in Europe. He said the company had halved its carbon emissions per passenger in five years by spending EUR10 billion on a fleet of new Boeing 737-800s and by ‘packing in the passengers on all the flights’”.

Another part of the logic is that economic growth enfranchises the poor in developing countries, helping them to help themselves. Section 1.3.6 identified commentators arguing strongly that concern over global warming should not be used to deny economic growth to developing countries but the instrumentalist argument, that only with growth will the developing world be able to adapt, is not made explicitly in the sample. However, the *right* to economic growth in developing countries is taken as given (#33):

“Countries such as China and India with large populations and rapidly developing economies... ...have the right to develop their economies for their own benefit.”

Individual economic behaviour

More central to the MP Standpoint is the expectation that rational economic behaviour means defending your own interests. Helm (2010) draws attention to the industry rent-seeking encouraged by emission permit trading systems and the policy capture that inevitably chases technology subsidies. From the MP Standpoint, this is normal behaviour, occurring regularly (e.g. #44, #67, #86, #92, #105, #106, #110). As Helm pointed out, it is often successful (#150):

“However, the headline grabber was unleashed by the Ofgem boss, Alistair Buchanan, when he said that because carbon emission permits are given away free, and that the cost of those permits is already factored into our higher energy prices, it equates to a whopping £9bn windfall for electricity producers between now and 2012, when the current phase of the Emissions Trading Scheme (ETS) ends.”

The MP approach does not so much advocate a particular course as a guiding philosophy: the rational, self-interested individual should make the most of the prevailing environment (#43):

“Having fought hardest to prevent a deal being reached, the US car industry was the first sector to react when agreement was struck, in spite of a rear-guard attempt by oil-producing nations to kill it off. US car-makers, trailing initiatives announced before Kyoto by their Japanese competitors, lost no time in stressing their plans to develop low emission vehicles”.

4.7.4 MP4: Market Pricing: attitude to nature

This philosophy underpins the MP Standpoint's attitude to nature. Unlike CS, the MP Standpoint does not emphasise humanity as part of nature: nature is external and 'other'. Either we can put the natural world to our purposes and make the most of it, treating it as a potential cornucopia; or we can recognise the challenges it poses and adapt to it, recognising the power of nature. Common sense dictates, 'If you can control nature, do; if you cannot, adapt to it'.

Writers often emphasise that the natural greenhouse effect is vital to life (#17 & #28 make this point explicitly): it is part of the benign nature we can rely upon. More generally, the idea of a cyclical nature simply providing the background against which we should get on with our lives is very strong (e.g. #46, #54, & #138). Some rare out-and-out sceptics take this to the extreme. First, #153:

"If global warming is happening, it is a natural phenomenon. When the Earth heated up at the end of the last Ice Age, was this caused by Neanderthals driving their children to school and flying to Australia for their holidays? No!"

Second, #124 identifies the *rational* response of just getting on with it:

"The majority of reasonable people will say this is just the weather. One day it's hot, the next cold - that's how it always has been. All this global warming is just cobblers."

4.7.5 MP5: Market Pricing: relationship of mankind to nature

The attitude to nature described in the previous section encompasses mankind's relationship to it. Because it is 'other', we should adapt *it* to our purposes, or adapt *to* it if we have to. Adapting to a warming world, the British have the opportunity to make more wine (#102) or to grow coconuts (#82). We can make the most of the need to move to more renewable energy by building the Severn Barrage (#167). The agricultural revolution represents a powerful lesson in adaptation. #48 laughs at Paul Ehrlich, who:

"even predicted that there was only a 1 pc chance of humanity surviving until the end of the century. The concept of food mountains never entered anyone's head".

John Maddox, then editor of nature and a strong believer in technological progress (see Section 4.4.4) expects mankind to mitigate the consequences of global warming (#17):

"On one crucial point, for example, it is said that American influence in the world will be undermined by the collapse of US agriculture caused by global warming. Yet the most elaborate study of that issue, by a group of US agronomists which appears in this week's Nature, concludes that crop production and grain exports could be maintained but at considerable cost chiefly that of increased irrigation. That

conclusion depends on the increased efficiency of photosynthesis, as does (*sic*) carbon dioxide concentration increases. No allowance is made for crop improvements likely to be engineered by biotechnologists (*sic*).”

By extension, the environment to which the rational actor adapts goes beyond the natural world to encompass the social world. Section 4.7.3 saw the US car companies adapting to the (albeit brief) expectation of emission curbs following the Kyoto treaty: #5, #150 & #166 both discuss businesses reacting to the regulatory environment. #97 discusses Marks & Spencer’s ethical marketing drive, while #119 and #152 both discuss the response of the investment community to the challenges of global warming.

4.7.6 MP6: Market Pricing: knowledge & wisdom

From the MP Standpoint, market forces represent the most effective means of achieving rapid adaptation to constantly changing circumstances. The market captures and expresses the combined knowledge of its participants to facilitate this adaptation.

#136:

“Conservatives are supposed to put their faith in the power of the market. It’s the market which is delivering cleaner petrol and cars which pollute less. It’s motor manufacturers such as BMW taking the lead in recycling old vehicles”.

Wisdom is to recognise both mankind’s ability to adapt and the market’s. Some, like Richard Littlejohn, see no limitations to this. #136 continues:

“If they were really determined to tackle a looming energy crisis, they’d sanction the building of new nuclear power stations, which have virtually unlimited, renewable capacity and won’t harm the environment. Once again, the market will see to that. Babies with three heads are bad for business, so safety would be paramount”

The wise response is to take advantage of the opportunities (as suggested above in 4.7.5): growing the grapes or plants (#90) warmer temperatures allow, or marketing the products environmentally concerned consumers desire.

The market’s wisdom is also self-reflexive, treating the market itself as part of the environment to which it adapts. #152 discusses ethical investment funds:

“The risk then is over-valuations and volatile peaks as debate rages, for example, over biofuels. ‘It’s best to wait,’ says Davies.”

Or (still #152):

“‘[Impax Environmental Markets fund is] higher risk as it is in shares,’ explains Coates, ‘but it has proved a star because its choices are very business-specific and

thorough, for example in the area of solutions to the fall-out from climate change such as desalination technology.’”

#98 rejects the assumption that “Technology will solve our problem”, and few actually subscribe to Littlejohn’s extreme statement of the Standpoint. Nevertheless, past technological successes seem to justify the confidence that we will find a solution. The Malthusian Cassandras have always been wrong before, particularly over the agricultural revolutions (**#44**): empirically, we should conclude they will be wrong again (**#34**; section 1.3.6). The MP Standpoint may be motivated by future possibilities, but its wisdom is backward-looking: not only in the empiricism of scientific method but also in the economic understanding of revealed preference (section 2.2.4.1). The logic of adaptation also emphasises adaptation to the known changes in the environment that have already occurred. So it should be no surprise that markets tend to overshoot: empirically, it is sensible to expect past trends to continue.

Markets do overshoot, and the MP Standpoint is ready to learn lessons from such experience. Coupling a recognition of the fallibility of markets to the wisdom of other Standpoints encourages a compromise. In 1988, **#7** criticised the CS assumption of ‘Limits to Growth’ for not understanding the logic of markets, but goes on to assert the need to intervene when markets are deficient:

“By failing to grasp the way market forces worked in commodities such as oil, it [‘Limits to growth’] detracted from its call for co-operative action to cope with other problems that were not amenable to pure market solutions - notably the global heat trap now being created by the use of so-called greenhouse gases”.

Yet the MP Standpoint can make sense of this: knowing your limitations is adaptive wisdom in itself. Using intervention to get an emissions permits trading system up and running is a necessary but temporary deviation. Of course, there are plenty who prefer to emphasise the failings of rational self-interest. Littlejohn’s faith that three-headed babies are bad for business does not convince those who remember the cover-ups of Big Tobacco (Oreskes & Conway, 2008), Thalidomide or the Ford Pinto (Lee & Ermann, 1999). As noted in 4.7.3, business interests, rationally pursuing their own interests, regularly subvert intended policy objectives (e.g. **#150**, **#177**, (Helm, 2010)). The wisdom of the market has its limitations (**#109**):

“As the Nobel Prize-winning economist Joseph Stiglitz puts it, ‘They argued for a new religion: market fundamentalism as a substitute for the old one, Marxism.’ Without consulting the Russian people, the International Monetary Fund forced on Russia

‘shock therapy’, a form of regulation-free turbo-capitalism more extreme than anything ever tried in any democracy.”

4.7.7 MP7: Market Pricing: attitude to others

In the most extreme form, the laissez-faire approach of the MP Standpoint places no emphasis on relating to others. The social world is part of the environment the rational individual is adapting to. The only concern about others emerges if they impinge on the individual’s self-determination. However, the expression of this argument in the samples is rarely self-assertive: it usually takes the form of Equality Matching’s complaining objection to uncompensated impositions.

As part of the environment, wisdom dictates that you assume everybody else is always acting in their own self-interest: hence Senator Inhofe’s assumptions that grant-grabbing climate researchers are motivated to exaggerate climate change threats (Inhofe, 2003). Jeremy Clarkson assumes governments and scientists are only in it for themselves in #54:

“And in a year they’ll be on the news again saying the Internet is dissolving the stratosphere and that we’ll all be dead in a week if nothing is done. That way, they’ll get more, bigger grants and governments will rub their hands together, knowing they can introduce a computer tax ‘for the good of mankind’”.

Treating others as part of the environment inevitably leads to differential pricing of individual lives. #71 discusses the 2004 tsunami:

“Finally, the sad truth is that the affected countries aren’t rich. They don’t have a huge command over the world’s economic resources. Even if everyone can see the human tragedy, financial markets can tell relatively quickly that, apart from those most directly affected, there is not going to be a major economic tragedy. It’s almost as if investors have said: ‘Thank God it wasn’t New York or London’”.

Once again, (see 4.7.1), good manners - essentially the interaction with other Standpoints - discourages overly forceful expression of the individualist position. Instead the deliberately ill-mannered shock-jocks, if we stretch the definition to cover Clarkson and Littlejohn, make strutting individualism a form of entertainment.

4.7.8 MP8: Market Pricing: outlook

#112 is a Guardian article reporting on Tony Blair’s response to public calls that he should offset emissions from his private travel. This article is in fact reporting reversal of Blair’s previous stance, but it rehearses the foregoing debate by saying:

“The prime minister’s declaration that he wasn’t going to lead by example on the issue of holiday flights was reported under the headline, “Carry on flying, says Blair - science will save the planet””.

The final quote defines both the wisdom and outlook of the Market Pricing standpoint.

To adapt requires technological innovation: just as the agricultural revolutions transcended perceived limits (#48), we will have to find new energy sources, from the quasi-sublime like nuclear fusion (#124, #159 - although the latter actually refers to 'fission') to the ridiculous (#108):

“BRAINBOX David Penfold reckons he has solved the world's energy crisis by finding a new fuel - Cadbury's Caramel.”

More generally, the MP Standpoint sees a future of opportunity (#79):

“Instead of travelling abroad, Britons will enjoying better weather and a healthier return on their investments by buying holiday properties at home”.

Or the Daily Telegraph, nominating Richard Branson for an award in the 'Environment' category of “Morgan Stanley Great Britons of 2007” before asking (#140):

“What about the people at Climate Change Capital who set up the first \$1billion private sector climate change fund to make money out of saving the world's pollution problems?”

The MP Standpoint likes to regard itself as tough-minded: adaptation equals getting on with it. However, overconfidence in technology encourages anthropocentrism. We ignore the fact that nature adapts to us too. #48, discussing futurology, looks at past predictions:

“The paper's pundit also anticipated a society free of germs, a dream that grows ever more distant in this day of antibiotic-resistant superbugs”.

4.8 Standpoint of Equality Matching

4.8.1 EM1: Equality Matching: foundational principle

The foundational principle of EM is reciprocity. Typically understood in the primitive terms of blood feuds and an eye-for-an-eye, its manifestation in everyday modern life is more mundane and can be overlooked. As with MP, the EM Standpoint treats the outside world, and the people in it, as 'other'. Unlike MP, its stance is defensive, rather than self-assertive. If I give something to the community or to *you*, what do I get in return?

Policy to fight climate change has to recognise that people respond in this way. Putting up the cost of motoring must be compensated for by improving public transport: the individual should be no worse off in terms of cost or convenience (#95, #98), while government should reinvest increased green tax revenues to deliver benefits to the public (#39). The simple commonsense of reciprocity is very appealing. Arguing that cars going slowly or standing in traffic cause more emissions by taking longer to arrive, Jeremy Clarkson says (#54):

“People caught speeding should be given bonus points on their licence and car tax discount for helping to prolong the life of the planet. My daughter thinks this is a great idea. But then she would because, of course, she’s five. Our rulers, sadly, aren’t that grown-up.”

On the international stage, the desire for reciprocity is central to negotiations (#43):

“The US Senate has warned it will not ratify any deal that does not include matching commitments for big, fast-growing developing countries, such as China.”

4.8.2 EM2: Equality Matching: approach to climate change

The desire for reciprocity, and this self-defensive stance, manifests itself in several different ways:

- EM2.1. ‘What’s in it for me?’ The rants of Jeremy Clarkson and Richard Littlejohn frequently veer from brash self-assertion to peevish complaining (#54, #136)
- EM2.2. ‘I’m doing my bit: so don’t expect me to do more until others are doing their fair share.’
- EM2.3. Viewed from the outside, EM2.1 and 2.2 create “The Commons Dilemma”. It makes no sense for the self-interested individual to make sacrifices without certainty of reciprocation from the rest of the community.
- EM2.4. Nimbyism: why should there be wind-turbines blocking *my* view?

Appendix H provides a list of articles manifesting these arguments. Here are some examples:

- EM2.1. #136: “The Government already raises the thick end of £30 billion a year through ‘green’ taxes virtually none of which gets spent improving the environment... Look at how Ken Livingstone has converted the congestion charge into a climate levy with a planned £25-a-day fee for bigger cars to drive on roads we have already paid for several times over”
The logic of needing there to be a self-interested reason to justify action leads to the following argument: #68: “It may take a disaster worse than last summer’s European deaths to wake us up”.

- EM2.2. Individuals usually only stress the ‘I’m doing my bit’ part: **#112**: “David Cameron reports how he is in-stalling solar panels and a wind turbine in his west London home”
In negotiations the ‘I’m not ready to do more’ element can be more explicit: **#16**: “Timothy Atkeson, assistant administrator at the US Environmental Protection Agency, said “the American people have gone to the well twice already this year” for the developing world and it was matter of political judgement if they would be willing to go again. He said that the US share of a recent doubling of the World Bank’s capital had cost the US \$ 10bn and increases in the International Development Association’s funding had cost it millions more.”
- EM2.3. **#67**: “The manufacturers’ organisation EEF accused the Government of forcing up the cost of manufacturing and driving investment and jobs overseas. Martin Temple, EEF director general, said: ‘Tougher UK targets mean higher costs for UK manufacturing but no environmental gain. Our European partners are taking a more relaxed approach, even in some cases allowing emissions to rise.’”
- EM2.4. **#170**: a Community Supported Agriculture scheme experienced “unsupportive neighbours, such as one who complained about the appearance of polytunnels on the hillside and forced the CSA to secure retrospective planning approval”.

4.8.3 EM3: Equality Matching: economics

The EM Standpoint contributes a number of arguments to the economic debate. First there is the diagnosis of the Commons Dilemma identified above. In addition:

- EM3.1. The Standpoint vigilantly identifies lack of reciprocation by others. ‘I/We are hard done by because of you/them: I/We must be compensated.
- EM3.2. The Standpoint generates the ‘polluter pays principle’.

An example of EM3.1 occurs in **#150** (quoted in 4.7.3 above), where the dysfunctional ETS’s windfall profits for the electricity companies, at the public’s expense, justify the argument for a windfall tax to recover the money. A more intense example, reprising arguments made on the floor of the UNFCCC meetings by the Developing World (3.4.1b), is given in **#26**:

“Everyone knows about the foreign debt, but what is the ecological debt? This, they say, has been accumulated during the 500 years that the region has served as a source of genetic material, providing thousands of species that have contributed enormously towards the world’s stock of food, drink, medicines, chemical and industrial material. The progress of the industrialised countries was based on the deforestation and exploitation of natural resources in their own and developing nations. More recently, they say, the debt has been increased by the export to developing nations of pesticides and herbicides often banned in their countries of origin, leading to thousands of cases of poisoning; by toxic waste dumping; and by the reluctance to transfer advanced environmentally friendly technology.”

The justice of this claim is appealingly simple, and EM claims to fair treatment are often imported into CS arguments. Provided individuals or nations are treated as part of the community, they are entitled to equality, and it is hard to deny them the ‘Equality Matching’ that the EM Standpoint demands. Similarly, the oft repeated principle of the ‘Polluter Pays’ (manifested in numerous articles, see Appendix H) has a common-sense appeal co-opted by most of the other Standpoints.

4.8.4 EM4: Equality Matching: attitude to nature

Cultural Theory claims that Fatalism, the counterpart ‘worldview’ to the EM Standpoint, manifests the myth of ‘Nature Capricious’. Nature is arbitrary, unpredictable and uncontrollable. Like MP in regarding the natural world as ‘other’, EM emphasises the threats it presents rather than MP’s opportunities. Instead of getting on with it and adapting, the EM response is one of resignation to suffering.

Grafting the logic of EM onto this fatalism generates an interesting contradiction, one that is embodied in our idea of fate meaning that ‘It is written’. We can see nature not as arbitrary but as delivering a cosmic reciprocal justice. #22, describing a play, moves through the CS analysis of mankind’s guilt to an EM denouement (my italics):

“Pax tells the story of five angels descending to earth through a hole in the ozone layer to find a planet wracked by devastation from pollution and poison. They arrive with a message for humanity, but few people are willing to hear or understand them: at the end *the angels wreak vengeance* with wind, smoke and sound before leaving with a warning.”

A book review in #99 presents the same CS into EM pathway (my italics):

“Fragile Earth... like almost every news story of 2006, presents horrifying images of the changes in our planet wrought by climate change and relentless human development. *The wages of sin, as the Bible says, are death*. They are also floods, droughts, tsunamis, wrecked forests and hurricanes. Future historians, according to contributor Guy Dauncey, will write about this as the Age of Fossil Fuels. That’s if we survive”.

Attribution theory stresses the human need to attribute causal responsibility for events (Augoustinos & Walker, 1995, Ch4): the chaos of natural phenomena is more bearable if we can read meaning into them in this way.

Even so, the fatalistic sense of human powerlessness in the face of chaos encourages media comment on global warming to compile lists of dire consequences: plagues of locusts and rat infestations (#35) or “avalanches, landslips and floods” brought on by the “insidious encroachment of global warming” (#60). Unsurprisingly, it is the two articles that delve back into the pre-enlightenment era that truly capture this mood:

#111:

“In the Renaissance, falling temperatures cast a blanket of snow over Europe. It was the Little Ice Age - and people were terrified the Earth would freeze over...
...The year 1565 saw the coldest winter anyone could remember. The world turned white, birds froze, fruit trees died, the old and young faded away. It was a shock - and a foreboding. This seemed to be more than just a cold winter. The climate was perceptibly changing, and that is what Bruegel's snow scenes eerily record.”

#117:

“Global warming: fears and forecasts

SIR - Samuel Pepys wrote in his diary on January 21, 1661: ‘It is strange what weather we have had all this winter; no cold at all, but the ways are dusty, and the flies fly up and down, and the rose-bushes are full of leaves, such a time of the year as was never known in this world before.’”

The EM Standpoint finds foreboding in strange weather, where the MP Standpoint sees natural cycles that in due course science will figure out. Taking it in our stride, chaos can be the butt of jokes (#116):

“Winter heads for record as the weather goes balmy.”

4.8.5 EM5: Equality Matching: relationship of mankind to nature

Emphasising the uncontrollable power of nature, the EM Standpoint sees mankind's attempts to control nature as futile. The Thames Barrier “offers only short-term respite” (#24); firefighters make no progress battling forest fires, so that locals “are pinning their hopes on rain” (#42). The review of predictions made in 1928 (mentioned in 4.7.8 above) laughs at hopes “that we would be able to ‘control’ the weather” (#48).

Discussion of plans to build a barrage to protect Venice captures the mood best, again by harking back to the past (#47):

“By swamping plans in a further tide of consultation, it shows that in all the many years of talk, things have moved little further on from a century past when Lord Byron wrote with prophetic fatalism: ‘Oh Venice, Venice, when thy marble walls are level with the waters there shall be a cry of nations o'er thy sunken halls.’”

4.8.6 EM6: Equality Matching: knowledge and wisdom

The EM Standpoint encourages the view that it is pointless to try to tackle Climate Change (EM6.1 in the RM Matrix), as well as emphasising the logic of the Commons Dilemma (EM6.2 in the RM Matrix). The two are closely connected as this section will show. Daily experience gives us the knowledge that it is simply too difficult to solve the problem of global warming. In #16 the then West German environment minister complains:

“In solving sulphur dioxide emissions from large combustion plants, West Germany had spent 25bn deutschmarks in five years on fitting chemical scrubbers. ‘But I am criticised because we are now fixed into the existing coal power stations until the end of the century.’”

The contradictions of green consumerism fill Tanya Gold’s diary of a week attempting life as an ‘ethics girl’ (#76). Living an environmentally concerned life in the modern world is challenging (#97):

“However, [Tony] Juniper speaks to me from Stansted airport having just arrived off a plane from Amsterdam. What? ‘I’ve attended a meeting of FOE International,’ he confesses. ‘And there was no alternative to flying. Like everyone else in the country, I face harsh realities.’”

Ryanair chief Michael O’Leary spells out the wisdom of the Commons Dilemma (#121):

“ ‘I listen to all this drivel about turning down the central heating, going back to candles, returning to the dark ages... ...You can do that if you want to. But none of it will make any difference. It just panders to your middle-class, middle-aged angst and guilt. All the bloody tree planting in the world isn’t going to make up for our emissions. We have to think of bigger ideas. It’s the Russians, the Chinese and the Indians we have to influence.’”

Historically, the wisdom of EM might have encouraged passivity in the face of forces one cannot control. However, rather as the MP individualist refrains from asserting himself too boorishly so as not to seem ill-mannered, EM fatalists probably find it too pathetic to express resignation. Instead they have to choose between either adapting and enjoying life while they can, as in Breughel’s day (#111) when cheerful skaters braved freezing temperatures, or blaming others rather than fate (below).

4.8.7 EM7: Equality Matching: attitude to others

EM7.1 Envy: it’s just not fair. And who are you to boss me around?

Often wallowing in self-defensiveness, the EM Standpoint asserts ‘I’m doing my bit’ and seeks to pin the blame on others. What might have started as an MP

defence of liberty spews out in the ranting of envy. The Daily Star prints a column of text messages it receives (#118):

“My heart bleeds 4 robbie "Poverty Aids Global warming" Williams! Give up ya millions + work 4 charity!”

Littlejohn’s hard-headed rationalism descends into demagogic defence of the little man (#136):

“But they resent lectures about individual behaviour from Old Etonian politicians. An extra two grand on a Mondeo may not matter to a multi-millionaire like Goldsmith, but it’s a huge chunk of change from the average family budget.”

The loathing of government is not so much because it infringes on liberty, as that it’s just unfair (#178):

“Legions of ethnic monitoring officers, climate change co-ordinators, five-a-day food inspectors and re-cycling tsars, most on handsome index-linked pension schemes, have added hugely to town hall running costs without improving core services one iota.”

EM7.2 Why don't they solve it?

Blaming others, the EM Standpoint also waits for others to solve the problem. There is no alternative to the car until ‘they’ improve the public transport system (e.g. #41); there is no alternative to flying (e.g. Tony Juniper above in #97) because the modern world is made that way. This extends the idea of it being too difficult for ‘me’ to do anything about while expecting someone else to save ‘me’ from the consequences. 4.4.5 quoted this excerpt from #138:

“Both sides can't be right, so isn't it time for someone independent to start doing some serious research into all this to establish the truth as a matter of urgency?”

The writer sees no obligation on himself to explore the actual scientific research done.

EM 7.3 Blaming others

Frequently, blaming others is a more generalised rejection of any personal responsibility. #121 reprises the common trope of complaining about China:

“They keep opening more and more coal and oil-fired power stations”.

4.8.8 EM8: Equality Matching: outlook

Nature is chaotic and unpredictable. Can we really hope to predict what is going to happen? #3:

“Only a decade ago, in the wake of the disastrous harvests and droughts of 1972 in the Soviet Union and sub-Saharan Africa, the consensus was equally determined that we were heading for a new ice age. So why the sudden change, and can we place any more faith in the latest set of forecasts?”

All voters are capable of adapting an EM mindset: they want something back in return for taxes or significant change. Having promised the electorate improving lifestyles, policies to address climate change confront difficult political realities.

#41:

“If Labour wishes to be truly green, it must risk upsetting public opinion; something that so far, it has shown itself very reluctant to do.”

Byron laments mankind’s powerlessness when foretelling the end of Venice (4.8.5 above). 4.6.5 refers to #42’s discussion of forest fires. Often caused by man, man is powerless to stop them, and is left helplessly hoping for the fates to bring rain. From EM’s pessimistic Standpoint, such problems are just too difficult to solve.

#42:

“The fires that are already burning cannot be put out”.

4.9 Standpoint of Authority Ranking

4.9.1 AR1: Authority Ranking: foundational principle

The foundational principle of AR is reliance on, and sustenance of, the existing social order or system. Cultural Theory and Relational Models Theory tend to encourage an understanding of AR that invokes traditional, paternalist hierarchies, or structured institutions like the army or civil service. However, the logic of AR can be applied to maintaining any social order. CS Communitarians look to the authorities to maintain the purity of the community and to ensure that members do work for the community’s goals. MP free marketeers expect the law of contract to be enforced; the EM self-defensive shout ‘what’s in it for me?’ quickly turns to ‘where’s the government when you need them?’ in harder times. For this reason, we should expect it to be difficult to disentangle Authority Ranking from Market Pricing. The motivating drive of AR is to maintain the existing order, which in the Western world means free markets and the pursuit of economic growth. For AR genuine ‘limits to growth’ represent obstacles that need to be managed. To sustain the existing system in a changing world requires pragmatism, a balance between unrestrained pursuit of self-interest and community needs.

AR1.1: The importance of established institutions

Protecting the existing system demands control of threats. The Standpoint of AR emphasises the role of established institutions in assessing and controlling the

risks. It robustly rejects the CS diagnosis of generalised ‘over-consumption’ precisely because to accept this justifies calls for a social revolution. Expressing this Standpoint, the press carry reports of governments and leaders setting up meetings, summits and conferences, attending them and planning more meetings. **#169** exemplifies this never-ending process:

“Leaders attending the G20 meeting in London plan to gather again in the summer for a special summit on tackling climate change, The Independent on Sunday can reveal. The new summit - which is being called on the initiative of President Barack Obama as part of a US drive to get a new international agreement on tackling global warming - is to take place alongside the annual G8 gathering of world leaders on the island of La Maddalena off Sardinia.”

From the AR Standpoint, the CS approach is irresponsible and achieves nothing (**#7**):

“With hindsight the Club of Rome did a great disservice to the environmentalist cause with its doom-laden utterances in the mid-1970s.”

This is a task for government, and institutions like the UN and its offshoots the UNFCCC and IPCC. The Stern Review specifically took the argument away from the campaigning fringe to announce that this was a task for government: further, by breaking the task down into manageable ‘wedges’ (Pacala & Socolow, 2004; Stern, 2007, Ch 8) this was a task that could be successfully addressed. Leaders’ pronouncements frequently reassure the public as to the credibility of these established experts (e.g. Porritt on the Stern Review and the IPCC, **#106**; or Blair promising that he, Bush and Merkel were on the case, **#114**).

AR1.2: The need for government

Occasionally the AR Standpoint is advocated more forcefully, with clear statements of the societal need for government to bring order to chaos. **#65**:

“We must be able to trust in the laws of our land”.

4.9.2 AR2: Authority Ranking: approach to climate change

The AR Standpoint’s insistence on the role of established institutions leads it to emphasise the role of accredited experts, ‘sound’ science and management by numbers and targets (this is covered within knowledge and wisdom below). The AR Standpoint’s insistence on the role of government in addressing climate change leads to an emphasis on restrictions and regulations. **#17**:

“The most urgent need is for an international convention to regulate the production of greenhouse gases (luckily the CFCs are already regulated by the 1987 Montreal Convention, intended originally to safeguard the ozone layer).”

As with the other Standpoints, use of regulation to protect the environment is felt to be plain common sense. Precedents testify to the effectiveness of regulation: **#61** describes regulations that protected swans:

"There was a reduction in the population because large numbers were being poisoned by picking up lead weights, which made them ill and unable to eat properly. But lead has now been banned for 10 years and we are seeing a return in the mute swan population."

The urge to regulate can be powerful: AR's pragmatic recognition that unrestricted self-interest is dangerous mandates precautionary regulation. **#160** reports a scientist worrying over an industrial gas used in the manufacture of flat screen TV's. Even though the facts offered in the article suggest the risks posed are minimal, it concludes:

"But Prather argues that as the gas is not controlled in the same way as other greenhouse gases, companies may be careless with it."

Like **#17**, **#35** also uses the success in regulating CFCs to argue for the same approach to climate change:

"It is important to get restrictions on the emission of these gases. We've shown we can do it with the ozone layer but it is much harder with greenhouse gases because people like driving their cars."

As shown in 4.8.8, governments do not like imposing on the electorate, because the electorate objects to fussy regulations - often decried as "elf'n'safety" (**#136**). **#55** suggests an answer:

"The solution is to target policy. Sometimes this will mean regulations or standards, such as catalytic converters."

By regulating what producers can produce, governments can nudge consumers towards greener behaviour. Regulation forces producers to innovate in order to deliver greater efficiency. Critically, it does not prevent people doing things but asks them to do things differently: consumers still get to drive and light their homes, while producers are encouraged to make 'better' cars or 'better' power stations (**#159**). Governments only seek to influence what will be defined as 'better' in the future. **#135**:

"Cars that run on petrol could be scrapped in a package of green measures from both the opposition parties. The Lib Dems' said that by 2040 vehicles would run on 'hydrogen fuel cells, improved battery technology or other new technology not yet developed'".

Governments also use taxation to influence behaviour. The next section looks at two strands of argument: first, arguments over which policy instruments are best,

taxation, tradeable instruments or other solutions; second, the use of policy to ‘nudge’ consumers and producers into greener behaviour while not changing the fundamental nature of the economy.

4.9.3 AR3: Authority Ranking: economics

AR3.1: Which policy instruments?

Section 3.2.2 argued that much of the specialist economics literature focuses on debating the relative merits of regulation, taxation or tradeable permits as policy tools to address climate change. Helm (2010) described business interests’ push for tradeable instruments and technology subsidies in preference to other tools. The lobbying process, and its success, is evident in the sample as documented in Section 4.7.3 above.

As described throughout this Chapter, each Standpoint has its own particular approach to the problem of climate change, and its own economic diagnosis. As a consequence each Standpoint has its own policy preferences. But the EM, CS and MP Standpoints do look to the AR Standpoint to enforce their own preferred approach (discussed further below at 4.9.8). The AR Standpoint logically has some of its own policy preferences: centrally administered taxation would appeal if it were not so difficult to implement. Some of the other policies that fit with the AR Standpoint are also considered under ‘ecological modernisation’ below. But, setting aside its own natural preferences, the Standpoint is also obliged to assess the merits of all the competing policies and pragmatically to seek the implementation of the best of them. All of the following examples include not just policy advocacy but an awareness of the constraints of feasibility governing policy options:

- a) The option of ‘green’ taxes to reduce fossil fuel demand is frequently discussed in the sample³⁴.
- b) As described earlier, the EM and MP Standpoints tend to oppose taxes, often splenetically (#121, #136, #143). This reinforces the argument (3.2.2) that green taxes are very difficult for politicians to implement (#41, #55, #159, #177).
- c) Unsurprisingly, since it is the perceived ‘unfairness’ of taxation that challenges the politicians, the perceived simple fairness of the ‘polluter

³⁴ E.g. #9, #11, #27, #39, #41, #55, #56, #64, #65, #106, #121, #135, #136, #143, #149, #150, #159, #161, #177. These articles plus #165 make up the 20 noted in Appendix H.

pays principle'(4.8.3) makes taxes such as congestion charges (#41, #55) or air travel duties (#65, #106, #121, #135) more comfortable suggestions.

- d) The polluter pays principle would suggest taxing fossil fuels proportionate to CO₂ emissions. Yet as soon as political feasibility adulterates this simple objective, critics can accuse politicians of inconsistency. Fears of poor pensioners dying in the winter cold discourage politicians from taxing domestic energy. Naturally, they also want to sidestep 'the public vitriol' poured on the power companies (#150) by avoiding direct responsibility for domestic energy prices. Striving for these divergent goals results in clear anomalies when fossil fuel taxes are compared to other taxes (#39, #41, #55).
- e) The specialist debate in the economics literature over the comparative merits of tradeable permits and taxation barely features in the sample. Only #55 addresses the comparative merits. Even this article actually pays more attention to the political story of Michael Portillo's alleged conflict of interest in acting as a consultant for a US energy firm while advocating a permit policy.
- f) Instead, the sample suggests that a debate that might have been alive in 2000 when #55 was written is soon over. #'s 165 and #177 see the political contest shifted to a debate over whether emissions permits should be issued free or auctioned; indeed, #177 has critics of Obama's climate change bill attacking it as a 'hidden energy tax'. Tax as a policy tool is off limits.

AR3.2: No fundamental change to the nature of the economy: 'business as usual'

The AR Standpoint addresses the environmental impact equation $I = PAT$ either by looking at P, population, or by looking at T, technology. In 1992, John Major was comfortable with saying that population control was a key policy for protecting the environment, claiming (#30):

"If the baby boom continued it would destroy the planet".

By 1992 the strength of this argument is already fading. The huge disparity in per capita emissions between the developed world and the developing world, and the role of historic emissions in the cumulative stock of CO₂ give moral weight to the developing world's insistence on developed world assistance rather than lectures (#26). In addition, increased understanding of the relationship between affluence and demographics (United Nations, 2004) has quietened the fear of infinite population growth, refocusing instead on developed world senescence: at the same time it reinforces arguments for fostering economic development in

countries where population growth remains a challenge, since increased affluence, and concomitant female education, is the surest way of reducing the birth rate.

The AR Standpoint is also committed to maintaining the existing political and economic order, and therefore must continue to target economic growth. #7, #34 emphasise our commitment to economic growth, #112 and #136 the commitment to free consumer choice, and #11 the commitment to encouraging businesses by not imposing unjustified restrictions. As described above, governments have also given up fighting the resistance to the tax instruments that many agree would be the most appropriate policy tools. It must be business as usual.

AR3.3 Ecological Modernisation

As a consequence, the AR approach is to achieve the same objective - a growing but sustainable economy - by different means. It has to accept the Market Pricing solution of targeting the 'T' in PAT' not the 'P', such as:

- g) nuclear power is a source of energy which does not generate greenhouse gases. It also appeals to the centralising tendencies of the AR Standpoint as a 'big project' technology requiring close government supervision. Nuclear power has held a central place in the UK ever since Margaret Thatcher focused on climate change to justify investment in nuclear (#7) and levied the non-fossil fuel obligation to do so (#161). Numerous articles³⁵ all discuss the role of nuclear in combating climate change. Several assert, like #91 "The only viable alternative now is nuclear." Others offer the CS critique that nuclear represents a vain attempt to avoid reducing excess energy consumption, e.g. #86: "For the Labour Party to become credible on the environment, they must take the lead and impose legislation to cut emissions now and not look to nuclear power as a panacea for climate change."
- h) carbon capture and storage ('CCS') is a classic end-of-pipe technology which is favoured because it avoids the need for complete replacement of the existing energy generating infrastructure. CCS means that not just the existing power stations are protected (provided the technology can actually be retrofitted), but also the whole market infrastructure from the coal mine onwards. As the German environment minister pointed out in 1990 when discussing the end-of-pipe solution implemented to stop Sulphur Dioxide creating acid rain (#16), the disadvantage of retrofitted

³⁵ E.g. #7, #8, #11, #13, #68, #70, #86, #91, #124, #135, #159 #161

technology is that it locks you still deeper into old technology. CCS is an extremely conservative approach, which is perhaps why the media find the topic boring. Despite Nicholas Stern's view that successful CCS technology is essential to combat climate change (N. Stern, 2009a), only 3 articles discuss it (#159, #161, #165).

- i) Economic activity necessarily wastes energy in achieving its different objectives, whether travelling from A to B, manufacturing a consumer good, converting sunlight into edible food or storing and making available the sun's energy as light and heat when it is dark or cold. Necessarily, there will always be scope to save energy by achieving the same objectives while using less energy. Many articles³⁶ recognise steps to improve energy efficiency as necessary when addressing climate change. However, #27 has EU ministers suggesting that "energy-conservation measures are unlikely on their own to lead to an adequate reduction in CO₂ gases" while #32 says: "It is foolish and dangerous to pretend that the motor car will ever be 'clean'. Indeed in the past any improvements in the efficiency of the internal combustion engine have been negated by the rapid growth of road traffic."

What nuclear, CCS and energy-efficiency measures have in common is that they pragmatically build on the status quo, and avoid a revolution:

#95:

"As Josephine Rogers points out: "We cannot realistically expect to de-invent the car, but we can and must re-invent the car." Personal transport devices need to do 300 miles on a small tank of hydrogen, which means efficiency - and the easiest route is weight reduction."

Similarly, in #112, Tony Blair exhorts us all to be more efficient; "There's a massive amount individuals can do" while insisting that there is no way consumers should be asked to travel less: "I'm not going to be in the position of saying I'm not going to take holidays abroad or use air travel, it's just not practical," and "It's like telling people you shouldn't drive anywhere."

Not content with avoiding radical change, the AR Standpoint sometimes pushes the case for 'ecological modernisation' harder. This argument stresses the economic opportunities for green growth: not only do we *not* have to curb growth, but tackling global warming actually gives us the chance to grow even faster (#39):

"Not only would carbon emissions fall, but so would the price of employment, creating hundreds of thousands of jobs across the EU."

³⁶ E.g. #12, #16, #31, #33, #39, #43, #91, #95, #101, #106, #112, #119, #135, #136, #143, #150, #161, #165, #170 #177

#169 records how ecological modernisation, a “green new deal”, was (and is) seen as a way out of the financial crisis of 2008. Maintaining the status quo, a foundational principle of the AR Standpoint, reinforces the commitment to economic growth and confidence in technological progress that was the hallmark of the MP Standpoint. #159 captures the interaction:

“regulation can spur markets to innovate and adopt cleaner technologies.”

4.9.4 AR4: Authority Ranking: attitude to nature

Section 4.6.4 showed how the CS Standpoint emphasised the close relationship between man and nature. Societies often see their own country as in some way sacred. In contrast, Sections 4.7.4 and 4.8.4 showed that the EM and MP Standpoints both tended to treat the natural world as ‘other’ and separate.

In this respect, the AR Standpoint is closer to CS. Characters like ‘Cornwall’ or ‘Kent’ in Shakespeare’s plays remind us that feudal lords are treated as synonymous with their territory. #149 brings this concept into the modern world:

“Conservatives parties, with their identity tied so closely to that of their nation...”

This aspect of the AR Standpoint might be expected to find expression in nostalgic and romantic longing for a natural, more traditional era. Such sentiments are hard to disentangle from the arguments advanced by the CS Standpoint for getting back to the land (#170) or reconnecting with the traditional wisdom of indigenous peoples (#26, 4.6.6). Tradition (#9) and heritage (#65) do feature in accounts of nature in the sample: but these examples really only reinforce the impression that the AR Standpoint on nature is all about the relationship between man and nature, not about nature itself.

4.9.5 AR5: Authority Ranking: relationship of mankind to nature

The AR Standpoint’s conservatism manifests itself in seeing society, and government, as having a duty of stewardship of the land. The Standpoint’s pragmatism demands that you look after the homestead. #7 and #14 both show how significant Margaret Thatcher’s speech to the Royal Society in 1988 was in setting out a ‘Conservative’ concept of environmental stewardship. Mrs Thatcher’s own recollection in 1990 of the speech combines with her view of the work of the IPCC:

“I remember saying in my Royal Society speech that we had a full repairing lease on this Earth. With the work done by the Inter-Governmental Panel on Climate Change, we can now say that we have the Surveyor’s Report and it shows that there are faults

and that the repair work needs to start without delay. The problems do not lie in the future—they are here and now—and it is our children and grandchildren, who are already growing up, who will be affected”(Thatcher, 1990).

There are clearly elements of CS argument here, but the pragmatic tone conveys the central message that this task manageable (#124):

“Global warming is nasty, but it is a long-term problem. We need to do something now for the sake of the centuries ahead. All is not (yet) lost.”

Good stewardship necessarily decries waste, but on the instrumentalist grounds of inefficiency more than as an absolutist condemnation of excess (#119):

“An early conservationist himself, President Roosevelt promoted the efficient use of natural resources and he would have despaired at the way in which the profligacy of America's future generations has brought the world to the brink.”

To be a good steward of the land, the authorities need information: data on what has happened in the past, a planned target to work towards, and monitoring of the ongoing success in achieving that plan. #72:

“Seventy-five per cent of the most threatened mammals, birds and amphibians live in an area covering just 2.3% of the Earth's surface, and roughly half of all flowering plant species and 42% of land-based vertebrates exist in 34 “hotspots”, a four-year study by 400 scientists has found... ...The new study builds on a 17-year-old theory by the British scientist Norman Myers, who argued that with limited financial resources governments and conservationists should prioritise by protecting the small total land areas which account for a very high percentage of global biodiversity.”

The same piece includes quotes from Russell Mittermeier, president of Conservation International:

“This new assessment underscores the value of the hotspots concept for defining urgent conservation priorities... ...We must now act decisively to avoid losing these irreplaceable storehouses of Earth's life forms... ...We now know that by concentrating on the hotspots, we are not only protecting species, but deep lineages of evolutionary history.”

This article captures several features of the AR Standpoint:

- a) The need for the efficient deployment of resources.
- b) (As with MP) the instrumental value of nature in its ‘storehouses’.
- c) A sense of duty to the ‘lineages’ of the past, demanding their preservation into the future.
- d) The importance of information in formulating efficient and effective plans of action.

It is the last of these that dominates the AR Standpoint's policies to deal with climate change. Mankind measures the natural world in order to domesticate and control it. To manage the transition to more sustainable ‘green’ economic growth, good information from credible sources is essential.

4.9.6 AR6 :Authority Ranking: knowledge and wisdom

AR6.1: Official targets and management by numbers

The AR Standpoint seeks to ‘predict and provide’ the right CO₂ concentration in the atmosphere. Wide ranging data providing proxies for historic CO₂ concentrations and temperatures are compiled. Ever expanding forms of data monitoring actual concentrations and temperatures are collected. Costs are estimated for different mitigation and adaptation strategies. This exercise in management by numbers pervades the sample³⁷. Unsurprisingly, much of the discussion of targets focuses on planned reductions in greenhouse gas emissions. The news angle on targets varies widely: e.g. the story can be that targets are perceived to be being missed or watered down (e.g. #67, #137, #166).

Targets and cost estimates have a clear rhetorical value: how else will we manage to prevent climate change? #106 on the Stern Review:

“The government hopes the review will gain traction in the US because it focuses on the economic case for change. Sir Nicholas's analysis warns that doing nothing about climate change will cost the global economy between 5% and 20% of GDP, while reducing emissions now would cost 1%, equivalent to £184bn.”

The problem with numbers and targets is that if people say them often enough and confidently enough, they start to believe they are really predictions not aspirations. #30 reports on the 1992 Rio summit (my italics):

“The first [landmark treaty], on climate change, *will halve* the growth of pollution levels from exhaust gases and other toxic emissions and aim to keep the level of carbon dioxide at this year's rate by the year 2000.”

Or #165 (my italics):

“Mr Obama said on Tuesday that the US would “engage vigorously” in climate change talks and pledged, despite the financial crisis, to stick to plans to reduce emissions sharply by 2020. He has said he will set annual targets *that would* reduce emissions to their 1990 levels by 2020, and 80 per cent below by 2050.”

AR6.2: The importance of experts and sound science

The AR Standpoint privileges the idea of ‘sound science’ and the views of experts with positions in recognised, established institutions³⁸ Reference to ‘Experts’ clothes predictions and opinions in credibility, either by reference to plenty of

³⁷ E.g. #1, #8, #9, #12, #16, #23, #24, #27, #30, #39, #40, #42, #43, #66, #67, #70, #72, #97, #106, #114, #137, #150, #157, #165, #166, #167, #177, #180.

³⁸ E.g. #3, #5, #6, #7, #8, #11, #15, #24, #26, #28, #34, #40, #47, #52, #60, #62, #66, #72, #80, #87, #92, #106, #128, #157, #172, #175, #180.

numbers generated by impressive sounding institutions, even in the most narrowly applied fields (#60):

“A 1996 model of snowfall in the European Alps created by the Centre for Snow Studies in Grenoble in France calculated that at an altitude of 1,500 metres in the French Alps, a rise of 1.8C would reduce the period of snow by 20 per cent in the north and by 40 per cent in the south, with the greatest impact in the Maritime Alps”

Or just in general terms (#62: my italics):

“GLOBAL warming is set to continue for at least a century even if greenhouse gas emissions are slashed,” *experts say*. *Scientists* believe global warming is melting polar ice and blame greenhouse gases produced by factories, power stations, coal fires and cars.”

This inevitably leads on to the question of what the role of the scientist is. Leading meteorologist Jim Hansen (#128) has been challenged for becoming a campaigner (Pielke, 2010) as opposed to merely providing data to elected policy makers. #172 provides a good example of how a scientist with an apparently narrow specialism is nevertheless assumed to then have greater credibility when talking about policy:

“Stuart Haszeldine, professor of sedimentary geology at the University of Edinburgh, said: ‘We now have to take the first big steps on the path to emission reductions.’”

Unfortunately privileging ‘science’ in this way promises a sense of certainty, of rationally justified action:

#7 on Thatcher:

“But she laid emphasis this week on the need to ensure that policy ‘is founded on good science to establish cause and effect.’”

#11, quoting then Environment Secretary Nicholas Ridley:

“Imposing extra cost burdens has an effect on industrial competitiveness. If we in this country unilaterally took all the action, sensible or half-baked, that we are urged to take on the flimsiest scientific evidence, we could easily price ourselves out of the world markets.”

The problem is you can never be certain, and you can always do more research. #28, from 1991, comments on some of the difficulties associated with the satellite data that went on to form part of the evidence for Mann’s iconic hockey stick graph (Henson, 2006, p. 216). #180 describes the Imperial College branch of the Grantham Institute effectively trashing earlier work by the UNFCCC:

“The UNFCCC had commissioned a series of studies to address the estimated costs of several adaptation measures but it was under pressure to produce results in a short time period and the studies were not fully reviewed by outside experts, Professor Parry said.

‘Many of the previous estimates, it would be fair to say, were based on back-of-the-envelope calculations. In fact, one person said they were written on the back of a metro ticket. We think these numbers are underestimates ... they don't stack up,’ Professor Parry said.

The authors of the report said that the costs of adapting to climate change begin to soar after other sectors of the economy not dealt with by the UNFCCC are taken into consideration. They include tourism, energy and manufacturing. The sectors the UNFCCC did deal with were treated in only a partial manner, the report says.”

Stripped of the decisive authority and cloak of creditable authority, sound science starts to lose its rhetorical value. This is a recipe for inaction. In the article on the Venetian lagoon barrage, decisions await still more research (#47):

“Venetian campaigners, understandably, feel frustrated. ‘We don't need more doctors at the bedside of the patient,’ fumed Professor Paolo Costa, former Minister of Public Works. ‘The best doctors have already been consulted.’”

4.9.7 AR7: Authority Ranking: attitude to others

The AR Standpoint’s attitude to others depends upon whether others are deemed to be part of the community or outside it. Outsiders pose a potential threat to the community; insiders merit the protection of the authorities.

AR7.1: Others as insiders

Society has the same obligations of stewardship towards people as to nature (#40):

“These people have a right to their land. It would also be a loss to the world of a culture and a language. We are doing so much to save animals and plants from extinction. How can we tolerate the extinction of a nation?”

‘Noblesse Oblige’, and public figures have a duty to lead by example (#112):

“‘What you need is cultural change. What you need is people to change their view about the environment and to change their behaviour, and I think that starts at the top,’ Mr Cameron says.

Celebrities as well as politicians are expected to show green leadership (e.g. #97). This same argument behoves the developed world to lead the developing world by example (e.g. #33).

AR7.2: Others as Outsiders

Developed world aid to the developing world can be looked at from a much more pragmatic Standpoint. #24 spells out the security risks of climate change:

“City authorities, as well as governments, needed to prepare for sea level rises and new systems should be set up to pass information, expertise, and possibly financial

aid from the developed to the developing world, said Dr Kelly. This was the only way to avoid the nightmare of millions of refugees fleeing from low-lying coastal cities in countries lacking the resources to defend them.”

Garrett Hardin, who formulated the ‘Commons Dilemma’ (1968, see section 1.3.8) foresaw this. His later work included ‘Lifeboat ethics’ (Hardin, 1974), advising nation states to achieve self-sufficiency and then defend their borders. It is not just the fear of environmental refugees that raises concerns. The fear of ‘peak oil’, the dependence on Russian gas, and the threat this poses to our way of life is foremost in many minds (e.g. #91, #109). #154 provides the best example:

“Sir, Lord Lawson's analysis of the climate change debate may - or may not - be correct. However, his analysis ignores a far more urgent imperative, energy security. Irrespective of the long-term effects of climate change, the oil crisis is here and now. Even if the price of oil falls in the short term it is a virtual certainty that high prices with all their negative consequences for our economies will keep recurring. There may be no lack of available oil and gas; the problem is most of it is in the same place under the control of nations that have more to gain from high prices than increased output.

Next time Lord Lawson volunteers to write an article for you, invite him to address this more pressing issue, and he might save not only our civilisation but the planet as well.”

Isolationist national self-sufficiency is one response. Its limitations are recognised by a member of the Transition Town movement (#170):

“We had built our own house, and were growing our own food, but this was only going to be sustainable if I am prepared to sit at the gate with a shotgun.”

4.9.8 AR8: Authority Ranking: outlook

#66 captures the AR vision of the future, one in which the established institutions grasp the nettle and manage the risks society faces:

“Sir David King, the government's chief scientific adviser who led the team behind the report, said: ‘The impact will be really enormous. We can mitigate this if will act responsibly with our global partners but it is important to act sooner rather than later. The longer we put it off the more it will cost’.”

Yet the AR Standpoint has an implicit role in all of the outlooks. Section 4.9.1 observed that the other 3 Standpoints all look to AR to ‘enforce’ their own vision for the future. The function of authority is to manage the future, in essence to sustain our own ‘reality’ or outlook.

The CS Standpoint combines with the AR Standpoint in #98:

“If we don't self-regulate, something will regulate us. Legislation or devastation?”

Ecological modernisation builds preservation of the status quo onto the foundations of the MP Standpoint's confidence in human progress. Repeating the quote from 4.9.3, #159 captures the interaction:

“regulation can spur markets to innovate and adopt cleaner technologies.”

The EM Standpoint defines the logic of the Commons Dilemma. It also justifies the Byrd-Hagel resolution of the Senate that forbids US emissions cuts without reciprocal cuts from developing countries, noted in #43 (United States Senate, 1997). To invert the quote from #33 (4.6.1), for different national leaders, the ‘conflicting interests of different groups of countries’ *have* so far been more ‘important’ than ‘World interests’. There is ‘no environmental gain’ in being the only national leader to force cuts on one’s own people (#67, 4.8.2).

The AR Standpoint's tendency is to centralise. Devolved power and local initiatives dilute control and give no guarantee that centrally defined targets can be met. AR will favour big solutions like nuclear power (see 4.9.3) as well as grand transport modernisation projects. #65 includes a suggestion to create a new terminal to a greater London Airport in the Severn estuary, linked by a “310mph Transrapid Maglev” train.

It seems that AR's centralising authorities can always be seduced by MP's technological promise of growth, AR's conservatism intoxicated by the excitement of innovation. Pragmatism demands first that society does respond to a changing environment and second the prosperity to keep society's members content: MP's optimistic outlook seems to promise the only way out of the conundrum. The dirigiste scheme for a ‘super airport’ for London echoes a grand design from across the channel (#171):

“PRESIDENT Nicolas Sarkozy yesterday announced a multi-billion-pound plan for a Greater Paris which would extend all the way to the English Channel.

The French president unveiled the plan after 10 of the world's leading architects, including Lord Rogers, presented blueprints aimed at creating a sprawling city over the next 20 years - to become the world's most sustainable metropolis in the wake of the Kyoto Protocol on climate change.

Mr Sarkozy singled out a proposal by the French architect Antoine Grumbach to extend the city to the Channel port of Le Havre via Rouen along the Seine, maximising the green possibilities of the river and with a fast rail link.

The idea was mooted by Napoleon Bonaparte, with whom Mr Sarkozy is often likened and who once ex-claimed: ‘Paris-Rouen-Le Havre: one single city with the Seine as its main road.’”

4.10 Does the sample manifest the four distinct Standpoints of Relational Models Theory?

4.10.1 Common Sense

Many of the arguments identified within the 4x8 matrix are rather banal:

- a) It is clearly true that since everyone in the world shares the same atmosphere, and the atmosphere has no boundaries, 'we are all in it together' as the CS approach emphasises (4.6.2). It is also self-evident that humans do damage the environment, with consequences for other living things as well as the habitability of affected places (4.6.5).
- b) It is also inevitable that, in a market economy, energy prices need to rise if demand for fossil fuel energy is to be reduced, whether or not such higher prices are treated as reflecting the true 'cost' of consuming that energy (4.7.2). Furthermore, the value placed on individual freedom of choice by the MP Standpoint (4.7.1) is widely shared.
- c) The logic of Hardin's Commons Dilemma is simple and inescapable. It is irrational for individuals to curb their own energy consumption voluntarily if 6bn other people are doing the opposite. This is particularly true when there is no prospect of a reward in this life or indeed the next in the form of a 'better' world for our grandchildren, ie one with materially lower CO₂ concentrations. Worse, it is unfair for society to insist that individuals show such forbearance without the promise of some reciprocation (4.8.2).
- d) How could society address a challenge such as climate change without careful monitoring of the stock of atmospheric CO₂ and the flows of CO₂ emitted and absorbed? Isn't it essential that this data be credible? How could the world address a global challenge other than through an authoritative institution, such as the UN, configured to achieve co-operation between all nations? Pragmatism demands that we accept the economy of today as the starting point, and gradually manage a transition to a less emissions-intensive economy (4.9 throughout).

These arguments are banal, but they are all, in a sense, true. All represent a common sense response to the challenge of climate change. For this reason individual articles frequently make use of arguments based on more than one Relational Model. Participants in the debate are not locked into a narrow, stereotypical worldview that only uses the eight arguments identified with that RM. As Fiske argued, the RMs are basic, and all individuals typically have relationships that can be categorised into each of the four RMs: therefore all individuals can and do access the arguments driven by the logic of each RM.

4.10.2 Conflicting arguments

However, in their purest form, the arguments of the different RMs encourage conflicting policies, as expressed in their different approaches:

- CS emphasis on limits sees ‘cutting back’ as an imperative: we don’t just need to emit less CO₂, we need to reduce our total consumption. CS sees climate change as symptomatic of much wider problems: #34 provides a litany of human evils, describing nature as a ‘damsel in distress’; #68 by Lovelock expounds the Gaia hypothesis, with mankind as a ‘planetary disease’; consistent with most of the Transition Town movement (e.g. Chamberlin, 2009), #170 conflates climate change with Peak Oil in arguing for local sustainability. The ‘deep green’ (#34) arguments of these expressions of the CS Standpoint are not compatible with the arguments of the other 3 Standpoints.
- MP confidence in human progress is justified by past success: Malthus and his disciples like Ehrlich have been routed (#48) and science will save the planet (#112). Calling for consumers to restrain themselves “just panders to your middle-class, middle-aged angst and guilt” (#121), while regulation and taxation are a misguided imposition on the individual when the rationality of the market will actually deliver the greenest economy (#136). These arguments explicitly rebut the CS and AR standpoint arguments: at the same time, MP’s optimistic confidence that we should make the most of changing environments rejects EM’s pessimistic resignation.
- EM echoes MP’s rejection of governmental tax and regulation: environmental concern is elitist nonsense that takes from the little man and gives him nothing back in return (#54, #136). Just as the EM Standpoint experiences the self as being at the mercy of the elite, so it sees mankind as being, ultimately, at the mercy of nature (#47, #111). The EM Standpoint generates the Commons Dilemma because self-defence requires one to make no concessions without certainty of reciprocation. So EM too rejects the prescriptions of the CS and AR Standpoints, as well as MP’s optimism.
- As described throughout 4.9, the AR Standpoint pragmatically rejects the extreme expression of both the CS and MP Standpoints. At the same time, AR sees EM’s isolationist pessimism as irresponsible. Climate change is a problem but a manageable one (#124) if we act responsibly (#66). This means relying on the expertise of sound science (#7), and regulatory intervention to curb the excesses of the market (#159): the correct response is not revolution but a modernisation of the status quo (#169).

The four Standpoints, when argued in contradistinction to each other (as anticipated in 2.2.7), no longer express a common sense position that most people would agree with.

4.10.3 Conclusion: four distinct Standpoints

Section 4.10.2 lays out how the Standpoints emerge as distinct positions. The analyses in 4.6-4.9 justify the view that the matrix of arguments built on the logic

of each RM does provide a sound framework with which to interpret the debate. The arguments identified in the matrix are manifested in the sample.

4.11 Interaction and overlap between the Standpoints

Chapter 7 will address in greater depth whether the observable interactions and overlaps between the Standpoints can tell us anything about the underlying structure of the four RMs: in particular Cultural Theory's Grid/Group account and Relational Models Theory's independent RMs diverge on this question of structure (Verweij, 2007). This section will briefly reflect on some interactions and overlaps that emerged in 4.6-4.9.

4.11.1 No Stereotypes: the use of arguments from multiple Standpoints

Section 4.10.1 argued that many of the arguments represent common sense. Different Standpoints often co-opt the common sense arguments of the others. The 'polluter pays' principle is an example of this. Based on the logic of the EM Standpoint (4.8.3) it influences the policy preferences argued for from the AR Standpoint (4.9.3). Further, the retributive justice implied by 'the polluter pays' appeals to the CS Standpoint. For CS, polluters are ultimately outcasts, forfeiting the protection of the community they have damaged. Lovelock envisages that all mankind will become outcast and "suffer the pain soon to be inflicted by our outraged planet" (#68).

The obligations of the developed world to the developing world frequently manifest CS arguments (4.6.7). The starting point may be recognition of the whole world sharing the challenge: but in #24, developed world aid sounds almost like protection money, an AR response to an EM threat:

"City authorities, as well as governments, needed to prepare for sea level rises and new systems should be set up to pass information, expertise, and possibly financial aid from the developed to the developing world, said Dr Kelly. This was the only way to avoid the nightmare of millions of refugees fleeing from low-lying coastal cities in countries lacking the resources to defend them."

4.11.2 Interaction between Standpoints

Further disrupting the idea that Standpoints advance narrow, stereotyped arguments, Section 4.9.8 explained how each of the other Standpoints looks to AR to enforce its own approach. Just as businesses achieve policy capture, the market based MP Standpoint successfully orientates policy to be market friendly even when the AR diagnosis is one of market failure (4.9.3). AR's commitment to

the status quo is in effect a commitment to the pursuit of economic growth. Yet the CS Standpoint still fights for government to impose the CS vision (#112):

“Mike Child, Friends of the Earth’s climate campaigner, said last night: ‘There are no technological fixes to dramatically reduce carbon dioxide emissions from flying. If Tony Blair is serious about climate change he needs to curb the rise in air travel. He could also set a (*sic*) example by flying less. Offsetting his personal emissions while allowing UK emissions to increase is simply not enough.’”

Even Jeremy Clarkson, staunch EM defender of the little man in ridiculing government efforts to fight climate change, happily demands government intervention to stop car companies charging customers for model recall costs (#54).

The AR Standpoint itself uses CS logic to justify the need for government intervention, #12:

“THE FINAL report from last year’s major United Nations-backed conference in Toronto, concerning global warming, began by describing this environmental problem as ‘an unintended, uncontrolled, globally pervasive experiment whose ultimate consequences could be second only to a global nuclear war.’

The conference concluded that cuts of greater than 50 per cent in the main greenhouse gas, carbon di-oxide are now needed to stabilise the climate, with 20 per cent cuts within 15 years as ‘an initial global goal.’”

4.11.3 Overlap between Standpoints

Cultural Theory’s hypothesis of a Grid-Group structure underlying the four worldviews suggests that overlap between the ‘Standpoints’ might be expected. Just above, the interaction between the CS and AR Standpoints could be regarded as an expression of the same group solidarity protecting the community in each case. Similarly, the Standpoints that are closest to ‘low group’ worldviews, MP and EM, clearly overlap in their rejection of imposition on the individual by the government or by CS’s scaremongering (4.7.7, 4.8.7). Superficially the difference is one of tone, with MP self-assertive and EM self-defensive. Chapter 7 will discuss this further.

Overlap between the AR and EM Standpoints, which would reflect Cultural Theory’s ‘High Grid’ worldviews, is expressed in EM’s expectation that others, ie ‘the Authorities’, should do something about the problem (4.8.7). AR’s expectation that societies’ members know their place and willingly subject themselves to the solutions identified by authority finds less overt expression in this democratic age.

Overlap between the MP and CS Standpoints, which would reflect Cultural Theory's 'Low Grid' worldviews, tends to be obscured by the antipathy between MP's commitment to growth and CS's assertion of 'Limits to Growth'. However, #170's long account of Transition Town initiatives is replete with optimistic examples of individual and local can-do activists, for example:

"The cafe where we met, Honest Foods, had a policy of sourcing food locally. Law [of Transition Town Brixton] asked for a word with the chef, said he knew someone with a vast crop of pears in their garden, and asked if the chef would be interested in buying them? Without hesitation, the chef said yes. I was impressed."

CS's emphasis on local community does away with the need for MP's market clearing house. Word of mouth matches people with resources with people with needs. Yet both Standpoints are striving for optimisation through individual initiative.

There is also overlap between the Standpoints that do not correlate within the Grid-Group structure. The tight relationship between AR and MP has already been observed (4.9.3, 4.9.8), while CS's prophecies of catastrophe seem to justify EM's pessimistic fatalism in bringing guilty mankind its just deserts (4.11.1 above). This division into two camps echoes the early version of Cultural Theory that described a structure of Centre and Border (Douglas & Wildavsky, 1982) as anticipated in 2.4.2.

4.12 Are there other themes in the sample that do not fit into an analysis based on the four Relational Models?

4.12.1 Articles with no Relational Models identified

38 articles had no RMs identified in Appendix H. Although the table did not seek to be exhaustive, it is worth looking at the content of these articles. 21 of them had content that was either coded 'Unassigned' or 'Minor or Derivative' in 4.4.2. Of the remaining 17, nine are relatively factual reports of new scientific research, and two are articles with relatively undeveloped coverage of climate change. The remaining six, # 89, #93, #131, #142, #147, #177, did not have unusual themes: the film Ice Age, a UNFCCC interim meeting, a complaint that the Cabinet had too many lights on in a photograph, a report on a dystopian play, an article about warmer temperatures affecting skiing holidays, and finally a piece suggesting that there are more important issues for politicians to be concerned with than their own expenses.

In each of these one or more codes from the RM matrix could have been stretched to fit: but several of the articles are good examples of a problem encountered throughout the analysis. Newspaper reports of other people's opinions frequently veil the arguments: CS prophecies of catastrophe are implicit in a post-apocalyptic play, but a review panning the piece may simply not advance those arguments.

4.12.2 Other themes: objects, events and activities

Section 3.4 described the exploratory coding process used on the pilot media sample. Many codes were used for specific objects (e.g. glaciers, ozone), events (storms, conferences), technologies (nuclear, wind power) or human activities (air travel, polluting). These are the 'contents' of the physical and social world, adduced as needed within the arguments identified in the RM coding matrix. They are not really arguments in themselves.

This is also true of human dimensions included in the codes: different times (past, present or future), and different places (e.g. USA, China) or place categories (e.g. local/global, developed/developing world) may all be endowed with value in argument. Reference to 'the planet', in 32 articles, almost always carries the subtext 'we must save the planet', although not when mentioned by the Sunday Times' astrologer (#148). But these ideas are building blocks for arguments, not arguments themselves.

4.12.3 Other themes: arguing about arguing

Sections 4.6 to 4.11 picture the different Standpoints contesting how the debate should be defined. There are different ways of describing this contest, and a number of the codes used identify some of those different descriptions. Often the contest is seen as being about priorities, human or political (e.g. #7, #14, #34, #110, #159, #168, #169), or about needs (e.g. #54, #65, #68, #77, #109, #170). Within the sample, participants in the debate inevitably attack the irrationality of other positions (e.g. #98, #104, #112, #124, #136, #155): both CS and MP are accused of quasi-fundamentalist extremism (e.g. #121 and #92 respectively). Other articles make a point of stressing the complexity of the problem and the lack of simple solutions (e.g. #42, #98, #109, #150). The contest is not just about who is morally right, but who is right in their definition of the problem.

Yet this contest over what is the most important priority, or over what the correct diagnosis is for the phenomenon of global warming, is precisely what the previous sections have been describing.

4.13 Conclusion: the value of an analysis based on Relational Models

Fiske's (1992) account of Relational Models proposes that each Model addresses a particular social issue with a different logic. The solutions to social issues will vary with the logic applied. Since we can all access the four models, we can all appreciate the arguments derived from the logic of each Standpoint.

There are certain domains where culture, sometimes our nature, has clear expectations about which model 'should' be applied - CS within the family, EM amongst playground children, AR in an army, and MP on the trading floor³⁹. But there are many domains where our relationships with counterparties are composite and varied: in these cases, how do we know which logic to apply? Generally, according to Fiske (2004a, 2004b), culture provides the answers. With newly emerging domains, such as climate change, there is clearly scope for competing visions to fight over which logic will come to be the cultural norm.

This analysis does demonstrate that the debate can usefully be categorised into arguments deriving from the logic of the 4 Relational Models. Going beyond Cultural Theory's analysis, the inclusion of the EM Standpoint emphasises the tight grip the Commons Dilemma exerts over the behaviour and reasoning of individuals and individual nations. The AR Standpoint, trying to rise above EM's ineffective fatalism, seeks to take charge of the problem. Much work has been done, with impressive IPCC reports and economic analyses such as the Stern Review. Why has so little been achieved?

The answer provided by this analysis is not new, but it sheds new light on why we are so stuck. The CS Standpoint and the MP Standpoint look to the AR Standpoint to enforce their approach (4.9.8). The AR Standpoint accepts the CS diagnosis of 'limits' while remaining committed to MP's economic growth. The AR Standpoint balances between recognising the need for change, while seeking only to re-invent

³⁹ Necessarily even this statement oversimplifies: many families are patriarchal, playground children can have strong communal bonds in resistance to authority etc.

the status quo. Both main UK political parties depend on an electorate likely to make the EM plea “What’s in it for us?’ if they push for faster, more dynamic change. As a result, both stay suspended between the two positions:

The Conservatives in **#159**:

“it is too easy simply to state that the choice between the environment and the economy is always a false one. [Cameron] also needs to make the hard choices.”

Labour in **#41**:

“If Labour wishes to be truly green, it must risk upsetting public opinion; something that so far, it has shown itself very reluctant to do.”

Chapter 7 discusses some of the different views as to where this leads.

Chapter 5 Focus Groups

Chapter Outline

This chapter has seven sections:

1. Focus group purpose, precedents and procedures
2. General Description
3. Focus group coding methods
4. Relational Models analysis: London Group 1
5. Relational Models analysis: the other focus groups
6. Focus Groups: discussion
7. Conclusion

The general description in Section 5.2 characterises the content of all of the groups without reference to the Relational Models framework. Each of the focus groups has been analysed using the RM framework, and Section 5.3 explains how this has been applied. Section 5.4 shows this detailed analysis applied to London Group 1 (LG1). The similar analyses of the other 5 focus groups are included in Appendix J. Sections 5.5 and 5.6 set out what these analyses show.

References to passages in the focus groups use the line numbers in the NVivo file for each group, e.g. LG1.460 or SG1.182. The line number is the opening line of any passage referenced. For ease of analysis, the focus group transcripts were divided in to four segments, labelled A, B, C and 'RMQs' (explained in 5.3.2). These divisions were somewhat arbitrary but facilitated review of the content. Names of participants have been changed to fulfil the promise of anonymity.

5.1 Focus group procedures

5.1.1 Purpose of the focus groups

The focus groups were convened to replicate informal elements of the climate change debate. The objective was to generate examples of lay persons negotiating with others whether the topic was important, and collaboratively making sense of the problem and its implications. Chapter 3 explained that the focus groups aimed to capture examples of the debate at the inter-personal level to compliment the social and individual levels addressed respectively by the media analysis and the survey.

5.1.2 Focus group recruitment

Six focus group interviews were held between 25th November and 14th December 2009. The subject of climate change was then highly topical with the UNFCCC ‘COP 15’ meeting in Copenhagen running from 7th to 18th December.

The first two focus groups (SG1 and SG2) were recruited from graduate and undergraduate students at the London School of Economics. Participants received £30 although one obtained a course credit instead. The remaining focus groups were recruited by a market research agency, SAROS Research. SAROS was paid a fee, and participants in the two groups held in London (LG1 and LG2) received £40, while participants in the final two groups, held in Manchester (MG1 and MG2), received £30⁴⁰.

Participants had been pre-screened by answering a short attitude questionnaire. This comprised responses on a 5-point Likert scale to four statements each representing a core position of one of the four Relational Models. These were:

- A. There has always been climate change. We will use technology to adapt to changes as we have always done.
- B. We consume so much that we are ruining our planet. We need to cut back to avoid catastrophic climate change.
- C. There's no point in the UK doing anything about climate change, when countries like China are growing so fast, so I don't see why I should be asked to pay higher taxes or give up things to stop it.
- D. We do need to act on climate change, but that doesn't mean a revolution: it means governments taking appropriate action.

SAROS also obtained data on newspaper readership. The intention was to select participants in a way that ensured a spread of views within the groups. In very general terms this was achieved, but attendance at the groups was quite low and the screening data has not been used within the analysis.

⁴⁰ Previous pilot focus groups were assembled by snowball; one of 16 & 17 year olds; one of London-based finance professionals, and one of London-based mothers of young children. The selection method adopted, using a recruitment agency, reflected a desire to avoid the homogeneity experienced in these pilots. The choice of splitting between London and Manchester also targeted greater diversity: practicality dictated only choosing two locations. The inclusion of two student groups was driven by cost considerations, but also provided a contrast to the externally recruited groups.

The Student and London Focus Groups were each held at the London School of Economics in either a small class room or 'common room' setting. The Manchester Focus Groups were held in a meeting room at the Novotel in central Manchester. In London a student was present to provide administrative support but this proved largely unnecessary and was not repeated in Manchester. All meetings took place in the late afternoon or evening.

5.1.3 Previous focus groups discussing climate change

These focus groups sought a fairly general discussion from participants, in contrast to some studies which have a specific purpose, such as the identification of prevalent climate change 'icons' (O'Neill & Hulme, 2009). The procedures adopted here were also relatively simple, whereas other studies are often more elaborate, using, for example, reconvened focus groups (Bickerstaff, et al., 2008) or even quite extensive series of discussions including the generation of visual material and written reports (Kasemir et al., 2000; Stoll-Kleeman, et al., 2001). Other studies anchor the sense-making within a particular community (Marx, et al., 2007, in this case Ugandan farmers), or are structured as workshops where the impact of introducing new information is monitored (O'Neill & Hulme, 2009), or sit within a sequence of procedures where group participants are also interviewed or provide survey responses (Lorenzoni, et al., 2007).

An advantage of many of the approaches above is that they make a virtue of the specificity of each focus group, e.g. by giving it a specific purpose, or a specific location. A challenge for any focus group is that the design and setting inevitably influence the specific discussion that emerges: even with the insight offered by contrasts between groups (in this case, for example, between larger groups and smaller groups, student and non-student groups, or London groups versus Manchester groups) it is difficult to determine the impact of specific factors such as the format or, indeed, the timing coinciding with the UNFCCC meeting in Copenhagen. The general tone of the discussion in these groups, and the absence of any demand for concrete conclusions, may have encouraged a consensus type acceptance that climate change is a problem (discordant views could be considered impolite) coupled with a detachment from any engagement with what society, or participants as citizens, are going to do about it. Bickerstaff and others captured this problem of determining what generates the discourses in the group very clearly:

“[The] reflexive recognition of the gap between a sense of moral obligation and behaviour may in part have been stimulated by the artificial context of the focus-group discussions It may also be attributed to a complex mix of factors including habit, self-interest, and, in various respects, a sense of powerlessness. This typically resulted in a tendency to delegate the responsibility to institutional actors.” (Bickerstaff, et al., 2008, p. 1320)

These limitations need to be borne in mind while assessing the outcomes of these focus group discussions.

5.1.4 Conduct of focus group interviews

All six focus groups were conducted in the same way. A consent form (Appendix I) was either circulated or read out at the start and all participants gave written consent. After introductions, as facilitator I asked everyone to think of three images or ideas that first came to mind at the mention of ‘climate change’. I also asked what if anything ‘climate change’ meant to them personally. The opening discussion typically involved participants taking turns in responding to these. I then emphasised that participants no longer needed to take turns. As facilitator I sought to ensure that all groups at some stage addressed the following issues:

- Whether participants were convinced that there was such a thing as manmade global warming,
- How participants felt about increases to energy prices designed to discourage their own consumption,
- How participants felt about money from those price increases being used to help developing countries modernise their own energy infrastructure or adapt to climate change impacts,
- What participants expected the UNFCCC Copenhagen summit to achieve.

Towards the end of each focus group I asked participants to respond to the statements used in the recruitment screening.

All focus groups lasted between 85 and 92 minutes except for LG2 which lasted 73 minutes.

5.1.5 Focus group numbers and levels of participation

The table below identifies the number of group members and the amount they each participated. Participation was measured by word count as a percentage of the total.

LG1	LG1	LG2	LG2	MG1	MG1	MG2	MG2	SG1	SG1	SG2	SG2
Name	%	Name	%	Name	%	Name	%	Name	%	Name	%
Facilitator	18%	Facilitator	25%	Facilitator	15%	Facilitator	9%	Facilitator	17%	Facilitator	12%
Miranda	9%	Emma	18%	Clare	6%	Bill	7%	Amber	19%	Careen	17%
Nigel	19%	Mary	14%	Derek	4%	Jim	23%	Hilda	29%	Digby	26%
Peter	22%	Solomon	14%	James	38%	Jayne	17%	Mercy	16%	Hanif	12%
Suzy	2%	Tim	29%	Miles	23%	Laura	16%	Keith	20%	Millicent	33%
Simon	13%			Troy	12%	Piers	26%				
Tracy	3%										
Walter	13%										

Table 5-1: Focus Group members' level of participation

Averaging five participants the groups were generally smaller than the six to eight of 'traditional' focus groups (Flick, 2006; Gaskell, 2000, p. 49). However, it is noticeable that in the four groups with more than four members one or more participants were relatively quiet. Quiet participants were typically the youngest in the groups (Suzy, Tracy, Derek and Bill). Most groups had some dominant individuals so that moderation was required to ensure contributions from the quieter members. The level of facilitator intervention equates to 'medium level' on Cronin's (2001) range from low to high level moderation.

Flick (2006) distinguishes between groups that refine individual opinions through discussion and challenge and groups that co-construct shared solutions or shared understanding of an issue. These groups achieved a bit of both. All but one group developed momentum of their own so that they can be judged to have reached the 'performing' stage demanded by Gaskell (2000); as such it seems fair to conclude that the small size of the groups did not inhibit the refinement of the individual opinions or the development of some level of shared understanding. LG2 required greater moderation, partly to motivate discussion, partly to prevent deviation. Although LG2 appeared to be a particularly disparate set of individuals, the group still developed a shared tone to their discussion even though the discussion was a little shorter than the other five.

5.2 General description

5.2.1 Voicing their own opinions

The topic of climate change, especially when debated close to an event like the COP15 meeting, is familiar to many people. Even without the organising influence of the facilitator's agenda, many of the same arguments emerge naturally within the groups. Yet participants do not appear to parrot well worn clichés garnered

from the media. Participants express (a) their *own* lack of confidence that anything would come out of the COP15 process, (b) their *own* sense of the insignificance of their own consumption, (c) their *own* objections to being told what to do, (d) their *own* indignation at other people's unnecessary consumption, and (e) their *own* commitment to restraining their environmental footprint:

- a) Jim Basically, I think [Copenhagen]'s just like for all the senior people from all the countries it's just a nice week out for them
Laura It's a bit of lip service going on (MG2.1559)
- b) Hanif because I just feel like even if I did do something it would just be overshadowed like by the millions in China who didn't do anything and you can't really blame them (SG2.652)
- c) Miles I don't like being told what to do, I don't like these, these, sort of orders through the media, you know, I don't like being told by Bob Geldof to give money to charity I don't like being told by climate change people that I need to recycle, for, if, it's my choice to recycle. If it really, if there was really that much convincing argument for it I believe there would be more stringent control on how people recycle, think there would be a legal obligation to do such things, there would be a limit on how far people can drive there would be a limit on on things like that, and if if the arguments were conclusive enough, then.. (MG1.481)
- d) Emma ... it's ridiculous having these massive cars and of course they are big gas guzzlers these huge jeeps and I just think that is ridiculous (LG2.495)
- e) Clare I might be different because I'm a woman and have got the motherly instinct and I'm thinking about saving the planet, for the future, do y-, that's probably just me. And I think anything I do I think oh I can't do that I shouldn't do, you know, not use the car as much because of what's going to happen.. (MG1.624)

Clare, in (e), does go on to describe herself as a 'sponge' (MG1.630) absorbing all the media advice, but she has digested the media messages and reproduced them as her own values guiding her own actions.

5.2.2 Responding to an intractable problem

The groups are all too clear that the problem is almost intractable. At its most dispassionate, this insight is expressed from the Standpoint of the 'detached observer'. Freed from anthropocentric bias, participants occasionally follow James Lovelock (2006) or John Gray (2006) in taking the view that mankind simply is not up to the challenge:

- James But, it's again, it's the mentality of the er, everyone fighting their little corner, isn't it, you know, as nations, and rather than saying, actually this is way beyond national interest, this is, this is, you know it's like little green men looking in, at the idea of like racism or different peoples fighting each other, and like what are you talking about you're all humans ...what are you doing? (MG1.1309)

More often though, this intractability brings on a sense of powerlessness (see Bickerstaff, et al., 2008, quoted in 5.1.3 above) The problem is just too difficult.

From this Standpoint participants tend to complain: they don't know who to believe about the science, they don't like being told what to do, and it's impossible for them to reduce their carbon emissions unless the government puts alternative technologies in place - they still need to travel, to eat and to heat their homes.

Yet feeling powerless is uncomfortable, and participants are often happier to assert their own agency, their own independent choices:

Troy I think it's the telling for me, I've, there's a person I work with who tells you've got to do this you've got to do that and [sod?] off. [*agreement*] cos that's the kind of person I am, but if they were to try a different form of persuasion, I mean I do all the you know recycling and I take the bike instead of car and so on, but there's particular reasons for me doing those things, and it's not necessarily because I'm super-green and I'm going to save the planet [*Clare agreeing throughout*], but you know [like?] I said switching the lights off that makes economic sense to me I mean [*agreement*] you can't leave the tap running when you're brushing your teeth, again: cash saving! [*laughter*]

Miles Er, that's it! I'll do things that are green purely if they benefit me. And it, that sounds really bad, but, phrew, like you say, turning the lights off and, and I used to cycle to work when I lived, when I worked in Sale I'd cycle to work purely because it kept me fit and I didn't have to pay for petrol, driving. Same with the turning the lights off, it. If, it inevitably benefits me as well, so, you know, in that selfish sort of respect being green helps me more than it does the planet, and it sound, it sounds really bad but you know, I recycle purely because there are recycle bins there so it's easy to, but if it meant having to separate all my own recycling and then take it to a separate bin I wouldn't bother. (MG1.337)

It is intriguing to see how good manners appear to temper this bullish self-assertion. Neither whingeing about how unfair and difficult it is, nor brashly saying 'I'll do what I like', feels comfortable when discussing an issue which self-evidently calls for positive co-operation.

5.2.3 Grounds for hope: government action

One alternative is to hope for government action, and the groups generally converge on this solution.

Miles's comments above, in which he assumes that if the problem were as bad as some people say the government would already have addressed it, encapsulates this eventual reliance on government. Most of the time Miles voices self-interest and his comments above show his impatience with the idea of acting for the sake of the planet rather than himself; so he responds to the idea that the developed

world should help the developing world to reduce their pollution by saying ‘but that’s far too noble’(MG1.1303). But when James suggests, above, that ‘everyone fighting their little corner’ cannot work, Miles sets out a solution which is essentially the process that the UNFCCC is trying to achieve:

Miles In which case there should be some kind of global ‘right, this is what *has* to be done’ imposed, er, a percentage of your GDP goes towards a mass pot which is then pumped back out to the to the countries which it which needs it most, so if there’s countries in, in say Indonesia where the infrastructure is

Facilitator That is what they’re trying to do, kind of,

Miles Is it? Well in that case, then, yeah (MG1.1315)

As will be seen throughout the focus groups, the issues are relatively simple. The structure of the ‘Commons Dilemma’, and the need for centrally co-ordinated action to address it, is easy to grasp. Just as easy to grasp is how difficult this co-ordination is to achieve, as James’s image of the little green men looking down on the battle of vested interests reveals.

5.2.4 Grounds for hope: technological solutions

Another alternative is to hope, or possibly expect, that technological advances will address the problem. Just as Miles assumes that the government will do something if the issue gets really serious (5.2.1 above), so others assume that when the need is great enough technological innovation will accelerate to meet the need. Most groups at some point ‘assume’ that there will in due course be technology such as new jet fuels or ultra-efficient solar panels.

Troy, in MG1, and Digby, in SG2, illustrate this hope for technological solutions:

Troy The technology is out there, somewhere, it’s just. All technology’s out there somewhere it just takes one bright spark to actually find it. (MG1.1547)

Digby it’s alright that I’m not like planning my lifestyle around not flying because they will invent new types of jet engine that will reduce the fuel consumption of planes and reduce the emissions from planes and make it more sustainable to fly, and you know maybe one day they’ll invent that plane from Planetears, Captain Planet, that’s you know solar powered and we’ll be all set (SG2.518)

Clearly Digby is also acknowledging that wishing the problem away with technology is too glib, and one of his fellow group members Millicent forcefully rejects the idea that we should hope technology can maintain current lifestyles (SG2.884). Yet the reliance on technology saving the day is often present in the meetings, explicitly or implicitly.

5.2.5 Doing what you can

Another response is to do what you believe is right. You know that it may be pointless, but your conscience dictates that you do the right thing.

Laura Yeah. As long as I can feel comfortable in myself, that I know that I've, I've done what I can within my powers, erm, and if, you know, if I've managed to influence the kids, influence my husband, my mum, my dad, whatever, you know because they're of a generation as well that they didn't always recycle..(MG2.392)

This sense of a moral imperative seems to be particularly strong for women, and is often connected to concern for the fate of one's children (Jayne MG2.112; Laura MG2. 123/354; Clare MG1.624). The men also understand the relevance of family in increasing awareness (e.g. Piers MG2.437), but in MG1 James matches the other men in the group by stating his moral imperative as an assertion of his own agency: "I'm not waiting to hear what the the erm result of Copenhagen is to decide what I'm going to do" (MG1.1773).

5.2.6 Scepticism

The media articles confounded the conventional analysis that claims the media obscures the scientific consensus by portraying an open scientific debate; this standard analysis goes on to claim that vested interests on both sides drive the media coverage. Instead 4.4.5 showed that the sample very rarely deviated from describing a scientific consensus.

By contrast, the non-student focus groups show that participants feel uncertain about the science. In Manchester Miles, Derek and Troy (MG1) and Bill (MG2) express various levels of scepticism, while in London Emma and Tim (LG2) both say they are confused by all the different reports. Nevertheless, Nigel (LG1.212) probably does speak for most participants when he says that 'deep down most of us know' there is a scientific consensus. Although participants do mention natural cycles and sunspots, the confusion they reference most is all the conflicting advice about what 'they' should do about it, about what human activities need to change: is recycling good or bad, are pets really bigger emitters than cars, are cattle farts the biggest problem? So resigned confusion precedes even engaging with the dilemma of whether one's own individual actions matter.

5.2.7 Distrust of government

The focus groups were held with the parliamentary expenses scandal fresh in people's minds. A lack of confidence in government and authority suffuses much of the non-student group's discussions, eg:

Emma You see, I think people have just lost faith in the government. Nobody trusts what we're told any more (LG2.749).

The groups can see that this gives them a problem if the eventual solution relies upon government intervention:

Mary Mm, no definitely, but it's kind of you know we say we don't have any faith in government and I'm sure that they feel the same and I'm sure that there's lots of the people that live in China that would really like to do something but, there aren't government resources to do so. It's, you know, I think it go[es], it's not diminishing responsibility but I think it's like you do have to put a lot of faith in the government and hope that they do the right thing (LG2.931)

5.2.8 The student groups

The two student groups offer some contrasts to the other four. Some of the students are familiar with the policy debates over climate change. In SG2 Millicent often reproduces environmentalist discourse, advocating social justice and attacking multinational corporations. She expresses these views as central to her own identity as a 'global citizen' (SG2.331). Other students are familiar with the economic arguments and some are prone to advocate market solutions in a way that is absent from the other groups.

At the same time most of the students have not experienced the world as a constraint on their hopes and plans in the way that the other participants have. Temporary cost constraints are a function of being a student, and do not restrain their dreams of travelling the world irrespective of the environmental consequences of air travel (e.g. SG2.514). In the other groups, participants express resentment of government interference and taxation, and the challenge of living in the modern world on limited means is experienced as often difficult and even stressful. For the students, these perspectives have little resonance yet.

5.2.9 Overall tone

Even these few extracts show that the groups have no difficulty engaging with many of the different arguments that constitute the 'climate change debate'. Generally the discussions follow the same trajectory. First a balance between recognition that there is a problem and varying degrees of reluctance to see one's own lifestyle affected. Then the acknowledgement that something has to be

done, with the developed world obliged to take a lead and regulations needed to change behaviour.

The groups only varied in the intensity with which the different arguments were voiced. LG2, for example, was dominated by a more despairing tone, and constant resentment towards government and other people. MG1 was more confidently self-assertive, while MG2 demonstrated a balance with two women expressing a strong, stable sense of duty to act responsibly and two men more suspicious and complaining.

5.3 Focus groups: coding method

5.3.1 Focus group transcription

I transcribed each discussion using either two or three recordings for each group. These transcriptions were loaded onto the NVivo database, along with the media articles discussed in Chapter 4 above.

5.3.2 Focus group coding

The focus group transcripts were coded in parallel with the media articles using the same coding frame. Chapter 3 sets out the development of the coding frame.

For ease of analysis, each transcript has been divided into four sections, ‘A’, ‘B’, ‘C’ and ‘RMQs’. This latter section covered the part of the focus groups devoted to the specific statements shown in 5.1.2 above. These statements necessarily imposed a ‘Relational Models’ framing to the debate and so needed to be separately identified from sections where participants were free to frame the debate in their own terms. The table below indicates the relative size of the sections, based on word count:

LG1	LG1	LG2	LG2	MG1	MG1	MG2	MG2	SG1	SG1	SG2	SG2
Name	%	Name	%	Name	%	Name	%	Name	%	Name	%
A	26%	A	41%	A	27%	A	29%	A	24%	A	20%
B	34%	B	28%	B	28%	B	26%	B	32%	B	38%
RMQs	21%	RMQs	22%	C	28%	C	30%	C	32%	C	35%
C	19%	C	9%	RMQs	17%	RMQs	15%	RMQs	13%	RMQs	7%

Table 5-2: Focus group sections, relative size

With the exception of the London groups the ‘RMQ’s section came last, and generally was the shortest. The other three sections are typically of similar

lengths, with the divisions drawn at a point where there was a significant change in subject.⁴¹.

5.3.3 Focus group coding approach

Section 3.4 set out the development of the coding frame. A provisional set of Relational Models codes (3.4 E) was applied. Subsequently, the final matrix of RM codes was applied, in effect repeating and checking the coding process.

Shown below are two short passages from the transcripts and an explanation of the RM codes applied.

5.3.4 Focus group coding: example from LG1

In the following extract, LG1.460, Walter responds to the facilitator's question 'Who's responsible and who should therefore be doing something about it?':

Walter I think, I think the advanced industrial countries have for hundreds of years pumped this CO₂ into the atmosphere, now when they can afford to decrease the amount that they're doing the expanding countries like China and India etc. etc. they say well listen you've done it for hundreds of years and now your stop us from progressing. So you're either going to pay for it or else we're going to continue. And unless you're serious about this and unless you can prove to the world population that climate change is a matter that's going to be so serious that we've all got to pull together.. well I can't see them getting any sort of agreement. So I think it's up to the advanced countries to take a lead in this, because they have the money and they have the means to solve the problem. Some of the other countries, they.. haven't anything to give never mind that they're more or less in the firing line.

Walter uses the logic of different Relational Models applied to several domains in this piece:

- CS 1: the idea of the whole world sharing the problem, 'we've all got to pull together'
- CS 7: with respect to other people there is a need to look after the most needy; this overlaps with
- AR 7.1: the obligation of the rich world to look after the developing world: 'it's up to the advanced countries to take a lead in this, because they have the money and they have the means to solve the problem'.
- MP 3: the need for economic growth is a given, as is China and India's right to 'progress'.

⁴¹ During the analysis the sections were used to review how participation, content and tone developed across the course of the discussion. Beyond this the sections do not have particular salience other than as an organisational device.

- EM 1: the notion of ‘turn taking’ that is central to the Equity Matching model is expressed in the clear idea that it is now China and India’s turn to expand economically: the advanced world has had its turn at pumping ‘this CO₂ into the atmosphere’ and now they must reciprocate by allowing the developing world its turn.
- EM 3.2: furthermore, following the ‘Polluter Pays Principle’ the developed world is ‘going to pay for it’. Finally,
- EM 2.3: embedded within the piece is the Commons Dilemma. You’ve got to do your part ‘or else we’re going to continue’.
- EM 8: because this game of chicken is so hard to resolve, a pessimistic conclusion is seemingly inevitable: ‘well I can’t see them getting any sort of agreement’.

5.3.5 Focus group coding: example from SG2

This short extract, SG2.182, occurred while participants were still exploring what climate change ‘meant to them personally’:

Digby Um, I think that’s part of what I was talking about earlier that it’s more complicated than just the earth is getting hotter that’s bad, it’s our fault. It’s like there is an element of eventually global warming would d- besides the fact it would make it impossible for humans to live on the earth would correct itself and life itself would continue on the world and the world would cool back to its normal temperature; we wouldn’t exist any more, so, that’s more the issue, that if the climate completely changes on the planet it will be difficult for us to exist um, no-one really addresses that it’s just put sort of a way of like save the pandas, save the polar bears, and other cuddly things.

Millicent I think it will be difficult for people without access to power and, and money and adap- adaptive capacity to survive.....

Digby That’s a....

Millicent ... but I think that the elite will be ok [*laughs*].

This passage has a simpler range of Relational Models arguments:

- CS 2.2: Digby notes the argument that ‘mankind is guilty’ in his opening sentence.
- EM 4: the Equality Matching understanding of nature as ‘other’, and potentially hostile to mankind, also fills his account.
- CS 4: nature as fragile is briefly captured by the polar bears and pandas, as a contrast to the EM framing of nature as ‘other’.
- CS 8.1: the CS outlook, that global warming will lead to catastrophe, dominates Digby’s argument.
- AR 7.1, 7.2: Millicent’s belief that ‘the elite will be ok’ expresses Authority Ranking’s understanding that the group looks after its own (insiders) while neglecting the rest (outsiders).

- “Detached observer”: the extract also recognises the independence of the planet’s future from our own fate just as James’ little green men did (5.2.2).

5.3.6 Spread of each code

Identifying the presence of an RM argument can be a relatively disciplined process, and if necessary evidenced with the reasoning illustrated above. It is harder to avoid being rather arbitrary when determining how widely to spread the attribution of an individual code across the text. In example 2 above, the CS8 code was applied to the whole of Digby’s speech, but the CS 2b code, for mankind’s guilt, was only applied to the first sentence and the CS4 code, for nature fragile, to the last three lines (from ‘if the climate changes..’).

The spread of the coding matters, since the analysis in this Chapter makes reference to the amount of text coded with a specific code. Generally speaking, the attribution of codes has been spread broadly rather than narrowly. This needs to be borne in mind when reading the coverage data below: to give an overall impression of the content the proportion of the text coded with AR, CS, EM and MP codes respectively has been calculated. This data can only be treated as indicative, not precise.

5.3.7 Overall picture

The table below provides the word count for each group’s transcript, alongside the percentage of the word count coded with AR, CS, EM and MP codes respectively.

	Total	% coded	% coded	% coded	% coded	% coded
	Words	AR	CS	EM	MP	no RMs
LG1	14,684	18%	24%	44%	21%	32%
LG2	11,626	19%	29%	55%	13%	29%
MG1	16,942	23%	28%	41%	36%	29%
MG2	15,886	13%	21%	48%	18%	29%
SG1	13,133	22%	18%	40%	30%	31%
SG2	15,426	24%	33%	34%	30%	28%
	Lowest			Highest		

Table 5-3: Focus groups, % coded by Relational Model

To clarify what this table means: in LG1, 18% of the transcript (by word count) is coded by any one, or more, of the 12 AR codes set out in the RM matrix in Appendix E. Some of the words coded with an AR code may also be coded with a

CS, EM or MP code, so that these can overlap. The right hand column therefore identifies how much of the transcript has not been coded with any RM code (therefore the horizontal total, including passages with no RM code, will exceed 100%) .

Some general comments are useful at this point:

- AR: the media articles often reported the doings of politicians, the expert role of scientists and also proposed emissions targets, all coded with AR codes. Aside from moaning about politicians and MP's expenses, these topics are less prevalent in the focus groups.
- CS: typically CS arguments were stronger at the start of the groups. Asking participants what ideas came into their mind, or what 'climate change' meant to them personally, tended to prompt images of floods and polar bears as well as raising concern for the world we were leaving to our children. SG2's higher figure for CS codings reflects the role of one vocal Masters student, Millicent, who described herself as a 'an activist on global issues' (SG2.34).
- EM: for all of the groups, EM arguments were more prevalent than any other RM. The EM arguments present cover all of the eight domains, but of particular importance are EM arguments about other people. Participants frequently blame, reject or criticise others: America does not do enough to combat climate change (MG2.1450); politicians bossing is both unacceptable and ridiculous because there is so much conflicting advice (LG2.143, 757); and 4x4 drivers (LG2.454), greedy politicians and 'nimbys' (MG1.853) are all at fault.
- MP: as noted at 4.11.3, MP arguments and EM arguments frequently overlap. Participants could be quite candid in saying they make their purchasing decisions based on cost, but this might be expressed as an EM defensive 'that sort of paradox makes me feel a little helpless' (SG1.1103) or an MP assertive 'I'll do things that are green purely if they benefit me' (Miles at MG1.346). As with the media articles (4.7.1), good manners seem to temper this self-assertion - Miles says of his own self-assertion 'that sounds really bad' (MG1.346) - which may lessen the frequency of expressed MP arguments.

5.4 Relational Models analysis: London Group 1

Each of the groups has been coded using the Relational Models matrix. This section provides a detailed analysis of London Group 1 using the Matrix. The six different groups repeat many of the same arguments, so to keep this chapter to a manageable size the similar analysis for each of the other groups has been provided in Appendix J. Section 5.5 summarises this.

5.4.1 London Group 1, outline

The following table provides an overall impression of the Relational Model arguments used by the different participants:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
Miranda	11%	20%	45%	29%	15%	33%
Nigel	26%	20%	47%	56%	14%	11%
Peter	41%	20%	11%	49%	36%	26%
Suzy	6%	20%	19%	35%	58%	6%
Simon	24%	13%	15%	51%	30%	25%
Tracy	4%	12%	34%	45%	0%	43%
Walter	14%	31%	25%	65%	30%	15%
* % of participant speech, excluding facilitator						
Highest in column:		Highest RM for individual			Both Highest	

Table 5-4: London Group 1, participants % coded by Relational Model

The following table provides an overall impression of the Relational Model arguments used in the different sections of the focus group:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
LG1 A	26%	10%	28%	40%	21%	31%
LG1 B	34%	27%	25%	54%	24%	28%
LG1 RQMs	19%	20%	21%	52%	20%	24%
LG1 C	21%	13%	20%	25%	20%	48%
LG1		18%	24%	44%	21%	32%

Table 5-5: London Group 1, sections % coded by Relational Model

5.4.2 LG1 A

The opening passages of LG1A express CS arguments - it is a problem, and participants care about it - as well as EM arguments that recognise the Commons Dilemma and a general despair about the challenge, thus:

LG1.116

Nigel Well I feel that I'm part of a wealthy country, you know part of the western world we've got too much, we're given and expect too much (CS 3 excess consumption)

LG1.135

Miranda Yeah I agree with you really that we do have a responsibility all of us to do our bit (*CS2.1 we can all do our bit*)

LG1.150

Tracy I'm quite mixed really because on the one hand if I don't do things that are environmentally friendly I do feel really guilty so I'm always washing up my recycling stuff turning lights off all the time but on the other hand I feel like it's quite pointless because places like America and China when they're told to reduce their CO₂ emissions they just ignore it. They don't do anything. So I feel like it's a bit pointless compared to them.
(*CS2.2 'guilty', EM 2.2 I'm doing my bit, 2.3 Commons Dilemma, 6.1 it's pointless, 6.2 logic of the Commons Dilemma, 7.3 others not doing anything*)

Although various speakers complain about confusing information and untrustworthy politicians, AR arguments do surface:

LG1.213

Nigel Well we hear, you know, in our lifetimes we probably hear a thousand different opinions by a thousand different articles but er I think deep down most of us know that the body of world body of scientists the majority do have more or less the same viewpoint that the world is warming up that there is obviously er kind of deviant ideas to that on the other extreme but erm I think we know that er you know it is heading in a certain direction
(*AR1.1 primacy of established institutions, 6.2 role of experts and sound science*)

But then the role of business is recognised, introducing MP arguments:

LG1.250

Peter Business or politics or a mixture of the 2. If you think of George W who no longer is there but he was certainly didn't encourage anything environmentally friendly because of the whole oil issue which essentially comes back to business and money. ... Which interestingly enough was his business as well.
(*MP1 private interests, 7 expecting others to pursue their interests*)

This sets the tone for the remainder of LG1A, with quite a bit of EM criticism of the Americans and some participants expressing confidence that in this country or Europe people are more aware and will do more about it, a generalised statement of EM2b's self-serving bias 'I'm doing my bit'. The EM criticism stretches to the role of business, offering a favourite conspiracy theory:

LG1.395

Simon I think, going back quite a way, lightbulbs there is and has been invented the indestructible lightbulb. Never came to the Market. Why? Commercialism...

Peter Yeah, exactly

Simon ... and I think the same will happen. There's always going to be the commercial or capitalist company, government, country that says, Ok, poor little [*indistinct*] over there it's costing them £500 pounds a year to do this but we can get £1000 a year out of it so tough luck, we'll go off and do it and you know and just worry about themselves and not really care what's happening. I think unfortunately the world we're in is a very capitalistic world. Or the world we understand.

(EM 7.2 *why don't they solve it?*, 7.3 *blaming others*; MP 7 *others pursuing private interests*)

This idea that commercial interests suppress technology captures the spirit of the EM Standpoint: there's an assumption that somehow *others* could solve it if they wanted to, but instead they do not. As a result, unfairly, the little guy suffers the cost. This conspiracy thinking surfaces in other groups (MG1.1565; MG2.477). However, just as Miles in MG1 assumed that the government *could* solve the problem if it *had* to, embedded in this conspiracy theory is the technological optimism that assumes that the technology will be there if we really need it.

Brought back by the facilitator to the question of what might encourage people to use more environmentally friendly cars, Suzy (414), Simon (423) and Peter (433) all take the view that people will continue to buy bigger cars for as long as they can afford them, and that the government putting up the price is unlikely to change that (*MP7 expecting others to pursue their own interests*). The section then digresses, ending with some bland remarks on electric cars and about whether it is easy to find places to charge them up.

5.4.3 LG1 B

This section starts with Walter's speech in 5.2.4 above. With a couple of facilitator's prompts the first part of this section debates (a) whether participants are happy to pay higher taxes to help the developing world and (b) whether participants let environmental considerations influence their behaviour, or whether they see others taking the environment into consideration. The passage below illustrates well how the group moves back and forth through the RM arguments:

LG1.558

Nigel I'd - you know - personally like to see flights rationed one day, you know. I would feel annoyed if I was knowing people were taking 20 flights a year perhaps. You know. City breaks all over Europe, and Middle East or whatever, and er. You know. I personally take one or two flights a year for holidays, erm, I know its relative, some people who probably don't fly at all would say well you're taking one or two flights that's one of two flights too many, erm, but I think there can be some rational debate and some kind of, you know, together with lots of things and then agree almost some kind of agree kind of recommended or kind of quota and anything beyond that perhaps should be rationed erm one day. You know. I can't see how anyone, you know, I'm thinking of future say 10 15 20 years' time I think I do think that rationing will take place on flights and then onto other things that are to do with you know erm that could be dangerous for the environment, so

(AR2, rationing; CS 2.1 we can all restrict our flying, 3

overconsumption as dangerous to the environment; EM 2.2, I'm doing my bit by not flying too much, 7.3 other people fly too much)

Simon Unless there's alternative fuel

Nigel Yeah there probably is. Technology's coming on thick and fast now and it's probably just round the corner but erm you know so yeah. There will, it will happen I'm sure it will.

(MP5, man adapts; MP8 technology can provide a more positive outlook)

Peter. Yeah. I think that's probably more applicable for business usage than the occasional person going on their...

Miranda Yeah

Peter. ...summer holiday every year. I think most people would say, no I still want my holiday. *(MP1 self-assertion)* But then some businesses I'm sure could be more efficient with how they plan their business trips or you know or perhaps you're right you know that a business should have to pay an extra corporation tax if they have more than however many people go on business trips a year or you know they should try and you know stay two days and have two meetings rather than flying back and going back a month later for another one. Or you know there are ways that you can make people think smarter if they were going to be taxed, but I think it should be above a you know rationing level perhaps

(AR2, rationing, 3.3 belief in greater efficiency, 7.1 helping others to behave better; EM 7.2 why don't businesses or governments take these sensible steps?, 7.3 blaming others for the problem; MP 2 use of price signals to change behaviour, 5 man adapting behaviour, 6 being 'smarter' is understanding the how the market works, 7 expecting others to behave as rational economic agents)

Simon Including politicians flying for no reason whatsoever...

Peter Yeah! No absolutely. *[agreement, laughter] [indistinct]*

Walter But that's what we're doing. And I do the same. We're looking at other people and saying now you could save a little here and you could save a bit there, but ourselves no we'll still have our holiday and we still have our flight. [Agreement!]
(EM 6.2 the logic of the Commons Dilemma, 7.2 why don't others do better 'save a little here', 7.3 blaming others, MP1 I'll do what I want to do: but also implicit is CS2.2 we are all at fault).

The group goes on to discuss behavioural change, raising smoking and seat belts as examples of behaviour that used to be socially acceptable now being unacceptable, and even decriminalisation as an example of something resisted but now socially acceptable (789). Change happens: future energy shortages will prompt technological developments (707) just as advanced teleconferencing will obviate the need to fly (718). Peter best captures the view that people like their freedom to do what they want:

LG1.773

Peter I think that people would still rather find an alternative way than not do what they like doing. So if it's an alternative fuel that doesn't emit as much, and they can still fly then they would rather do that than not fly
(MP 1 doing what I want, 5 adapting, 7 others behaving as rational economic agents)

As the debate develops EM logic begins to dominate: participants accept the logic that they may have to pay more or possibly to be rationed. Yet the weakening of communal bonds (CS), the break down in trust in institutions (AR), means that participants want to be sure that if they pay or give up something that this is reciprocated (EM): they want transparency and certainty that it makes sense for them:

LG1B.801

Walter You have to be sure that the money's being well spent [all talking]
(EM 1 reciprocity, 2.1 What's in it for me?, 3.1 we must be compensated)

Peter In the current world I don't think it will be people's priorities, will it? It will be let's sort ourselves out first.
(EM2.1 What's in it for me?)

Simon Yeah. I mean. Whenever there's a disaster in the world we all put our hands in our pocket and we give whatever we want to give erm, but we still have the

same problems. Look what's just happened up in the north of England. I mean those poor people are [agreement] washed out, whatever, and what have we done about it? Nothing. What can we do about it? (CS 7 helping needy others, EM 8 pessimistic outlook, it's all too difficult).

Peter Well he's promised some money hasn't he but even then it's a drop in the water if you think he gave to all these banks a year ago

Miranda Yeah

Simon That again. There's another thing. We own all the banks, and can't get a penny loan off them. [laughter]

Peter Let's not go there! [laughter]
(EM 7.1 'It's not fair', 7.3, blaming others)

Simon It's the same sort of thing. Why should we give out we don't, if we're going to be taxed and we get Benefit, that's fair enough [others agreeing] But if we're not going to get the Benefit, or not the perceived Benefit

Walter Well then, that's just to say, well, Good Luck on us we live in the right country, but tough luck on you live in the Maldives or somewhere [others agreeing]
(CS 7, looking after the needy, 8 moral imperative; EM 1 reciprocity, 2 what's in it for me?, MP1 I'll do what I want, 5 adapting to circumstances, 7 others can fend for themselves)

Simon So it's down to selfishness again

Peter The Maldives are lovely though [laughter]

Yet participants are fully aware that this is not really sustainable: Walter (858) says 'if you live in a society you've got to accept some rules' (AR1a, 1b, 2). The dilemma between these positions leads back to the question of how behaviour changes. A topic prevalent in several of the groups (LG2.409/1024; MG2.120) emerges, that of the socialisation of children. Groups assume their own generation's consumption habits are incorrigible, but that there has to be hope that today's children will know better (915). The group revisits smoking and seat belts as examples of how changed behaviour becomes ingrained, with Tracy (938) suggesting that actually such change can happen quite rapidly.

5.4.4 LG1 RMQs

Responses to the first statement⁴², which sets out an MP vision, focus on the impediments to technological development. Essentially, these are EM arguments:

⁴² The Relational Model questions are set out in 5.1.2.

the politicians ought to be able to drive this (EM7.2) but there isn't the political will (999, 1053). Nimbys (EM2.4, 996) also get mentioned as impediments.

The second statement, 'We consume so much that we are ruining the planet. We need to cut back to avoid catastrophic climate change', sets out a CS vision. Miranda agrees with the statement, and roundly condemns modern consumerism: "It's like people just buying so stuff that, half of it they don't need" (CS 3 *overconsumption*). However, others question the word 'catastrophic' (Peter 1085, Nigel 1111). Walter expresses the dilemma clearly:

LG1.1135

Walter If you agree with the first statement, that Man will discover a new fuel or a different fuel or many different fuels then you disagree with the second one because you say they won't allow it to become catastrophic.
(MP 5 man adapting, 8 faith in technology giving a positive outlook).

Miranda and Walter fully understand the Commons Dilemma expressed by the EM vision statement. Walter (1189) says if the politicians cannot sort out an agreement it doesn't matter what individuals do and Miranda (1194) responds "But that's their job, isn't it. That's their job to do that. It's our job to do our bit I think" (AR 1.1 *established institutions*, 1.2 *need for government*; CS 2.1 *we can all do our bit*, 8.3 *moral imperative*). The group then gets a bit side-tracked from discussing recycling to debating plastic versus paper bags.

Finally the AR vision statement encourages the group to reprise their EM view that there isn't the political leadership to deal with the problem. "There's no-one in the forefront that is credible that's actually driving this" says Simon (1267).

5.4.5 LG1 C

The facilitator picks up a mention of Copenhagen and asks what participants think will happen there. Instinctive EM responses come first: "all the politicians are all flying over" (1312 i.e. why can't they teleconference? EM7.3); "I really don't think the whole world will ever agree" (1354, EM8, EM 6.2). Peter follows this last comment with the prescient suggestion that it will need the larger nations to sort out something in a smaller forum (AR1), which is essentially how the US and China tried to resolve COP 15 (Environmental News Bulletin, 2009). As often within the focus groups, the underlying structure of the problem is simple, even familiar, and people are easily capable of grasping the issues and the options.

So participants find it easy to define why it is so difficult to make any progress. Because 'we', humanity, are unlikely to solve it, most of the focus groups come to the same conclusion, that it will take an external shock to achieve change. This 'otherises' the responsibility for doing something about it (an EM argument) at the same time as relying on the MP argument that once the situation changes, we will just have to adapt to it. First Nigel and later Simon express this:

LG1.1405

Nigel I know that I'll be crying my eyes out if there is an oil crisis and no petrol around but I think you know that's what this the Western world needs, I really do to you know knock some sense into the politicians from America and Europe and China.

LG1.1568

Simon Unfortunately there must of there has to be a disaster of huge proportions to make people sit up.

The group throws back and forth the CS determination that everyone's got to do their bit (e.g. 1427) against the EM objection that this is hard to take if others do not do their share (e.g. 1443). The AR Standpoint offers two solutions. First, there is the idea that it is responsible to lead the way, something that other groups identify, sometimes reluctantly, as a duty of the better off or of the developed world (LG2.386/969; MG2 1465). Second, there is the idea that faced with a crisis people will accept the need for government to take greater control over their lives. But when this is raised, the obvious objection is immediately apparent. Individuals will still want to pursue their private interests:

LG1.1479

Nigel In a ideal world we need a communist run world not on a Soviet Union Lenin Trotsky Stalin type way but a kind of Danish or Swedish version of Communism. You know, clever people running what could be a more just system, and that probably will take hold one day, probably not in our lifetimes, but you know, a kind of more regulated way, you know, call it Communist call it what you want, really, but there will be a new name for it but it won't be the rampant, er, you know capitalism that we've had from you know America and Europe the last 100 years
(AR 1.2 need for government, 2 regulation, 6.2 expertise, 8 we must manage the future; EM 7.2 why don't they solve it?)

Simon Unfortunately there's greed involved but when there's greed you get capitalism.
(EM8, pessimism; MP 1 private interests, 7 others behaving as rational economic agents).

In the final stages of the group two particular arguments are returned to. First, Nigel uses the idea that experience tells us that social change does happen - this time using the example of the Thames getting cleaned up - to express optimism

that in the long term there will be behavioural change (1549). Simon on the other hand repeats the view that “there has to be a disaster of huge proportions to make people sit up” (1568).

5.4.6 Does the Relational Model framework account for all of the arguments in LG1?

The analysis above shows that the RM framework accounts for many of the arguments used in LG1. But table 5.3 in 5.3.7 shows that 32% of LG1 has not been coded with any Relational Model codes.

This should not be surprising. Participants inevitably digress, and some content is less an argument than statements of (supposed) facts, for example about the weather. The RM framework does not account for statements like “A lot of the estate agents in central London have got electric cars” (448) nor the rather nostalgic discussions about the weather in the old days voiced in other groups. To assess whether the RM framework accounts for content where participants are making arguments about the ‘rights and wrongs’ of climate change, the transcript was analysed into five different categories:

- A. Discussion about climate change with value-based⁴³ content
- B. Discussion about climate change with exclusively factual content
- C. Discussion not about climate change, with value-based content
- D. Discussion not about climate change, without strongly value-based content
- E. Facilitator content.

The table below analyses, by word count, how much of the content in each of the above categories has been coded with one or more RM codes:

⁴³ ‘Value-based’ is taken to reflect discussion both about how things should be (end-states) and also how things should be done (instrumental values) following Rokeach (1973), but it is also extended to cover evaluations of other people. Much of the group discussions takes the form of criticising other people’s conduct. Since the thesis argues that people often let their values influence their view of the facts the boundary between value-based and factual content is inevitably blurred. Even the nostalgic discussions about weather in the old days could be construed as a value-based metaphor for how life generally has changed for the worse.

	Coded with an RM	Coded with no RM	Total
A Category content	8681	849	9530
B Category content	185	698	883
C Category content	557	625	1182
D Category content	0	430	430
Facilitator	571	2088	2659
Total	9994	4690	14684

Table 5-6: London Group 1, level of coverage by Relational Model codes

The area requiring further investigation, ‘A’ category content not coded with an RM code, is highlighted in yellow. NVivo allows for this content to be easily isolated for inspection, and it does not contain arguments that cannot be accounted for using the RM framework. Rather, this content typically represents the borderline cases to be expected in an analysis of this kind. Indeed, during the original coding process, codes for ‘Maybe CS; Maybe AR...etc.’ were used to mark some borderline instances. Of the 849 words identified above, 319 had been coded with such a ‘maybe’ code. Other content, on reflection, probably should or at least could have been coded with an RM; however, the intention was not to force the arguments into the RM framework. Lastly, the coding into categories A to D was spread widely, i.e. passages rather than individual sentences tended to be coded. The RM coding, although sometimes broad (see 5.3.6) was more fine grained: inspection of some passages suggests that if done sentence by sentence some of the Category A content would be recategorised.

The exercise above is necessarily imprecise, but it does support the contention that the RM framework successfully accounts for the arguments used in the debate.

5.5 Relational models analysis: the other focus groups

5.5.1 Appendix J

Each of the other focus groups has been analysed in the same way as LG1. Section 5.2 above sets out the prevailing themes and arguments across the groups without using the Relational Models framework, but it is clear that the arguments identified there will fit the framework.

- 5.2.2 has examples of the groups finding the problem ‘intractable’ essentially captured by the EM Standpoint’s argument that it is all too

difficult, and that their own actions are insignificant, a 'drop in the ocean'.

- 5.2.3 describes how groups often complain about the government but usually conclude that eventually we will have to look to the government to solve the problem. This derives from the AR Standpoint's argument that we must rely on established institutions guided by authoritative experts
- 5.2.4 notes that the groups either explicitly or tacitly assume that 'science will save the planet' (Media Article #112) at various points in the discussion. This epitomises the MP Standpoint's optimism and empirically reasonable view that people do adapt to the changing environment and use their ingenuity to do so.
- 5.2.5 provides examples of participants feeling that they should consume responsibly even if this makes little difference of itself. Both Piers (MG2.493) and Millicent (SG2.927) express the CS Standpoint's view that individual actions become meaningful in the context of the community or group. The tiny 'drops in the ocean' become the ocean.

5.5.2 Equality Matching

Figure 13 in 5.3.7 highlights the strong, sometimes dominant, influence of arguments made from the EM Standpoint in all 6 focus groups. This is true in almost all the individual focus group sections. The following analysis, drawn from Appendix J, shows how the participants express almost the full range of EM arguments in just one section, LG2A:

- EM1, reciprocity: "Tax the car but put that money into subsidising transport or something like that." (Tim 263).
- EM2.1, 'What's in it for me?': "I don't want to be conned by the politicians on the basis of using this as a general excuse for higher taxation and taxation of this that and the other" (Tim 78)
- EM2.2, 'I'm doing my bit': "And I think as much as you try and do your part, like you know we recycle, and, you know" (Mary 100)
- EM2.3c, Commons Dilemma: "but the problem is that people are not united because you've got some countries that want to do it but not others I mean China doesn't do it very much. And then I mean, even just on a local thing, you know you'll have people with, some houses will turn their heating down and others won't care. So it's very hard, you know, if you're doing it to subsidise people who don't care, and it's the same globally" (Emma 338)
- EM2.4, Nimbyism is a quite specific topic which is not mentioned by the group. Nimbys are attacked elsewhere, e.g. MG1.859, MG2.520.
- EM3.1, we're hard done by, and so must be compensated. This precise argument is made in LG2B (597): in Section A the first part is voiced by Solomon's references to the hard time 'genuine people' suffer while trying their best (121, 139) while Tim's demands for fair, reciprocated taxation express the demand for compensation (83, 239, 260).

- EM3.1, polluter pays principle, “I say that may be fair, that may be fair if there’s an issue that, say, cars, planes and what have you are contributing drastically. that may be fair to tax it to reduce it” (Tim 242)
- EM4, unpredictable nature: “I mean you know they say the world’s getting warmer and then last year we had a very cold spell which was much colder than it had been the year before, so it’s just sort of it just contradicts. And then you have your dry summer and then the very wet summer” (Emma 159)
- EM5, people at the mercy of unpredictable nature: “the weather is like really erratic, and I think that’s sort of worrying problem cos there’s no predictability. You know you can’t like people that get their houses flooded, you know every year now and you know they can’t plan for that because they don’t know when it’s going to come, you know, they don’t know when it’s when the wet, bad weather’s coming cos it’s not seasonal” (Mary 182).
- EM6.1, all too difficult: “Um, and I think all the recycling and things I think we get a lot of mixed messages and, you know, we’re told what we should and shouldn’t do. And then, a couple of months later in the paper they tell you that it you know, perhaps you shouldn’t have done that” (Emma 90)
- EM6.2, logic of the Commons Dilemma: “It’s been going on for such a long time, and some countries and some people just dig their heels in and won’t, you know, won’t budge, but then I think on a local level it’s a real hard thing to police, because you can’t just you know go round making people recycle or making people do certain things that will help their area” (Mary 370).
- EM7.1 “Stop bossing me around”: “I think we get told too much [as it is] what we should and shouldn’t do” (Emma 290).
- EM7.2 ‘Why don’t *they* solve it?’: “I do think we should be looking at it a bit more deeper. Scientists should be out there. Um [*pause*] not an individual but quite a few of them. In different parts of the area” (Solomon 222)
- EM7.3 Otherisation, blaming others: “I think what I hears, was, um, the coloured bottles, they get taken to China. Why they spending so much money um? Sending it over there when we can do something over here” (Solomon 119) or “the taxes should be on people that have like one or more, more than one car, or you know, people that take you know Ryanair flights to go away for the weekend, do you see what I mean, like the taxes on things like that should be higher things that are unnecessary.” (Mary 252). It is worth noting that both of these complaints also rely on CS rejection of other Standpoints. Solomon rejects the authorities’ attempts to organise recycling and argues that our community can do better here; Mary rejects the free Market by attacking overconsumption.
- EM8 Outlook: the discussion does not really consolidate into an overall outlook until later in the meeting, when, for example, both Emma and Tim emphasise that they have lost all faith in government (749ff).

This analysis dramatises how stuck many people are with the arguments that flow from the EM Standpoint. When trust in institutions is at a low ebb, and without a sense of communal obligation, people tend to ‘relate’ to others using the direct and simple EM model of reciprocation. They seek the transparency (Fiske, 2004a) that EM offers.

5.5.3 Does the Relational Model Framework account for all of the arguments in these five focus groups?

Section 5.4.6 described the use of broad categorisations of the content to provide a check that the Relational Models matrix had provided an adequate account of the value-based arguments over climate change in LG1. Appendix J applies the same analysis for each of the other five groups. In four of these groups the RM matrix accounted for 90-95% of the content categorised as ‘value-based’ arguments over climate change. In SG1 the RM matrix failed to account for 15% of the content. Reviewing this material provided similar explanations to those in 5.4.6; although neither coding method could be applied with absolute precision, the ‘value based’ content was coded quite broadly - perhaps capturing a whole piece of speech by a participant whereas the RM coding might have more precisely left off a sentence. SG1 has some quite general, even bland, discussion about the alternatives to international travel, or levels of public concern about extreme weather in Australia. Much of this was coded as “maybe an RM”, and over 50% of the ‘value-based’ material not coded with a specific RM argument from the matrix is actually coded as “maybe”.

The principal reassurance that the RM coding matrix provides an effective tool for the analysis of the focus group content has to lie in the reader’s perception of the analysis itself. Is it rich enough, insightful enough? But this coverage test does provide some support that the RM framework is comprehensive and embraces the whole of the debate.

5.6 Focus groups: discussion

5.6.1 What do the focus groups show?

The focus groups reveal the following:

- Climate change arguments are straightforward: participants find it relatively easy to grasp the core issues even as they bemoan the confusing messages they feel bombarded with

- The Relational Models framework suggests different Standpoints have incompatible implications: in spite of these contradictions the participants in the groups tend to reach a shared position on the topic
- Participants demonstrate in their own attitudes that when the topic of climate change becomes personally relevant to them they can change their views: they also expect that others will respond in the same way.
- Although participants generally demonstrate a sober and balanced judgment of the issue, they do also provide examples where common sense generates muddled responses, which often encourage an EM resignation that the problem is just too difficult. This continues the strong influence of the EM Standpoint throughout the groups (see 5.5.2 above).
- Although the problem is difficult, participants repeatedly observe that social change does happen.
- And based on past experience they assume that change will require plenty of central or authoritarian intervention.

Each of these is discussed in more detail further below.

5.6.2 The impact of the focus group format on the results.

Before examining these conclusions it is worth reflecting upon how the focus group format may contribute to the emergence of these results. Section 2.4.2 suggested that the Equality Matching Model had particular relevance for exchanges between strangers, whereby tit-for-tat exchange can facilitate the establishment of a relationship. Grice (1975) argued that conversations, or ‘talk exchanges’, are founded upon a presumption that participants are observing a ‘cooperative principle’ whereby some minimum standards are expected: the to and fro of these focus groups, between participants without much at stake within the subject at hand, might then be expected to constitute a performance of EM exchanges. While relating to their fellow participants on an EM basis, speakers might find EM arguments more accessible.

(Marx, et al., 2007) However, the conversational process might well see a sequential development from EM exchanges towards a consensus of views within the group as they become a group rather than pure strangers. Miles’ mood at the end of MG1 is typical when he says ‘[I] feel it’s been pretty conclusive really’ (1790), even though throughout his has tended to embrace quite different

arguments from the other members (see Appendix J5.1). But by performing something akin to a Communal Sharing exchange of developing a shared position on the topic, this does not mean that CS arguments become more prevalent in the discussion. 5.3.7 identifies that CS arguments are stronger at the start of the group.

Grice also suggests that there are expectations as to the quality of contributions to conversation, e.g. relevance and sincerity. In contrast to the status accorded to expert scientists in the media sample, within focus groups affective or experiential evidence appears to count for more than statistical facts (Marx, et al., 2007), and these groups are no exception (see Appendices J1.2 and J2.2).

As noted in 5.1.3, Bickerstaff and others (2008) point out that the situation of the groups is artificial. They found that for a topic such as climate change participants inevitably saw this as requiring institutional action: within the detached focus groups it is easy for participants to express disengagement or lack of agency, and also to focus on the lack of confidence felt in the institutions upon which they have to rely. Section 5.5.2 showed how all of these essentially EM arguments found expression in the focus groups. Blaming the government as an 'outgroup' is easier than arguing vigorously with your fellow, (i.e. 'ingroup') participants.

5.6.3 Climate change arguments are straightforward

Many of the participants find it very easy to grasp the essential arguments surrounding climate change. They can grasp the implications of over-consumption, and they can engage with the Commons Dilemma. Nearly all recognise the need, eventually, for governmental regulation. This may stop short of sophisticated discussion of marketable instruments and emissions trading schemes, but these are merely means to achieve an objective they usually endorse at some point in the discussion.

The passage in MG1 where Miles works out for himself the solution proposed by the UNFCCC (quoted above in 5.2.3) vividly illustrates the relative simplicity of the issues. The Commons Dilemma of competing interests is easy to understand. Participants also find it quite easy to envisage solutions provided that:

- A. They can frame the solution as win-win rather than foundering on competing interests; in effect ‘win-win’ sidesteps the dilemma,
- B. They can frame the problem definitively without scientific uncertainty, or finally
- C. They temporarily suspend the experience of real world constraints.

A is the argument for ecological modernisation. B is illustrated more often in the negative: participants constantly express the feeling of powerlessness that all the conflicting advice induces. Certainty seems to be a prerequisite for decisive action - a reaction of necessarily adapting to known and certain changes in the environment; uncertainty engenders passive resignation. C is also more often illustrated in the negative: participants bewail the lack of alternatives. When they believe in limitless possibilities, as SG2 does when the group envisages an almost infinite improvement in the generating capacity of solar panels, solutions seem easy.

5.6.4 In spite of the contradictions, people reach the same conclusions

Although the overall tone of the groups varies, they typically reach the same resolution. The CS and EM Standpoints can only be reconciled through imposition of AR measures, i.e. regulation, environmental stewardship and ‘telling people’ what to do based on sound science⁴⁴. This resolution mirrors the structure of the UNFCCC process, except that the latter is better described as a resolution between the competing visions of the CS and MP Standpoints.

While participants can follow the arguments through to this conclusion, time and again the EM Standpoint shakes their trust: many are reluctant to surrender to restrictions or costs imposed by authorities they do not trust, and based on expert science they are unclear about. Their belief that they will get nothing in return violates the EM Standpoint’s sense of justice.

Further, all participants live the Commons Dilemma, in the sense that all participants live on a commons landscaped by modern consumption habits and supply chains. It is then almost a matter of mood, personality and contingent circumstances whether or not one feels excited by opportunity (nothing will stop SG2’s Millicent going to Africa) or crushed by too much choice (LG2) and the

⁴⁴ Other than the students, the groups assume this is achieved by imposing price increases or restrictions, not by emissions trading and solutions based on Marketable instruments.

ubiquitous impossibility of reconciling ‘living well’ (comfortably) with ‘living well’ (morally).

5.6.5 Personal relevance brings about change

Douglas & Wildavsky’s (1982) original formulation of Cultural Theory proposed a Centre that combined the AR and MP equivalents (hierarchical and individualist) and a Border. Thompson & Rayner’s (1998) Cultural Theory account of the climate change debate portrayed a competition between egalitarian (CS) and individualist (MP) arguments to capture the AR ‘status quo’ to form the Centre. The account explicitly excluded the fatalists (EM).

Such an analysis clearly cannot account for these focus group participants, who frequently experience the problem as ‘all too difficult’ (EM6.1). Living on the 21st Century developed world ‘common’, they want to be able to travel to where they want to travel even though good manners tempers the strength with which they assert this. At the same time, when they have direct contact with Australian bushfires or think about how the world may be when their own children or grandchildren are grown up, they believe something needs to be done.

The average citizen, on the Border, can now respond in two ways when the issue gains this personal salience. The focus groups suggest they do a bit of both:

1. Logically, voluntary restraint makes no difference, so they may indeed feel that it is ‘all too difficult’; they can either express this assertively, rejecting constraints by others and proud of their own agency (MP), or they can blame others and bewail the lack of alternatives while carrying on as before (EM).
2. If the personal relevance of anticipated environmental consequences is strong enough, then the group identity of all being in it together flows from this and, morally, voluntary restraint feels necessary, irrespective of efficacy (CS). But participants recognise that we need a ‘smack in the face’ (MG2.535) to create this personal relevance.

Going to the next stage, each of the MP, EM, CS Standpoints is likely to look to government to address the problem according to its own prescription. From the MP Standpoint, this demands the AR Standpoint’s commitment to ‘business as usual’, to preserving the status quo if possible and adapting to changes (MP5) as they occur. From the EM Standpoint, powerless individuals look to those in power to look after them (AR7.2). From the CS Standpoint, the authorities need to

impose regulations (AR2) so that individual voluntary actions are built on with involuntary ones.

So it is perfectly possible to experience the personal relevance of climate change, Australian bush fires for example, or Hurricane Katrina, and remain committed to adaptation and Market solutions. Indeed, the MP Standpoint prides itself on being tough-minded: being ‘Scared to Death’ (Booker & North, 2007), amidst prophecies that today’s fires and floods are only the beginning, is irrational. The Focus Group reviews find that individuals are reluctant to voice the bull-headed optimism that such media pundits relish. When group participants do, the blindness of the faith that it will turn out alright is all too plain, as when geography teacher Troy (MG1.225) suggests that nature always has a way of balancing things out, and maybe there will be a volcanic eruption to cool things down if global warming goes too far.

5.6.6 Common sense has its limits

Troy’s benign volcanic eruption is a useful caution: the common sense of the focus group members has its limits. They do muddle up some of the concepts as well. Environmental activist Millicent (SG2.120) is clearly confused about the relationship between the ozone hole and global warming, and other participants elide the two issues (Peter and Simon LG1.91/101).

Participants also reference the 2004 tsunami as being in the same category as climate-induced natural disasters. They know this is not strictly correct, but they nevertheless feel that these disasters have a similar meaning (SG1.1001; MG1.441; MG2.558). This is really a case of the availability bias (Tversky & Kahneman, 1982a), which the participants most obviously display when they talk about the weather. This is a further case of personal relevance generating the meaning that phenomena have for people. Inevitably common sense then deviates from a scientific determination of the implications of the same events.

This divergence is particularly obvious when the discussion turns to the role of agriculture. Participants simply cannot grasp the idea that ‘population X affluence = more livestock = more emissions’. The idea that ‘we should all become vegetarians’ (SG2.298) seems so preposterous that common sense flies out the window. ‘So should we be getting rid of the pets not the cars?’ (MG2.1073) typifies the response: asked to change too much and people simply think it is

absurd. The dominance of the EM Standpoint convinces them that radical changes (1) are too difficult, and (2) mean that they will give up something for nothing.

5.6.7 Accounting for social change

Yet, empirically, change does happen. This is frequently acknowledged in LG1, but also gets recognised elsewhere (e.g. people are less likely to litter now, MG1.677). Participants have a conventional, AR-based, view that other countries need to be educated (LG2.922), and that the next generation needs to be socialised to be less wasteful than our own generation (SG1.1006; MG2.345). Quite apart from again reaching for an AR solution, this response is almost the ultimate 'otherisation'. Both our generation and the developed world are unable to do anything about climate change, but perhaps others may do better.

In MG2, Piers takes the view that the climate is not going to change soon enough to affect them: the threat has no personal relevance (439/464). From this EM Standpoint ('What's in it for me?'), it is easy to see why participants are ready to leave the problem to the next generation.

5.6.8 Predicting how society will tackle climate change

Participants also implicitly recognise that each Standpoint has its own explanation for how society, and the other people in it, behaves. From the MP Standpoint, responding to the 'smack in the face' is not an expression of communal identity but rather self-interested adaptation to changing circumstances (MP5). Participants see that the behaviour of society mirrors that of people. The logic of the Commons Dilemma applies internationally at the COP15 meeting as much as it does to participants' own consumer choices. At the national level, until London floods, politicians will not have been smacked in the face and nothing will happen (MG2.728).

The focus groups suggest that the personal relevance that will bring about change in response to global warming is the experience of new environmental constraints, the smack in the face that floods might represent. This is an EM, defensive, response, not an MP individualist grasping new opportunities. Policy advisers speaking on climate change emphasise the need to be optimistic (Sachs, 2008, Ch14; N. Stern, 2009a, Ch 10). The nay-sayers must be resisted and a positive future promised because fear-inducing messages do not work. Clearly, fear inducing messages do not work in a social environment where trust in expert

messages is so low, and when the personal relevance of the consequences of climate change seems so remote. But the focus groups' understanding of personal relevance suggests that *only* (credible) fear-inducing messages will work, eventually. Logically, this requires a change in the social environment, and possibly the physical environment too. Chapter 7 will consider further exactly what this means.

5.6.9 Results of other focus groups

Many of these findings have much in common with the barriers to engagement that Lorenzoni and others (2007) found in their groups⁴⁵. Their list included, inter alia, the following (p450-451 - their text in italics):

- *'Uncertainty or scepticism'*: see 5.2.6 and 5.6.3 for emergence of these in the groups here
- *'Distrust in information sources'*: see 5.2.7, as well as the confusion of all the conflicting views (Appendix J5.2) echoing *'lack of knowledge'*
- *'Externalising responsibility and blame'*: there is plenty of blaming America or China in these groups; see also 5.2.3 on expecting the government to solve it, although this is balanced by the repeated expression of loss of trust in government, not only in respect of the information given but in the likelihood they will do anything (5.2.7, echoing *'lack of political action'*). Within these focus groups this 'externalising' goes further: participants frequently take the view that only some 'external' shocks (e.g. extreme weather events) will be enough to spur mankind into action (5.4.5).
- *'Technology will save us'*: see 5.2.4
- *'Climate change is a distant threat'*: 'not in my lifetime' is a common refrain in the groups (e.g. MG2, Bill, Piers). Although often countered by concern for one's children (e.g. LG1 Miranda; MG1 Clare; MG2 Jim, Jayne) this still places the personal relevance at one remove: Walter (LG1) explicitly says we seem to be happy to leave them with the problem.
- *'Fatalism'* (see 5.2.2)
- *'"Drop in the ocean" feeling'*: the groups constantly identify the structure of the Commons Dilemma, and the insignificance of their own

⁴⁵ It should be noted that these authors generated their list from a multi-method study that included focus groups and interviews with group participants.

consumption, as a major barrier (see 5.4.2, 5.4.4): but they are also capable of turning it on its head. Millicent in SG2 points out that the drops in the ocean are the ocean (5.5.1), and Amber counters the argument that there is no point herself turning the lights off by asking what if everyone left the lights on (Appendix J1.2)

- *'Lack of action by business and industry'*: this is most obviously expressed by the campaigning Millicent in SG2, but others castigate big business too (e.g. LG1: Miranda, Simon) and the non-Student groups are rarely far away from moaning about 'bankers'.
- *'Reluctance to change lifestyles'*: the difficulty and cost implications of a green lifestyle are debated exhaustively in the groups. SG1, SG2 and MG1 all conclude that for some things you just have to fly. This links to *'lack of enabling initiatives'*: MG1 joke about the state of the bus services in Manchester.

That these 6 groups echo so many of the findings in other studies should be no surprise. As discussed in 5.6.3, the arguments are largely a matter of common sense.

5.6.10 Focus groups: conclusion

The conclusion to the focus group analysis accords with the conclusion in Chapter 4 to the Media analysis. Fiske's (1992) Relational Models Theory suggests that all individuals will be able to access and make use of the four models. The group participants do that; although some tend to favour the arguments flowing from a particular Standpoint, no one is clearly refusing to endorse any of the arguments from each of the other Standpoints.

Fiske (2004b) goes on to suggest that culture prescribes which Model is appropriate to a particular context. As a relatively novel problem, it is clear that participants can see ways in which all four Models might be appropriate bases from which to address the challenge.

The analysis based on the Relational Model matrix provides a rich and effective account of the participants' debate. The focus groups vividly illustrate the power of the Equality Matching model. Sadly they also seem to validate the pessimism that forms its outlook.

Chapter 6 Analysis of Survey Data

Chapter Outline

This chapter has 7 sections:

1. Purpose of the surveys
2. Survey procedures
3. Outline description of the results
4. Multivariate Analysis 1
5. Multivariate Analysis 2
6. Individual use of multiple relational models
7. Discussion.

Three internet surveys of individual attitudes towards different arguments about climate change were conducted. In the first, testing the functionality in a pilot survey, 101 respondents were recruited by snowballing. Two further surveys were conducted with respondents recruited through different paid agencies. The combined 578 responses from these two surveys are used in this analysis.

6.1 Purpose of the surveys

6.1.1 Introduction

The surveys were originally set up to provide examples of individual reasoning about climate change. Relational Models Theory proposes that individuals use the 4 different RMs to address social issues. Following the methods adopted in many other surveys and discussed below, individuals were asked to respond to arguments within the climate change debate. Individuals' responses were analysed with a view to mapping the underlying patterns, specifically to identify the level to which individuals tended to favour arguments expressive of specific RMs.

A conventional survey might have hypothesised that the 4 Relational Models are latent factors driving individual responses. The indicators for the latent factors are derived from factor analysis of prior surveys designed to generate a set of scale indicators that can be reused in subsequent surveys (e.g. Gastil, et al., 2005) However, RMT clearly anticipates that individuals utilise multiple RMs when faced with social issues. Furthermore, Fiske argues that the prevalent culture will prescribe which RM should be used in a given context. Climate change is a

contested issue. So it is likely that individuals may still be uncertain which RM they prefer to apply, or that they are expected to apply. Previous surveys found that individuals tried to frame the issue in terms of other, familiar issues such as the ozone hole or pollution. Applying such familiar, but ill-fitting frameworks, can lead to misconceptions (Kempton, 1997; Leiserowitz, 2005). We should expect therefore that individuals will take time to resolve how to frame the issue, and which RM would be the most appropriate to apply when making sense of the challenge of climate change.

These considerations will exert divergent influences on individuals' responses. On one hand, RMT argues that individuals' responses will demonstrate a clear pattern of adherence to one or more Relational Models and rejection of others as inappropriate to the issue; on the other, the theory anticipates a more complicated picture in which individuals entertain conflicting arguments based upon different RMs while they have not resolved the issue. Previous surveys have demonstrated the dissonance in peoples' views (e.g. Christie & Jarvis, 2001; Ipsos-Mori, 2008) and these internal inconsistencies may well be repeated. Zaller and Feldman (1992) argued that people do hold conflicting positions on important issues. Yet this does not have to mean that people's views are incoherent, as Christie and Jarvis (2001) concluded. RMT suggests people are likely to be consistent in their inconsistencies - if they favour arguments based on one RM, they will probably favour other arguments based on the same RM even though they may also agree to conflicting arguments based upon other RMs. To reflect these considerations the analysis of the survey seeks to confirm some of these expectations (spelt out more clearly below).

6.1.2 Levels of explanation

Chapter 3 justified the selection of the three empirical methods used in this thesis. The media sample and focus group interviews were taken as proxies for the climate change debate at the societal level and inter-personal level respectively. The survey has been used to address individual level reasoning in the climate change debate: the survey statements are taken as proxies for the considerations that Zaller and Feldman (1992) argued lie behind people's attitudes to important issues.

Chapter 2 addressed the difficulty faced by this thesis, along with the many previous theories, in arguing that societal level shared understandings of

phenomena are present or mirrored in individual level reasoning about those phenomena. It is necessary to assume that this is the case, without being able to propose a *mechanism* whereby this is achieved. Further, the methods used to address the different levels necessarily differ and are often felt to be incompatible.

6.1.3 Psychometric tests

Chapter 2 identified the competing traditions to be found in research into public understanding of risk. Risk can be treated as the real probability of outcomes in the physical world; alternatively, it can be treated as an attitude, whereby individuals believe and feel, or perceive, something to be a risk (Slovic, 1987). In the former, risk is assessed using the natural sciences and is treated as susceptible to objective measurement⁴⁶. In the latter, risk perceptions are treated as susceptible to biased individual responses, and/or societal construction. Individual attitudes are tested using psychometric testing. Societal influences on what issues are treated as risks are investigated through diverse methods such as media analysis or case studies.

These different traditions make different assumptions regarding the nature of risk, and hence the appropriate methods with which to analyse risk. These three surveys are psychometric tests of individual responses to arguments typical of the climate change debate. Just as the thesis cannot offer a mechanism to connect the individual level and societal level phenomena at the theoretical level, at the methodological level the thesis avoids reconciling the competing commitments of the different traditions (see section 2.2.5).

6.1.4 The objects under investigation

This ‘evasion’ is important. Other surveys, by researchers using Cultural Theory, aim to show that ‘worldviews’ in some way determine specific attitudes such as risk perceptions. Dake and Thompson (1999) sought to show worldviews driving consumer preferences, and compared measures of ‘cultural bias’ (p422) to household behaviours. More recently, Kahan and colleagues have used surveys to attribute worldviews to respondents and then to examine whether risk perception appears to be driven by worldviews (Gastil, et al., 2005; Kahan, et al., 2007).

⁴⁶ For example, the IPCC’s assessments base predictions of future climate change, and the risk of particular scenarios materialising, upon a wide variety of physical science data (IPCC, 2007).

Leiserowitz (2006) too used elements of Cultural Theory within a collection of independent variables to explore factors underlying risk perception and policy preferences.

This survey takes a different approach. Selecting arguments from the climate change debate that are representative of the different Relational Models, it assesses whether individual respondents find that these arguments represent coherent 'Standpoints'. The survey *only* has questions connected to the climate change debate. Therefore the survey does not use independent questions to attribute a worldview, or dominant Relational Model, to each individual and then compare this to attitudes to, or risk perception of, climate change. The key question underlying the survey is the extent to which individuals may have coherent Standpoints in respect of the specific topic of climate change.

6.1.5 Survey research questions

The survey questions themselves represent statements typical of arguments found within the media content and focus group interviews. In addition several statements drawn from other surveys were added. The question sets are used to address the following research questions:

- A. Do the survey responses form coherent Standpoints based upon the Relational Models?
- B. The Media analysis and the Focus Group interviews both emphasise the role of the Equality Matching Standpoint: is this evident in the survey?
- C. Do individuals entertain multiple Relational Models?

Questions A & B are addressed by three separate multivariate analyses. Attitude surveys sometimes use factor analysis to infer latent variables such as environmental values or behaviours (e.g. Dietz, et al., 1998; Stern, et al., 1999). Others proceed without the factor analysis but develop indicator variables to generate scale measurement of such implied factors (e.g. Stern, et al., 1986). Although this thesis proposes that in some sense individuals use Relational Models to make sense of the world, the purpose of the survey is not to show that the RMs exist independent of the context to which they are being applied. This chapter describes both exploratory and confirmatory factor analyses of the survey responses that explore whether the responses are organised along the relational logic of the four different RMs.

The value of these analyses is twofold: in part they situate this survey alongside previous research, in part they do provide tentative conclusions that a more finely tailored survey might be able to develop. However, the patterning of responses is more clearly illustrated and communicated by a cluster analysis and this forms the central part of this chapter.

Question C has been addressed through answers to 12 questions which forced respondents to choose between different statements based upon Relational Models.

6.2 Survey procedures

6.2.1 Respondent selection

Two marketing agencies were used to recruit respondents over the internet from their pre-existing contact base. Saros Research is a typical market research agency, delivering focus group and other feedback material principally to corporate clients (www.sarosresearch.com). Maximiles is a web-based shopping aggregator, running reward programmes. The company claims a UK survey panel of nearly 1m panellists (www.maximiles.co.uk). Both agencies were paid for the recruitment. Saros participants were offered participation in a prize draw with 3 £100 prizes drawn for 150 participants (run in accordance with the Market Research Society's code of conduct). Maximiles' panellists are rewarded with points on their loyalty account.

Both agencies ran the survey in mid-October 2010, obtaining their respondents in a matter of days. Maximiles originally made a screening error in sending out their invitation to participate, resulting in the first respondents, approximately 100, all being men. They extended the survey beyond the contracted 250 to compensate but the final male/female split in their survey was 60:40. The Saros gender split was the reverse.

The online survey was hosted by the Institute of Social Psychology at the London School of Economics and so could be monitored on a continuous basis.

6.2.2 Survey format

Appendix K provides a copy of the survey as presented to Saros' respondents. The survey did not allow respondents to proceed without completing each page, and respondents could not go back to previous pages.

After the opening research consent form and explanation of participants' rights, respondents proceeded to 41 statements using a standard 7-point Likert scale (1=Disagree very strongly; 2= disagree strongly; 3= tend to disagree; 4= neither agree nor disagree; 5= tend to agree; 6= agree strongly; 7= agree very strongly).

The second part of the survey paired 24 of the earlier statements and asked respondents to choose the one closest to their own opinion. Finally, respondents were asked to imagine two specific possible challenges in the future and to choose one of three policy options that they thought would work best in the UK. The first was 'a shortage of key materials, energy and foodstuffs'; the second was potential '[migration] from the hardest hit areas to less badly affected countries, including Britain.'

The survey concluded with five demographic questions and an invitation to comment: 61 out of 578 respondents left comments, ranging from 'very interesting' to long diatribes.

6.2.3 Representativeness of the two internet surveys

Sourcing the survey respondents through agencies probably provides a more representative sample than snowball or student registers, but membership of the agencies' panels is a filter in itself and panel members then choose to participate or not, providing opportunities for self-selection bias (Alreck & Settle, 1985, Ch3).

Quite apart from the initial gender screening error by Maximiles, the motivations of the panels run by the two different agencies are likely to be different: the people who put themselves forward for paid market research and focus groups are likely to differ from those interested in shopping loyalty reward schemes. Apart from gender, the other noticeable demographic difference between the samples is that the Saros set is more urban than the Maximiles set (see below). However, for some response variables 'Source', i.e. which survey group a respondent belongs to, is statistically significant when analysing variances in responses. Usually

gender, age or education has a greater effect, but ‘Source’ sometimes remains significant even when controlling for other respondent characteristics.

The differences between the two samples indicate that they are not fully representative of the population as a whole: we cannot make generalised conclusions about the proportion of the population that would agree with, e.g. Q13 ‘I’m fed up with being lectured by all sorts of public figures about what I should do to combat climate change’.

However, the main purpose of the survey is not to make such generalisations but to identify repeated patterns of responses, but to explore the patterns of associations across the responses. The analysis therefore concentrates on the combined sample of 578 responses. A comparison between the results for the two samples is given.

6.3 Outline description of the results

6.3.1 Introduction

This section provides descriptive data for the survey. 29 of the 41 questions in the first part of the survey have been coded in Appendix L according to the Relational Model matrix used in the Media and Focus Group analyses⁴⁷. This shows that the Arguments identified in the qualitative studies are well covered by the survey questions, but it also makes clear that some of the questions carry elements of more than one RM and may prove ambiguous. As will be seen, some questions are more successful than others at capturing the intended essence of the Relational Model. Subsequently these questions are referred to as the 29 Relational Model questions to distinguish them from the other 12 questions, discussed below.

This section briefly outlines the demographics of the survey respondents and then provides descriptive statistics for the responses to each of the 41 questions in the first part of the survey. A more detailed discussion of these, along with the full question wording, is provided at Appendix M.

⁴⁷ Section 3.2 explains how the Relational Model matrix was created in successive stages of refinement. The survey questions were formulated after most of the coding of the media articles and focus groups had been completed but before finalisation of the matrix. The coding exercise shown in Appendix L, applying the final matrix to the survey questions, serves to check that the survey covers the final set of arguments specified therein.

6.3.2 Demographics

Appendix N schedules the demographics of the 578 respondents, in total and analysed between the two different surveys. These can be summarised as follows (figures in brackets are percentages):

- There are 314 men and 264 women (54:46)
- 279 respondents were less than 46 years old, 299 were over 45 (48:52)
- 296 had a full college degree or higher educational qualification, 282 stopped education either at school or before completing a degree (51:49)
- 345 reported a household income of up to £40,000; 233 reported higher income (60:40)
- 269 said they lived in a big city or the suburbs of one; 226 said they lived in a smaller urban environment and 83 in a rural one (47:39:14).

The only differences between the two surveys that stand out upon inspection are gender (see above, Saros 38:62; Maximiles 60:40) and a more urban concentration in the Saros sample (60:29:11). Crosstabulations of the demographic variables do not reveal other noticeable concentrations in either of the two surveys.

6.3.3 Level of agreement to 'Relational Model' Statements

The descriptive statistics are summarised in the following table:

Relational model based questions	Descriptive statistics			
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
AR 1: Cutting waste & efficiency will help alot	5.32	1.081	13%	1%
AR 10: Need to reduce world population	5.19	1.252	19%	1%
AR 18: Need targets based on sound science	5.04	.991	7%	1%
AR 24: Problem for governments not individuals	3.44	1.353	2%	8%
AR 29: Need the UN to create co-operation	5.02	1.127	11%	1%
AR 32: Need strict regulation on consumption	4.41	1.289	6%	3%
AR 36: Politicians and scientists have a key role	5.27	1.043	13%	1%
<i>Average AR score</i>	<i>4.81</i>		<i>10%</i>	<i>2%</i>
CS 3: There are limits	4.62	1.411	9%	3%
CS 7: Not fair to leave to future generations	5.45	1.244	24%	1%
CS 23: UN etc will be gradulist, and not enough	4.71	1.071	6%	1%
CS 25: Major change in consumption/lifestyle	4.97	1.260	11%	2%
CS 27: We're all human; rich must help poor	5.13	1.200	16%	0%
CS 37: Helping environment is right thing to do	5.86	1.070	35%	0%
CS 41: Need to accept lower economic growth	4.81	1.276	11%	1%
<i>Average CS score</i>	<i>5.08</i>		<i>16%</i>	<i>1%</i>
EM 9:CC threats are unpredictable:so uncontrollable	3.83	1.334	3%	4%
EM 13: I'm fed up with lectures about CC	4.04	1.648	8%	7%
EM 19: Other's won't do much, so I won't	3.31	1.454	2%	12%
EM 21: Fuel expensive already, so no more taxes	4.83	1.699	21%	5%
EM 26: I don't trust govt to solve CC	4.95	1.229	14%	0%
EM 33: I'm more likely to act if it saves me money	5.25	1.136	15%	1%
EM 38: Country must look after own citizens first	4.39	1.395	7%	3%
<i>Average EM score</i>	<i>4.37</i>		<i>10%</i>	<i>5%</i>
MP 6:Science will solve CC; no need to change	2.98	1.238	1%	12%
MP 11: Need to empower everyone to make a diff	5.11	1.075	10%	1%
MP/AR 16:Govt incentivise techno innovation	5.13	1.208	15%	1%
MP 17: Econ growth essential to help enviro	4.34	1.150	2%	3%
MP 20: As climate changes we'll adapt	4.42	1.159	3%	2%
MP 28: Empower people to save energy	4.97	1.018	9%	1%
MP 35: Fut generations better placed to address CC	4.24	1.170	2%	3%
MP 39: Higher prices to encourage innov/efficiency	3.06	1.454	1%	20%
<i>Average MP score</i>	<i>4.28</i>		<i>5%</i>	<i>4%</i>

Table 6-1: Descriptive statistics for statements based on Relational Models

Appendix M discusses this data: a detailed consideration of the statements, and respondents' attitudes to them, indicates how sensitive to the precise wording of the statements many of them are. Some, such as AR1, offer bland statements of common sense which are easy to agree with. Others, such as CS7 and CS37 are

framed in terms of a morality few seem to want to argue with and these statements show the highest level of agreement: by the opposite token, some statements such as EM19 or MP6 seem to be too brazen, and respondents feel uncomfortable asserting those arguments strongly⁴⁸.

The greater difficulty is that some statements prompted anomalous responses, either because they expressed composite arguments whereby respondents might agree with one part but not the other (e.g. AR24, CS23 or EM26) or alternatively they introduced issues, such as high fuel prices (EM21), population control (AR10) or trust in government (EM26), that had powerful resonance beyond the topic of climate change. Still others such as MP17's assertion that 'economic growth is essential to give us the means to solve the world's environmental problems' seem to engender an ambivalence respondents do not resolve. Accordingly in some of the following analyses some of the indicators have been omitted: these are clearly identified in each analysis.

6.3.4 Level of agreement within each Relational Model statement set

The table below indicates the average of the mean scores for each statement set: scores above 4 therefore record a greater tendency to agree with the statement, below 4 indicates a greater tendency to disagree:

Mean Scores	Maximiles	Saros	Full survey
AR questions	4.80	4.86	4.81
CS questions	5.06	5.12	5.08
EM questions	4.45	4.16	4.37
MP questions	4.29	4.25	4.28

Table 6-2: Level of agreement with sets of Relational Model statements

The difference in mean scores between the different surveys is statistically significant for the EM questions ($t=2.309$; $p=0.02$) but not for the others.

6.3.5 Level of agreement with the remaining 12 statements

The table below provides descriptive statistics for all of the other questions:

⁴⁸ The tendencies will reflect a degree of social desirability bias (Alreck & Settle, 1985, Ch4), although much of the methodological literature concentrates on the bias operating with responses to an interviewer, when concern for appearances might be stronger (Fowler, 2008, Ch6).

Statements not based on Relational Models	Descriptive statistics			
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
<i>Miscellaneous statements</i>				
Misc 2: The threat of GW probably exaggerated	3.87	1.544	3%	9%
Misc 5: I don't know who to believe	4.19	1.434	5%	5%
Misc 12: People worry too much about environment	3.13	1.426	2%	15%
Misc 14: It's a scientific fact that CC manmade	4.43	1.502	8%	5%
Misc 22: People will only act when selves affected	5.31	1.027	13%	0%
<i>Averages N/A: polarity of 14 reverse of 2,5,12</i>				
<i>Likely level of impact from CC by 2050</i>				
Impact 8: Unlikely CC catastrophic for UK	3.83	1.317	3%	5%
Impact 31: CC catastrophic for some countries	4.83	1.351	13%	1%
Impact 34: CC in other countries will knock on to UK	4.49	1.205	5%	1%
<i>Averages N/A: polarity of 8 reverse of 31, 34</i>				
<i>Have/will others/you taken steps to reduce impact on environment?</i>				
Actions 4: Last 5 years people I know have reduced	4.49	1.201	3%	1%
Actions 15: Next 5 years I expect others will reduce	4.47	1.078	3%	1%
Actions 30: Last 5 years I reduced	4.89	1.183	8%	1%
Action 40: Next 5 years I will reduce	5.00	1.126	11%	1%
<i>Average</i>	<i>4.71</i>		<i>6%</i>	<i>1%</i>

Table 6-3: Descriptive statistics for statements not base on Relational Models

The clearest message from these answers is that people are not particularly sceptical. This accords with other recent surveys (e.g. Poortinga, et al., 2011; Whitmarsh, 2011). A reliable scale can be created based upon Statements 14, 31 and 34 and the reversed responses to 2, 5 and 12⁴⁹ where low scores indicate scepticism and high scores denote belief in AGW. Mean score on this scale, referred to below as 'ScepticsBelievers' is 4.43, and the Cronbach's alpha is 0.872.

6.3.6 'Market Pricing' statements represent two opposed positions

The MP Statements present a more heterogeneous pattern than the previous three groups. Appendix O shows a correlation matrix for the eight MP Statements, revealing two distinct groups (6, 20, 35 in the first; 11, 16, 28 in the second), and two Statements (17, 39) less closely correlated than the others.

⁴⁹ Statement 8 correlates highly with the other statements, but logically people could regard AGW as serious while disagreeing with this Statement, so it has been omitted from the scale.

Although MP6 provoked the highest level of disagreement out of all the RM Statements, while on average respondents tended to agree with MP20 and 35, these three Statements all positively correlate (average co-efficient is 0.342, all $p < 0.01$); likewise Statements 11, 16, and 28 (average co-efficient 0.396, all $p < 0.01$). These two groups, when combined as composites, are negatively correlated (-0.257, $p < 0.01$). The first group expresses a laissez-faire philosophy: we should ignore climate change because we can deal with it as and when we have to. The second group expresses MP's confidence in individual efficacy in a different way: it takes the challenge seriously but emphasises the importance of empowering individuals to deliver solutions. Subsequent discussion will refer to these two positions as 'MP Laissez-faire' and 'MP Empower'.

6.3.7 Why is the Market Pricing Standpoint ambivalent?

This ambivalence to the Market Pricing Standpoint surfaced in the Media analysis (sections 4.7.5, 4.7.6). Market Pricing argues that we should adapt nature to our purposes, but also adapt to changes in nature if we have to, and the Standpoint combines this proactive and reactive relationship to nature (as for example in John Maddox's discussion of climate change, #17). Section 1.3.5 also identified the blurred distinction between mitigation and adaptation. Mitigation may be trying to prevent future problems, but it is an *adaptation* to the changing outlook, an outlook largely determined by extrapolating (empirically observed) past changes into the future. From the Standpoint of MP, all action is adaptation to changing circumstances based on rational assessment of the circumstances. The Focus Groups frequently argued despairingly (see 5.6.6) that only a smack in the face would be enough to get mankind to believe that circumstances had changed enough to force man to adapt. The MP Standpoint casts this more positively (as in Statement 20: "As the climate changes we will adapt accordingly") but the logic of adaptation is the same.

Given this understanding of the Market Pricing Standpoint, it follows that the Standpoint offers divergent responses depending upon what the circumstances are judged to be. If one believes AGW is a serious problem, the hard-headed approach is to deal with it head-on. If one believes either that it is nonsense, or that the jury is out and we do not yet know enough about AGW, then the rational response is to expect future generations to address the problem if and when it materialises. Following Cultural Theory, it may be the case that a strong believer in mankind's technological progress is less likely to believe AGW is a problem because of the

confidence that we will adapt when necessary. Surveys have shown that individualist ideology is predictive of greater scepticism about AGW (Gastil, et al., 2005; Leiserowitz, 2006). But, since the survey does not independently determine ideology, this is not the question here. Rather, the question is, if one thinks AGW is real, how can this be assimilated within the types of argument favoured by the Standpoint. On the other hand, if one does not think it is real, how is that alternative point of view assimilated? Fiske (2004b) argued that culture prescribes which RM to use in which circumstances: but these studies show that the RMs themselves also prescribe different responses to different circumstances.

6.3.8 Survey limitations

These opening observations indicate that that the survey will have difficulty unpicking the role of the Relational Models in the response set. Cultural Theory suggests that the RMs, like worldviews, will influence how individuals define the context (the issue of climate change) towards which the tested attitudes are directed. The survey shows that the definition of the context influences how individuals respond to the problem. This circularity necessarily proves difficult to unravel, given that the survey provides no test to identify the RMs independently.⁵⁰

The survey would have benefited from item analysis and progressive refinement of the question set. A number of statements appear to combine the logic of more than one RM, or to embed the rejection of a different RM, multiplying the factors that may underlie individual responses to particular statements. The interaction between the statements is discussed further in section 6.7.

6.4 Multivariate Analysis 1

Sections 6.1 and 6.2 above explained that the survey was not constructed to yield independent factors for the 4 Relational Models. However, three multivariate procedures have been applied:

- An exploratory factor analysis investigates the factors underlying respondents' beliefs about the challenge of climate change, without assuming these to be organised according to the RMs.
- A confirmatory factor analysis tests whether a framework based upon the RMs does capture some of the variation in the responses.

⁵⁰ Independent in the sense of being independent of the climate change debate

- The initial descriptions of the data suggest that there is plenty of ‘noise’ in the survey: for this reason a cluster analysis serves to communicate a clearer account of the patterns in the responses.

Section 6.4 covers the factor analyses while section 6.5 reports the cluster analysis.

6.4.1 Exploratory factor analysis (‘EFA’)

An EFA of the 29 questions based on the Relational Models is presented in Appendix Q. The Appendix provides a commentary on all five factors in the model, but this analysis focuses on the first two. The first represents what could be termed a ‘Mainstream’ view of climate change and the potential solutions to it (that it is/isn’t a real threat, and it is/isn’t something that society will have to prioritise). The second represents a response that we should/shouldn’t ‘Reject and ignore the issue’.

Using alternative models in the EFA typically reveals these same two factors, but additional factors over and beyond the first two depend upon the precise specification of the model being tested. The two statements addressing the use of prices to tackle climate change (EM21 and MP39) typically reveal a factor for endorsement/rejection of higher prices (as in Factor 3 here), but different specifications (e.g. different numbers of factors) vary considerably the pattern of statements with which these indicator variables combine to reveal latent variables. The factors revealed are also highly sensitive to changes in the set of indicator variables selected from the 41 survey statements: for example the ‘Action’ statements (4, 15, 30, 40), when included, reveal a factor essentially about action. The review in 6.3 of the Relational Model indicator variables found that many of them combined climate change arguments with other ideas: hence, they are likely to complicate the factor analysis.

Nevertheless, the analysis offers two clear conclusions. First, latent variables do not emerge separately in line with the 4 RM Statement groups, using EFA. Second, two particular factors suggest a level of complexity underlying attitudes to the challenge of climate change and the division between those engaging with it and those not. The two factors demonstrate that level of belief in the phenomenon of AGW, in the sense of a uni-dimensional rational judgement as to whether the phenomenon is real, oversimplifies the divisions within the response set. The first

two factors, one giving a level of commitment to a ‘mainstream approach’, the other giving level of adherence to ‘rejecting and ignoring’ the issue, are not part of one dimension but are distinct. After extraction, the model rotation is designed to identify distinct factors with a clear interpretation: the oblique rotation applied here allows factors to correlate, but these first two factors are only weakly (negatively) correlated. This demonstrates that respondents can and do take diverse combinations of positions on the two factors. Reviewing the items with high factor loadings, it is clear that this continues the picture revealed in the focus groups. People understand the issue, can agree with the need for *collective* action (the first factor): at the same time, as individuals, they resent imposition by the *group* upon *themselves* (the second factor). The two positions go beyond simple belief in the phenomenon and are inherently relational, leaving respondents with the moral challenge of the Commons Dilemma.

6.4.2 Confirmatory Factor Analysis (CFA)

CFA provides a test of the thesis’ argument that individual’s views on climate change may be organised into coherent standpoints consistent with the logic of the Relational Model. A range of diagnostic statistics can be used to assess the extent to which a proposed model represents a good fit to the data. Bartholomew et al. (2008) explain that test statistics for CFA models that evaluate a model against a criterion of *perfect* fit can be highly sensitive, leading to the common use of Fit indices to assess *closeness* of fit. The analyses below use 2 of these indices, for which Bartholomew et al.’s evaluation is consistent with the ‘rules of thumb’ proposed below:

- RMSEA - ‘A rule of thumb is that $RMSEA \leq .05$ indicates close approximate fit, values between 0.05 and 0.08 suggest reasonable error of approximation, and $RMSEA \geq 0.10$ suggests a poor fit’ (Kline, 2005, p. 139).
- CFI - ‘A rule of thumb for the CFI and other incremental [indices] is that values greater than roughly 0.90 may indicate a reasonably good fit of the researcher’s model’ (Kline, 2005, p. 140).

In order to build the model for the CFA , some of the issues already identified within the response set need to be considered. Section 6.3 explained that an initial overview of the survey responses revealed:

- Several of the survey statements were, with hindsight, imperfectly worded and yielded anomalous responses
- The survey revealed a clear split in the MP arguments where some of them implied belief in the phenomenon of AGW and some implied scepticism.

Reflecting these considerations, two analyses are presented in Appendix R:

- The first, based on the 4 Relational Models, uses 26 out of 29 Relational Model statements (this is referred to below as 4RM 26 indicators)⁵¹
- The second, based on 5 Relational Models, replaces the single MP model with the two ‘MP Laissez’ and ‘MP Empower’ versions of MP and uses 20 out of the 29 Relational Model statements.⁵²

The table below provides the fit indices and χ^2 for these two models:

Variables in the model	RMSEA:	90% confidence		CFI	χ^2	df	p
		Low	High				
4 RMs, 26 indicators	0.090	0.086	0.095	0.735	1,675.5	293	<0.001
5 RMs, 20 indicators	0.065	0.060	0.071	0.902	555.6	160	<0.001

Table 6-4: Fit indices for Confirmatory Factor Analyses

The indices for the first model indicate that it is not a bad enough fit to reject the model⁵³; the indices for the second model suggest the model is a reasonable approximation.

These analyses provide some support, albeit modest, for the view that a framework based upon the Relational Models does capture some of the variation in the responses: this support suggests that a more refined question set could well support the hypothesis that individuals’ views on climate change can usefully be summarised within Standpoints based upon the Relational Models.

⁵¹ The 26 indicator model omits AR10 and CS3, which are both general, relatively pessimistic statements, that are not actually about climate change, and also MP17, which by arguing for the importance of economic growth can be agreed to even by people who believe strongly in the phenomenon of AGW (see Appendix T on the responses to Q52).

⁵² This model omits the three statements left out of the previous models, as well as AR24 (which combines 2 different propositions), EM21 and MP39 which introduce the topic of high prices which seems to prompt particular reactions of their own, and EM26, 33 and 38 each of which advances a proposition which can be agreed to by many with divergent views on the overall phenomenon of AGW.

⁵³ Further caution needs to be attached to this first model (but not the second), in so far as the high correlations between the factors call into question their discriminant validity.

The implication of both the factor analyses is that people's views in the debate reflect presumptions about the moral order as captured by the four relational models.

6.4.3 The status of the Relational Models as 'Latent Variables'

It is important to stress that the use of Factor Analysis of any kind need not imply that the inferred latent variables represent something 'real'. This view is contentious: Borsboom and others (2003, p. 203) argue 'that a consistent interpretation of [theory] models requires a realist ontology for latent variables'. Hand (2004) rejects both this approach and its opposite extreme (operationalism) to argue that latent variables can be used for both representational and pragmatic purposes. The approach taken here is closer to Hand's, treating the measures of association as convenient, and meaningful, summaries of individuals' responses.

This issue touches the heart of the thesis. As argued previously, it proposes no mechanism whereby the representation of climate change arguments at the social level is linked to their representation at level of individual cognition. The more modest target is to establish whether patterns of arguments based on the Relational Models can be identified, while remaining agnostic as to 'what' the RMs actually are.

6.4.4 The meaning of scale scores for the Relational Models

For this reason scale scores have been generated for the Relational Models without arguing that they are more than composite representations of a tendency to agree with statements based on a particular RM. Appendix M explains how the scales are constructed; section M8 within that Appendix summarises the results. Within this thesis, the scales are only used in the analysis of the dichotomised statements in section 6.6.

6.5 Multivariate Analysis 2

6.5.1 Why use cluster analysis?

The purpose of cluster analysis is 'simply to describe the data in a convenient way' (Hand, 2008, p. 105). The aim of the survey, as discussed in section 6.1, is to reveal the patterns of arguments used by individuals when reasoning about climate change, and cluster analysis offers a convenient way to reveal those patterns. Classification of responses by a cluster analysis offers a less statistically

demanding way of capturing the patterns in those responses; it makes fewer assumptions about the level of measurement and data quality. Hence it is probably more appropriate given the limitations of the survey questions.

6.5.2 Outline of the Cluster Analysis

The Cluster Analysis shows a clear divide between those variables that imply that Anthropogenic Global Warming ('AGW') is both real and something we can and will do something about (**A**), and those that do not. In this it echoes the finding of the EFA (6.4.1). Further, this latter cluster falls into two different main groups. The first of these is about whether climate change is an important issue (**B**); the second captures a level of overall pessimism (**C**).

The division into two persists whether or not the question set includes those statements (Misc 2, 5, 12, 14 and Impact 8, 31, 34 - see 6.3.5) that explicitly express belief or scepticism in both the existence and the seriousness of AGW, but do not express a view on what we should do about it or whether we should do anything at all. For completeness, Appendix S presents a cluster analysis of all 41 Statement variables. The analysis shown overleaf omits these statements, leaving the 29 Relational Model statements together with the 4 'Action statements and 'Misc 22'⁵⁷. Below is a dendrogram illustrating the analysis:

⁵⁷ Misc 22 is: "In reality, people will only do something about climate change when they start to experience it directly". This differs from the other 4 miscellaneous statements which specifically address respondents' level of belief in climate change. The Action Statements and Misc 22 are all 'relational' in the sense that they consider what should/will be/has been done by people in response to climate change.

Hierarchical Cluster Analysis using Pearson's Coefficient: 34 Statements

Dendrogram using Average Linkage (Between Groups)

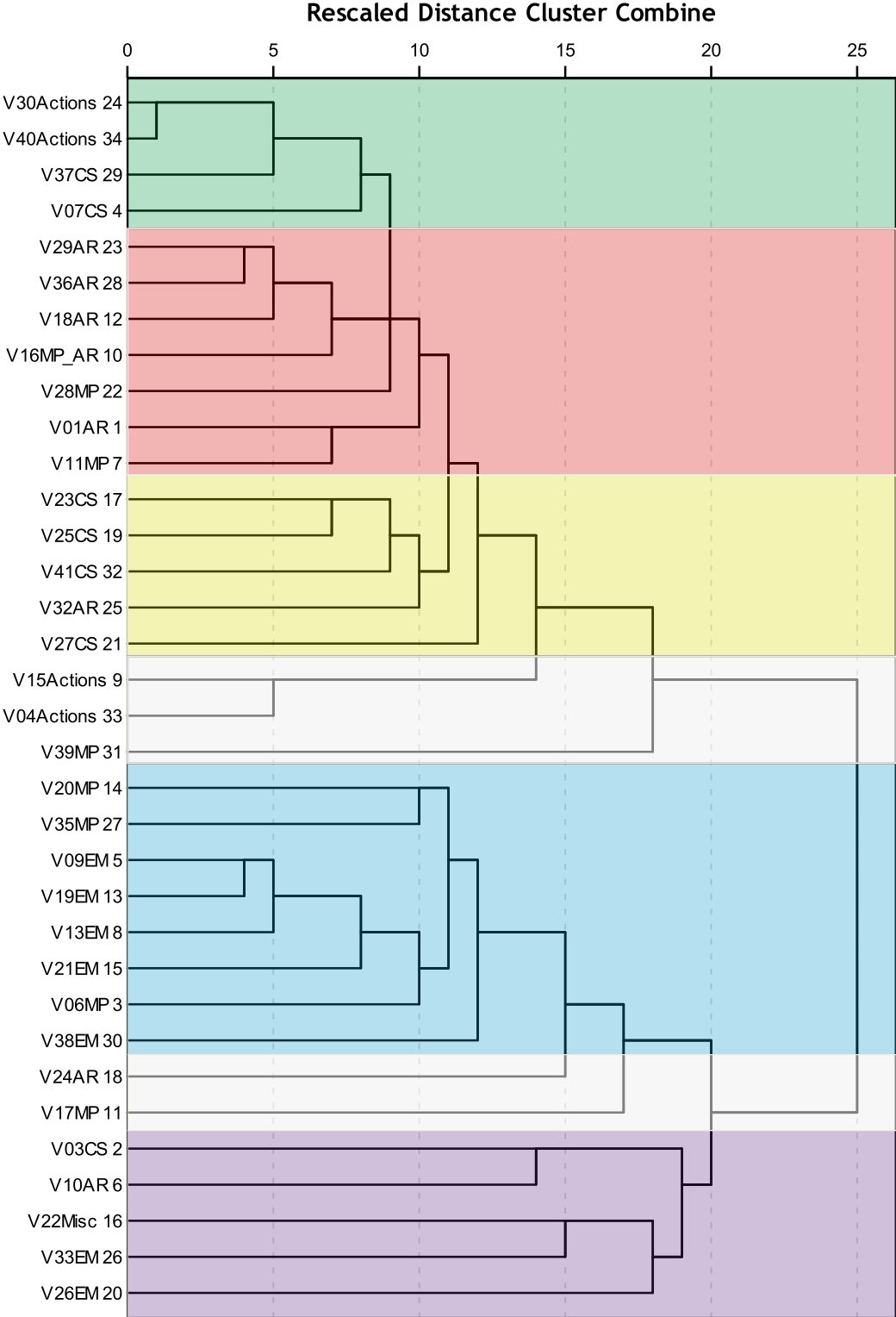


Figure 6-1: Cluster analysis of responses to 34 Statements

In the dendrogram, 'V' numbers correspond with the Statement number.

6.5.3 Five distinct 'approaches'

Within Group (A) there are three separate strands:

- **Moral commitment:** in the green zone, this combines Statements 7 and 37, along with 30 and 40. Section 6.4.5 highlighted the strength of agreement with the first two, which express the moral imperative of doing something about climate change: these connect closely to the second pair, which expresses personal commitment to reduce one's own impact on the environment.
- **Mainstream approach:** in the red zone, this combines AR1, 29, 36, 18 and MP Empower 16, 28, and 11. This group engages confidently with the issue. Critics would argue that this approach represents 'Business as Usual' relying on efficiency and existing institutions. Advocates look to the energy of individual innovation and the competence of authoritative expertise.
- **Radical Change:** in the yellow zone by contrast to the Mainstream approach, Statements 23, 25, 41, 32 and 27 all assume that there has to be significant change to the status quo: a more efficient Business as Usual simply will not be enough. Noteworthy is the fact that AR32, the demand for strict regulation to consumption, clusters here with 4 'CS' Statements.

Within Group (B) there is one overall response:

- **Reject and ignore:** in the blue zone, Statements 6, 9, 13, 19, 20, 21, 35 and 38 all, in different ways, reject climate change as an issue, reject possible policy responses to it, or take the view that we should simply ignore the problem. This group combines most of the EM Statements with the 3 MP Laissez-faire Statements.

Group (C) gathers a more heterogeneous collection of Statements, but they do have a common thrust:

- **Pessimism:** in the purple zone, Statements 3, 10, 22, 26 and 33 suggest that either climate change is not the real issue or, even if it is, that it is nothing to do with 'me'. CS 3, stating the limits to human progress and AR10 asserting the need to reduce the world's population express a Malthusian pessimism that treats AGW as a symptom of a wider issue. Statements 22, arguing that people will only act when directly affected themselves; 33, arguing that 'I' will behave pro-environmentally when it saves me money; and 26, which has no confidence in the government dealing with climate change, all imply the view that humanity is not going to do much about climate change.

6.5.4 Other statements

Five Statements are not accounted for above:

- **Other's behaviour:** Statements 15 and 4 express views on whether others act pro-environmentally. These sit on the edge of the Group (A): they

accept the reality of climate change and that we need to do something about it, but they borrow much from the EM view of ‘other people’ in judging that others will have a lower propensity to act than ourselves.

- **Market solutions:** as noted above, many people react very strongly against the idea of higher prices. MP Statement 39 lies at the fringe of Group (A) - it necessarily treats AGW as real and proposes a solution - but it actually correlates most strongly (and negatively) with EM21 which rejects higher fuel taxes and sits at the heart of the ‘reject and ignore’ cluster (-0.611, $p < 0.01$)⁵⁸.
- **‘Not my job’:** Statement 24 was identified earlier as a composite - first, stating that climate change is something for governments to deal with implies acceptance of AGW as an issue; but the Statement also rejects the role of individuals, and this seems to be the dominant element, putting the Statement in Group (B) clustered alongside ‘reject and ignore’.
- **Need for economic growth:** sitting next to the idea of ‘not my job’. On the one hand, Statement 17 appears to express a version of ‘Business as Usual’ equivalent to ignoring the problem: but it also sits next to the pessimistic CS3 ‘there are limits’. MP17 has weak but telling correlations with the AR (+0.091, $p < 0.05$) and CS (-0.115, $p < 0.01$) composite scores. The pragmatic AR response to AGW knows that economic growth is probably necessary: the more morally committed CS Standpoint cannot escape the view that economic growth is core to the problem. That the statement sits next to ‘Not my job’ suggests the position is best encapsulated by ‘It’s too difficult to change’.

6.5.5 Interactions between the different Relational Models

The picture presented by the cluster analysis accords with that found in the Media analysis. First, the difficulty of disentangling the Standpoints (see 4.5.2) has been repeated, so that the cluster analysis actually reveals a collection of approaches that synthesise arguments from different Relational Models. Second, similar interactions and overlaps between the RMs emerge (4.11):

- Mainstream Approach is quite closely associated with the Moral Commitment of CS’s insistence that we all need to pull together; optimistically it looks to MP’s confidence in mankind’s adaptability and individual initiative for solutions, and, conservatively, it relies upon AR’s privileging of expert opinion and resistance to radical change. The overlap

⁵⁸ Cluster analysis is sensitive to the valence of the question. Reversing the logic of MP39, and then including it with the other 33 statements, creates a variation on the analysis presented above. The two statements that consider the use of higher prices (reversed MP39 and EM21) form a distinct group on their own: the rest of the analysis remains largely unchanged.

between CS and AR is noted in 4.11.3, while 4.9.3 emphasises the tight relationship between AR and MP.

- Yet the overlap between CS and AR is weaker in the cluster analysis than between AR and MP. Most of the CS arguments cluster within ‘Radical Change’. Section 4.11.2 looked at examples in the Media of how the different Standpoints look to capture the AR Standpoint to impose their vision. Thus the MP Empower Standpoint, within the Mainstream approach, has largely captured a conservative policy response. The radical policy response of strict regulation on consumption (AR32) clusters with the CS arguments for Radical Change.
- The ‘Reject and ignore’ cluster combines the EM and MP Laissez faire Standpoints. Section 4.11.3 points out that similar findings in the Media analysis reflect Cultural Theory’s account which says that ‘low group’ worldviews will reject imposition by the group on the individual: section 2.4.4 argues that this close overlap may make the EM and MP Standpoints hard to separate. This is discussed further in 6.7.7.

6.5.6 Conclusion to the multivariate analyses

These three analyses help to make clearer the links between the Relational Models and respondents’ attitudes to the challenge of climate change:

- The Exploratory Factor Analysis demonstrates that the Relational Models do not emerge independently as latent variables in line with the RM Statements, but, also, that two distinct factors underlie the dilemma of the challenge of climate change.
- The Confirmatory Factor Analysis provides tentative support for the view that a framework based upon the Relational Models does capture some of the variation in the responses: this support suggests that a more refined question set could well support the hypothesis that individuals’ views on climate change can usefully be summarised within Standpoints based upon the Relational Models.
- The Cluster Analysis sheds light upon how arguments derived from different Relational Models combine to form identifiable, distinct approaches to the challenge of climate change. Furthermore, these approaches sit within two overall responses to the issue, as also found in the EFA.

On the one hand, the analyses do provide support for the view that the patterns in the responses reflect the logic of the Relational Models. On the other, the discussion in the foregoing sections explains how arguments from different RMs combine to form two overall approaches. For all the complexity and uncertainty, debate seems to condense the arguments into two sides: Standpoints combine with arguments from different Standpoints to form an overall approach that can withstand criticism and command support from as many quarters as possible. To borrow the language of Cultural Theory, the different Standpoints recruit the arguments of the others to their cause. In the language of social cognition, individuals seek to minimise the dissonance they experience when applying the different justice principles embedded in the different models.

The analyses also show that the two main approaches to the challenge of climate change are not opposite ends of a unidimensional, bipolar level of 'belief in AGW'. Nor indeed are the factors that underlie these approaches first a belief in the phenomenon and second a willingness to act, or alternatively a cognitive and an affective component. The Exploratory Factor Analysis and the Cluster Analysis reveal two principal elements: first a level of commitment to a mainstream approach, which combines both belief in the phenomenon and in the collective goal of doing something about it: second, doubts about the phenomenon combined with a level of resistance to imposition by the group on the individual. These two elements are inherently relational.

Section 6.6 looks at how respondents choose between different Relational Models, before the concluding section 6.7 discusses further the ways in which the Relational Models appear to have combined to form these two main approaches.

6.6 Individual use of multiple Relational Models

6.6.1 Introduction

The Focus Group interviews showed that individuals were comfortable with entertaining the arguments of divergent Standpoints. Similarly, within the survey, respondents only disagreed with five of the 29 Relational Model based Statements on average. Furthermore, the Exploratory Factor Analysis shows that respondents can both agree with the need for a collective approach while objecting to demands put upon themselves for the collective. This inevitably prompts the question 'How do individuals choose between competing arguments?'

Questions 42 to 53 each take two of the 29 Statements expressing different Relational Models and force respondents to choose between them. There are six statements for each RM. Each RM is contrasted with each of the other three RMs twice.

6.6.2 How do respondents choose between contradictory Standpoints?

Given the close correlations between the AR, CS and MP Empower Statements that form Group (A) in the cluster analysis - all taking AGW to be a serious issue - we should expect to find individuals endorsing Statements from these different Standpoints. Similarly, we should expect individuals endorsing the EM Statements in Group (B) to endorse the MP Laissez-faire Statements also in that Group. This suggests that the interesting issues are:

- Are any individuals who are most comfortable with the Statements in Group (A) nevertheless willing to endorse statements in Group (B) or (C), and likewise individuals most comfortable with Group (B) Statements willing to endorse Statements in Group (A)?
- On what grounds do individuals choose between arguments *within* Groups A and B?

To address these questions, two different analyses have been used. First, the pattern of responses has been compared to levels of belief in AGW. Second, logistic regressions examine the association between the choices made and the patterns of respondent answers represented by the Relational Model composite scores.

The table below sets out how often each Relational Model was preferred within the 6 pairs in which each model was offered:

	Number of times Relational Model Preferred							Mean
	0	1	2	3	4	5	6	
Model								
AR	3	27	110	190	170	61	17	3.3
CS	19	38	97	129	145	116	34	3.4
EM	43	157	136	130	67	36	9	2.3
MP	8	32	151	203	138	43	3	3.0

Table 6-5: Number of times Relational Models preferred in forced choices

The broad picture reflects the original levels of agreement with the Statements, which had lower mean levels of agreement for the EM Statements.

6.6.3 Comparing choices to level of belief

The dichotomised Statements provide a fairly crude tool with which to assess whether respondents entertain multiple RMs. By not giving respondents the choice of agreeing or disagreeing with both Statements they are effectively forced to agree to arguments expressing at least three Relational Models and most probably all four (87% did choose at least one statement from each Standpoint). However, by comparing the choices made with levels of belief in AGW it is possible to gain a sense of how fluid individual commitment to particular RMs is.

Respondents have been classified according to their scores on the 'ScepticsBelievers' scale. Low scorers on this scale will typically sit in Group (B), High Scorers in Group (A). Respondents have been divided into 4 categories to highlight those lying towards the more extreme ends of the scale. The number in each category is shown below:

- 'AGW Sceptics' (score 1-3.0) 60
- 'AGW Sceptics to Unsure' (score 3.1 to 4.2) 211
- 'AGW Unsure to Believers (score 4.3 to 5.9) 207
- and 'AGW believers' (score 6.0 to 7) 60

The ScepticsBelievers scale is the appropriate comparator because (1) it captures a principle division present in the response set to the 41 Statements, and (2) it includes none of the Relational Model Statements that are now going to be analysed.

Appendix T analyses each of the 12 dichotomised statements by crosstabulating the responses with the four categories of the ScepticsBelievers scale. The degree to which the ScepticsBelievers score is associated with respondents' choices between the pairs of statement is measured by a Chi Squared test. The results are summarised in the table below and discussed in 6.5.5:

Summary Table for Dichotomised Arguments						
Question	Arguments	Correlation	χ^2	% of respondents		
		btw original	<i>if signif*</i>	choosing		
		statements		First	Second	
		<i>if signif</i>		Statement	Statement	
42	AR29 v CS23	+0.419	N/A		58.5%	41.5%
43	AR24 v EM26	+0.087	N/A		30.1%	69.9%
44	AR32 v MP28	+0.213	12.3		34.4%	65.6%
45	CS25 v AR1	+0.305	57.8		44.3%	55.7%
46	CS37 v EM33	+0.195	38.6		67.0%	33.0%
47	CS7 v MP35*	-0.151	170.3		66.1%	33.9%
48	EM13 v AR36	-0.414	200.9		36.7%	63.3%
49	EM38 v CS27	-0.164	49		38.9%	61.1%
50	EM19 v MP11	-0.403	90.6		22.7%	77.3%
51	MP39 v AR18	+0.207	26.2		12.6%	87.4%
52	MP17 v CS41	-0.188	43.4		36.9%	63.1%
53	MP20* v EM9	+0.400	N/A		72.7%	27.3%
* Regular p<0.05;			Bold italic p<0.01			

Table 6-6: Summary of the Dichotomised Arguments⁶⁰

⁶⁰ *Note: MP35 and MP20 are 2 of the 3 MP Laissez faire Statements. MP11 and MP28 are 2 of the 3 MP Empower Statements. MP39 and MP17 did not fit into either group. Of the other RM Statements used, only AR24 and EM26, both in Q43, did not form constituent elements of their respective RM scales.

6.6.4 Logistic regressions to examine influences on the choices made

Appendix T also provides details of logistic regressions carried out to compare respondent’s choices between the pairs of Statements and (1) their scores on the Relational Model scales and (2) the demographic variables.

Logistic regressions: Odds Ratio shows increased likelihood (+) of choosing Statement over the other (-)																												
Survey Question:	Q42		Q43		Q44		Q45		Q46		Q47		Q48		Q49		Q50		Q51		Q52		Q53		How			
	AR29		AR24		AR32		CS25		CS37		CS7		EM13		EM38		EM19		MP39		MP17		MP20		Often			
Independent variables	vs	CS23	vs	EM26	vs	MP28	vs	AR1	vs	EM33	vs	MP35	vs	AR36	vs	CS27	vs	MP11	vs	AR18	vs	CS41	vs	EM9	Signif			
AR Score			++	--			++	--																		2		
CS Score	-	+	--	++													--	++			--	++				4		
EM Score	--	++							--	++			++	--	++	--	++	--	-	+			--	++		7		
MP Empower score	++	--					--	++					-	+			-	+					++	--		5		
MP Laissez faire score									-	+	--	++			+	-	++	--								4		
AGW ScepticsBelievers					++	--					++	--	--	++							-	+	-	+		5		
Gender (female=1)	+	-	-	+									+	-			--	++	-	+						5		
Age, 6 categories							-	+																		1		
Income, 5 categories	+	-																				+	-			2		
Big City																										--		
Education 5 categories							+	-							-	+	+	-								3		
Source (Saros=1)	--	++																						--	++	2		
			+/- p<0.05									+/- p<0.01																

Table 6-7: Logistic regressions of 12 forced choice questions; Odds Ratios

Odds Ratios are calculated on the basis of co-efficients within the full model, so that the impact of each independent variable comes after controlling for the other variables.

Relational Model scale scores have been adjusted, where appropriate, to exclude Statements that are present in the dichotomy: e.g. for Q45, the regression is made against a four item AR scale excluding AR1, and a five item CS scale excluding CS25. This is necessary to avoid circularity.

6.6.5 Summary comments on the dichotomised Statements

The analysis in Appendix T shows that respondents are able to entertain Arguments from conflicting Relational Models except when strong ‘Believers’ in AGW are asked to prefer Statements that imply strong scepticism of AGW.

6.6.5.1 *Choice when original Statements strongly correlated*

For several of the dichotomised pairs, the responses to the two original Statements, when asked individually in the first part of the survey, were highly positively correlated. This would suggest that respondents might find it harder to choose between them. The crosstabulations confirm that respondents found the choice hard in Questions 42 and 53. By contrast, for questions 44 and 45 the positive correlation masks the fact that one statement demands significant commitment from the respondent, the other is more blandly aspirational. As a result, level of belief appears to drive the choice made. However, because the original Statements were positively correlated, respondents on both sides of the ‘sceptics’ and ‘believers’ divide can choose either RM.

6.6.5.2 *The Authority Ranking Model*

The dichotomised statements provide additional insight into the AR Model. First in the logistic regression for Q43 the two Statements, both addressing the role of government in tackling climate change, identify a clear distinction between the AR and CS Standpoints, the latter showing much lower confidence in the government’s ability to address the challenge. Respondents with high CS scores are much more likely to choose the EM ‘rejection’ of government.

But the AR Standpoint, in taking AGW seriously, lies somewhere between CS and MP Empower. Q45 hints at a split in the AR Model not unlike the split in the MP Model. The original Statement AR1, advocating cutting waste and improving efficiency, is more closely associated with the MP Empower position than the AR Standpoint. High MP Empower scorers are more likely to choose AR1, but, forced to choose between the stronger commitment of CS25 and the blander AR1, higher AR scorers strongly prefer CS25. Indeed, the influence of the AR Standpoint is so strong that it captures all of the ‘Group A’ impact: taken individually, CS score and level of belief both impact the choice significantly, but, controlling for the AR score they do not.

6.6.5.3 *Equality Matching, MP Empower and MP Laissez-faire*

Within the logistic regressions generally the EM score appears to have the greatest influence among the Relational Models , being associated with 7 choices.

Question 46 pairs CS37 vs EM33 and Question 49 pairs EM38 vs CS27, and both produce the same results. Both contrast a moral commitment to act for the environment or others against a more self-centred approach: for both, the EM and MP Laissez-faire Relational Models appear to have the decisive impact, and controlling for these level of belief in AGW has no residual influence. What stands out, is that both dichotomies identify an independent influence for each of EM and MP Laissez-faire: they are closely associated but the one does not subsume the other. Also noticeable is the fact that despite quite polarising meanings in the statements, the divergent moral stances do have adherents on both sides of the sceptics/believers divide.

Question 53 contrasts the MP Laissez-faire Statement 20 with the EM Statement 9. High MP Empower scorers prefer the MP Laissez-faire option in this dichotomy which lends some support to the view that the two different MP positions might originate from the same overall Market Pricing Standpoint, but more work would be needed to reach a conclusion on that.

6.6.5.4 *The growth dilemma*

Question 52 is particularly interesting, since it goes to the heart of the dilemma by forcing respondents to choose between MP17 which says economic growth is necessary to address environmental problems and CS41 which says economic growth *is* the problem. Even though CS scores have the dominant RM influence over the choice (making it much more likely that high CS scorers do choose CS41), even so 23 (20%) of the 115 respondents with the strongest CS scores preferred MP17 in this dichotomy. People are genuinely uncertain about how to reconcile the conflicting objectives.

6.6.6 Future policy preferences

Following the first 53 questions, the final two presented a future scenario and asked respondents which policies they would prefer in that situation. Each scenario came with a choice of 3 policies from which respondents had to choose just one: their choices are shown below:

54: Imagine that, in the future, climate change has started to have significant impacts across the world, creating a shortage of key materials, energy and foodstuffs. In this situation, which of the following approaches in this country would work best?:

We all agree to rationing of key materials, energy and foodstuffs	300	52%
We allow market forces to price scarce resources, so that prices can rise and people will consume less	133	23%
We should rely on the government to make the appropriate regulations to control the situation	145	25%
<i>Total</i>	<i>578</i>	

Table 6-8: Policy preferences for shortages in key resources

55: Imagine that, in the future, climate change has started to have significant impacts across the world, forcing many people to migrate from the hardest hit areas to less badly affected countries, including Britain. In this situation, which of the following approaches in this country would work best?:

All the countries that have not been badly affected, including ourselves, should receive their fair share of the migrants	159	28%
We should allow in anyone who can make a living and contribute to the economy	198	34%
We should rely on the government to make the appropriate regulations and/or take appropriate security measures to manage the situation?	221	38%
<i>Total</i>	<i>578</i>	

Table 6-9: Policy preferences for climate induced migration to the UK

These statements go beyond any simple division between ‘sceptics’ and ‘believers’. In particular, forcing a choice between policies based on egalitarian principles and those based on regulation breaks apart the strong correlation between the AR and CS positions seen elsewhere in the results.

Logistic regressions for each policy preference (i.e. reducing the response set to each policy set against the other 2 options) are summarised in the table on the next page. These emphasise how the CS Standpoint’s egalitarian principles largely drown out the impact of other concerns. The AR Standpoint’s preference for regulation is statistically significant for Q55 ($p < 0.05$) but not quite for Q54 ($0.05 < p < 0.1$) after controlling for the role of CS.

The EM Standpoint has a significant impact in rejecting immigrants and seeking government control. As would be expected, those who distrust the government generally nevertheless look to the government to enforce their own objectives, something often seen in the focus groups.

Logistic regressions: Odds Ratio shows increased likelihood (+) of choosing policy over the other(s) (-)												
Survey Question	Q54		Q54		Q54		Q55		Q55		Q55	
Independent variables	Rationing	Market forces/ regulation	Market forces	Regulation/ Rationing	Regulation	Rationing/ Market forces	Fair share	Contributors/ regulation	Contributors	Regulation/ Fair Share	Regulation	Fair share/ Contributors
AR Score											+	-
CS Score	++	--			--	++	++	--			--	++
EM Score							--	++			++	--
MP Empower score												
MP Laissez faire score												
AGW ScepticsBelievers							-	+				
Gender (female=1)	++	--	-	+								
Age, 6 categories												
Income, 5 categories												
Big City												
Education 5 categories			++	--	--	++	++	--			--	++
Source (Saros=1)												
			+/- p<0.05						++/-- p<0.01			

Table 6-10: Odds ratios for policy preferences

6.6.7 Conclusion

The 12 dichotomised pairs and the two policy preference questions present a mixed picture. On the one hand, in some circumstances respondents are relatively inflexible: in particular strong believers in AGW are unlikely to prefer Statements that compromise that belief. On the other hand, many of the less forceful Statements, or those with more subtle nuances, show a picture in which the boundaries between the Standpoints are permeable. The next section explores this further.

6.7 Discussion

6.7.1 Points to discuss

Section 6.1.5 set out three research questions the survey sought to address:

- A. Do the survey responses form coherent Standpoints based upon the Relational Models?
- B. The Media analysis and the Focus Group interviews both emphasise the role of the Equality Matching Standpoint: is this evident in the survey?
- C. Do individuals entertain multiple Relational Models?

In addition, the foregoing sections deferred the following issues to cover in this discussion:

- D. Is there any difference between the ‘Equality Matching’ and ‘MP Laissez-faire?’ Standpoints? This same problem surfaced in the Focus Groups and the Media Analysis. This necessarily leads on to the question, is there any evidence that the ‘MP Laissez-faire’ and ‘MP Empower’ positions are connected?

6.7.2 Survey shortcomings 1: question wording

Throughout the chapter, reference has been made to the nuances respondents find in the question wording. For example, Statement MP39 is fundamentally separated from the other MP questions because respondents focus on a visceral rejection of being asked to pay higher prices. Other questions combine two distinct ideas: for example AR24 asserts that dealing with climate change is something for governments *and* not for individuals.

A further example of this is the use of pronouns in the questions. Five out of the seven EM Statements use the first person singular: only one of the other RM questions does this, most using the first person plural instead. On the one hand the pronouns do capture important elements of the Relational Models themselves: on the other, continuations of this research will need to examine whether respondents’ framing of the challenges as pitting self against others is driven more by these linguistic details than the arguments themselves.

Whilst these nuances have been used to justify omitting certain questions when conducting the analyses, section 6.3.8 argues that the survey would have benefited from item analysis and progressive refinement of the question set. Nevertheless the multivariate analyses do succeed in getting beyond these limitations to enable some definite conclusions to be drawn from the patterning observed.

6.7.3 A: does the survey reveal coherent Standpoints?

The Confirmatory Factor Analysis (effectively corroborated by the successful generation of reliable scale scores for the Communal Sharing, Authority Ranking and Equality Matching Relational Models) does justify the conclusion that these represent coherent Standpoints. The regression analyses in 6.6 provide some support for the view that CS and AR represent distinct Standpoints by showing that

in different contexts there are clear differences between the two. The cluster analysis lends further support to this. Further section 6.6 shows that, in different contexts there are clear differences between the AR and CS Standpoints.

The Market Pricing Standpoint is not coherent, but arguments identified as derived from the MP Relational Model nevertheless form two coherent positions: respondents may be using the MP Model differently according to whether they believe in AGW or not, an interpretation supported by the CFA. There is insufficient evidence to determine this. The regression analyses provide some evidence separating MP Empower from AR and MP Laissez-faire from EM⁶¹.

Despite identifying these differences between the RMs, the analyses also show that respondents' use of the arguments from different Standpoints combine into two overarching coherent 'Approaches'.

6.7.4 B: Does the Equality Matching Standpoint have an important role?

Relational Models Theory argues that the reciprocity principle underlies the Commons Dilemma that constitutes the social challenge posed by climate change. On this basis the EM Model should be fundamental to the debate. This proved to be the case in the Media Analysis and the Focus Groups.

The cluster analysis establishes the Equality Matching Standpoint as the core of the opposition to concern about climate change. The logistic regressions also show the Equality Matching Standpoint as the strongest influence on respondents' choices, even after controlling for levels of Belief in AGW. The EM arguments also emerge in the Exploratory Factor Analysis in Appendix Q as the key constituents of one of the two principal factors.

This does suggest that Cultural Theory's exclusion of the 'Fatalist' worldview really does not capture the dynamics of the debate. However, to resolve this conclusively requires the relationship between the Equality Matching and MP Standpoints to be clarified. The Cultural Theorist could argue that the 'Equality Matching' Standpoint represented in this thesis is just another facet of the 'individualist' worldview. This is discussed further below under 'D'.

⁶¹ The low reliability of the MP Empower and MP Laissez-faire scales, both being based on few indicator variables, mean these conclusions should be treated as tentative.

6.7.5 C: Do individuals entertain multiple Relational Models?

The broad division between those engaging with climate change as a serious problem, and those who do not, has been shown to combine two distinct elements. Further, individuals on both sides combine arguments from different Standpoints. The two distinct underlying factors suggest that individuals' views on the challenge are inherently relational rather than simply a matter of belief in AGW as a phenomenon. The AR and CS Standpoints tend to stay on one side of the debate, and the EM Standpoint on the other. However, the survey shows that respondents can embrace the arguments motivated towards a group goal (the Mainstream position) while at the same time resisting the consequent demands the group puts upon them as individuals (see section 6.4.1), capturing the heart of the Commons Dilemma.

The arguments preferred within different Standpoints vary depending upon how the issue, or the context, is defined. For some respondents, the CS Standpoint can be seen to express a radical and distinct line of its own that challenges the diagnosis of the problem offered by mainstream views. The MP Standpoint fragments into 2 components on either side of the debate, each of which the Cluster Analysis shows combining with the other Standpoints on the same side.

The dichotomies did show the CS and EM Arguments associated with Arguments from the opposing Standpoint (Qs 42 and 43) and Q55 saw the EM Standpoint advocating the AR policy choice. More simply, crosstabulations of different pairs of EM and CS Statements show plenty of respondents expressing some level of agreement with both (just taking the pairs nearest each other in the list: 23% of respondents agree with both CS7 and EM9, 11% with EM19 and CS23, 49% with EM26 and CS27 etc.). The point of the RM Standpoints is that they express alternative but fundamental principles of right and wrong that individuals are happy to use in appropriate contexts. Respondents readily agree to the Arguments of different RMs when they find them appropriate to the context: strong CS Respondents therefore can embrace EM Arguments. The social dilemma is that the prevailing culture provides conflicting definitions of the challenge and gives conflicting guidance as to which model applies to the challenge.

Chapter 2 claimed that individuals use combinations of Relational Models to address social challenges. At the same time, Cultural Theory argues that the 3

engaged worldviews produce fundamentally different approaches. This survey offers some support to both accounts. Section 6.4.1 argued that the two key factors emerging in the EFA resembled two core, and contradictory, responses to the challenge of climate change found in the focus groups.

The early version of Cultural Theory proposed a 'Centre' and a 'Border'. The interactions between the RMs can be highlighted by considering which of them forms the 'Centre' and which the 'Border'. On one interpretation, the AR and MP Empower combine to form a Mainstream Approach at the Centre, with the CS 'Radical Change' and the EM/MP Laissez Faire 'Reject and Ignore' as reactive positions outside the mainstream. An alternative interpretation would have the failure of the UNFCCC talks, and the continuation of Business as Usual, as evidence that the de facto centre is the Reject and Ignore Approach. The Relational Models in effect create an in-group, and from within that in-group participants privilege their perspective as the 'Centre', borrowing whatever arguments they need from other positions, and treating opposing positions as outsiders on the 'Border'.

6.7.6 Believers and Sceptics

The EFA demonstrates that a key division in the response set goes beyond simple levels of belief in climate change with two distinct factors appearing to underlie the division. Section 6.4.1 argued that there is an important relational component to the two factors. Nevertheless, factor scores for those factors correlate strongly with the ScepticsBelievers scale (the 'Mainstream factor, 0.650, $p < 0.01$; the 'Reject and ignore' factor -0.519, $p < 0.01$). The split into two factors shows that the rationalist account (which would state that the Mainstream position and the Reject and Ignore position should sit at two ends of one dimension) is inadequate: an alternative account is Cultural Theory's assertion that 'worldview' will drive assessment of risk: believers in the collective believe in the threat of AGW; emphasis on the individual discourages belief in AGW. The survey results are compatible with this latter view, but without separately identifying 'worldviews' cannot be used to test this assertion.

6.7.7 Surveying the debate

Cultural Theory emphasises that each of its four worldviews finds expression in 'contradistinction' to the others (Thompson & Rayner, 1998, p. 306). This analysis suggests that individuals use Relational Models to respond to the particular

context provided by a specific issue by using combinations of some RMs at the same time as rejecting others. The challenge revealed by the survey responses is that even the simplest statements already appear to embed a dynamic interplay between different positions rather than the assertion of a static view. The study is a study of a ‘debate’, and many of the Statements are arguing both for a position and against another. The survey is therefore an imperfect tool for disentangling the RMs, while proving effective in illustrating both their inter-relations and their complexity.

6.7.8 D: Equality Matching, Market Pricing (Empower) and Market Pricing (Laissez-faire)

The cluster analysis below, restricted to the EM and MP Statements⁶², usefully pictures the relationship between these two Standpoints:

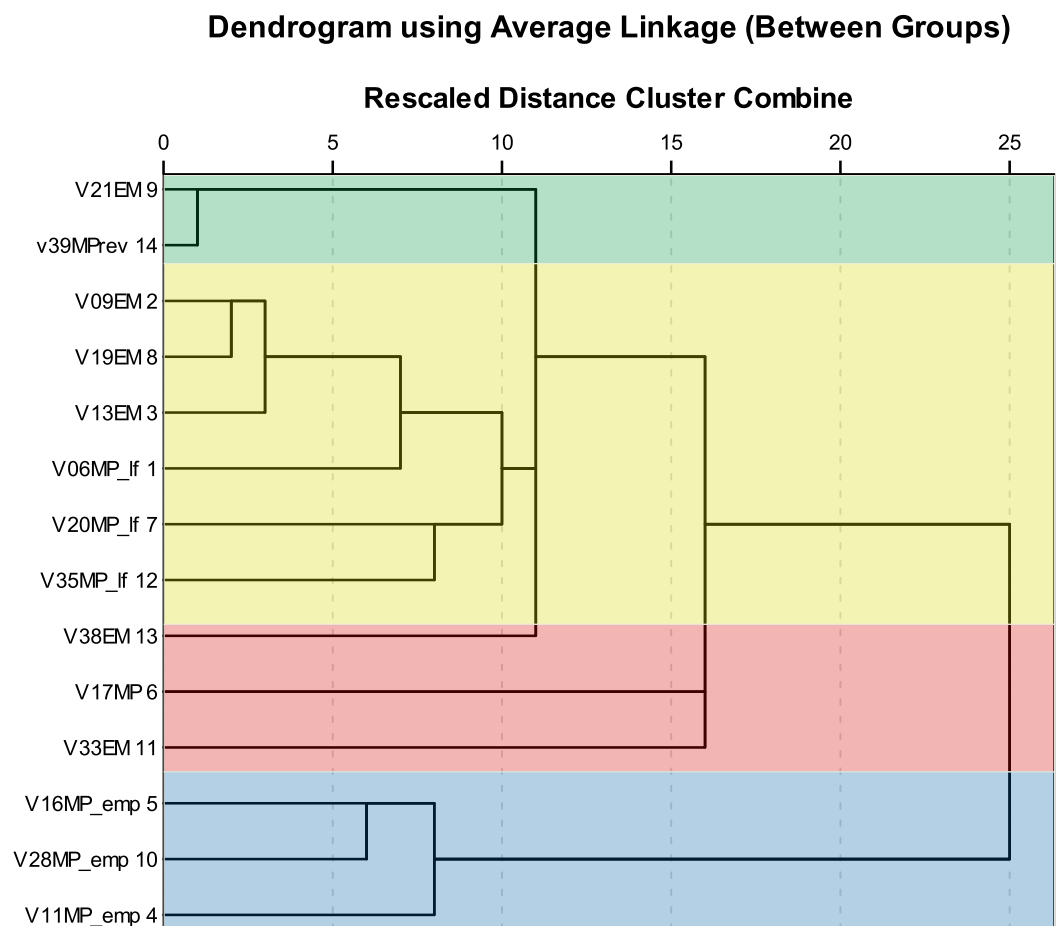


Figure 6-2: Cluster analysis of Equality Matching and Market Pricing Statements

There are four sections:

- Green: resistance to price rises sets EM21 and MP39 (reversed here) apart

⁶² This analysis excludes the ‘anomalous’ EM26. See 6.3.4.

- Yellow: the heart of the *Reject and Ignore* approach combines the EM Statements that explicitly ‘reject’ climate change/global warming with the three MP Laissez-faire Statements
- Red: each of EM38, MP17 and EM33 recognise that society *will* (as opposed to *should*) take steps to deal with climate change but take a defensive stance
- Blue: each of the three MP Empower Statements argue that society *should* take those steps and take a progressive stance.

The survey is neither fine-grained nor subtle enough to resolve the relationship between the two. The EM and MP Standpoints appear to be two faces of the same individualist coin: which face the person shows is context dependent. If resisting the direction society is moving in, the individual response takes a fatalist, defensive, EM stance: moving with society, the individual response takes a progressive stance. Chapter 7 discusses why these divergent positions generate different moral principles.

6.8 Conclusion

The survey unpacks the division between those engaging with the challenge of climate change and those who do not, by showing that this division combines two separate elements. These elements combine both rational judgments as to the reality of the phenomenon of climate change as well as relational arguments regarding the balance between collective goals and the demands such goals place upon the individual.

The results can also be interpreted in a manner which provides some support for an account based on the Relational Models and the view that the survey responses do form coherent Standpoints based upon the Relational Models (question A, 6.1.5). Further, the Equality Matching Standpoint, as in the other two studies, appears to have a major role in individual reasoning about climate change (question B). Lastly, there is some limited evidence that individuals do support multiple RMs (question C), although this is overshadowed by the difficulty respondents have in reconciling their individual needs with their acceptance of the logic of a collective goal, like the focus group participants.

The survey results also reveal significant problems in disentangling the Equality Matching and Market Pricing Standpoints. This was also true in the first two studies, and is addressed in Chapter 7.

Chapter 7 Discussion

Chapter Outline

The chapter has eight sections:

1. Reintroduces the climate change debate and the theoretical framework adopted to analyse it.
2. Reprises the results of the three studies looking at how successful the framework (based on Relational Models Theory) is in providing an account of the climate change debate.
3. Compares this account with that of Cultural Theory.
4. Considers issues arising in the structure of the four Standpoints.
5. Looks at implications for our understanding of sustainability and the 'I=PAT' equation for determining environmental impact.
6. Revisits the approach of utilitarianism and attitude theory.
7. Addresses some of the difficulties associated with determinism and pessimism.
8. Conclusions.

7.1 Introduction

7.1.1 The debate over climate change

“Human pressure on the Earth’s ecosystems and climate, unless mitigated substantially, will cause dangerous climate change, massive species extinctions, and the destruction of vital life-support functions’ (Sachs, 2008, p. 6).

Every December, the members of the United Nations meet at a ‘Conference of the Parties’ under the United Nations Framework Convention on Climate Change. The premise is that Sachs’ assessment of the future is correct. Many disagree. Counter-arguments are usually empirical: humanity has prospered. There are more of us, we are more affluent and more technologically advanced, and, looking across recent millennia, progression on all of these dimensions has accelerated. We should expect this to continue⁶³. Further, there have always been doomsday fears. Judging from their past accuracy, we should ignore them:

⁶³ One slight caveat to this statement is the expectation that population growth will eventually level out (United Nations Development Programme & Leiserowitz, 2007).

“In 1975, Nigel Calder, a former editor of the *New Scientist*, wrote that ‘the threat of a new ice age must now stand alongside nuclear war as a likely source of wholesale death and misery for mankind’”(Booker & North, 2007, p. 333)⁶⁴.

However, the depth and breadth of the IPCC’s scientific evidence predicting dangerous climate change is now impressive. On the assumption that fears over climate change are real, then not enough is being done to prevent it. “Why has so little been achieved?”(Helm, 2008). Szerszynski & Urry’s complaint (2010) that the social sciences have not contributed to understanding the debate demands that we do more to answer Helm’s question. This thesis aims to provide one answer, and at the same time to contribute to the social psychological understanding of human values.

7.1.2 The theoretical framework

Much of the current social psychological literature examines individual engagement with the challenge of climate change, and the psychological and social barriers to that engagement (section 1.7). One way of framing this enquiry is to focus on how prevailing values may constitute such barriers. Mary Douglas initiated Cultural Theory’s influential explanation of human values, including how societies select risks, proposing that societies were guided by four possible worldviews. Michael Thompson and Steve Rayner have been at the forefront in applying this approach to the risk of climate change. The many criticisms of CT include its simplistic stereotyping of individual worldviews and the apparent determinism of an account which suggests a society’s members cannot avoid the value judgements and risk assessments derived from the prevailing worldview. A specific weakness identified here is Thompson and Rayner’s deliberate omission of one of the four worldviews, the ‘fatalist’, from their analysis of the climate change debate. The nature of CT’s framework makes this implausible.

⁶⁴ Booker and North have a point when comparing the newspaper coverage of the fears of a new ice age that were prevalent in the early 1970’s, with the present media coverage of global warming. However, two of the most influential voices in today’s debate (James Lovelock and Stephen Schneider) were even then clearly spelling out the opposing anthropogenic impacts from fossil fuels on the atmosphere, the cooling effect of aerosols and the warming effect of carbon dioxide (Fellgett & Lovelock, 1971; Rasool & Schneider, 1971). Intriguingly, at that time Stephen Schneider was one of the main prophets of the imminent ice age, suggesting global cooling of 3.5° over 50 years, based on the conclusion that the exponential impact of aerosols would outweigh the greenhouse effect. Booker and North’s dismiss climate science as pointless because of these flipflops; Lovelock (and Fellgett) are convinced that we must take the precautionary approach to these risks, whether warming or cooling. These responses to the always incomplete scientific data seem to be matters of creed more than rational judgement.

Alan Fiske's Relational Models Theory has similar anthropological origins to CT. RMT is an account of individual social cognition based on four categories of social exchange. This offers the possibility of a better account of individual engagement with 'worldviews', because Fiske is able to trace close links between the four Relational Models and human values. Starting at the individual level presents a more dynamic picture than starting at the societal level. The logic of the four different categories of exchange also provides a solution to CT's exclusion of fatalist worldviews from the analysis of the climate change debate. One of Fiske's Relational Models, Equality Matching, has close parallels to the fatalist world view. Its logic is the same as that of the Commons Dilemma, and it can successfully fill an important gap in CT's analysis.

7.1.3 The research questions addressed in this thesis

Each of RMT and CT use their schemas to generate matrices of moral arguments in different social domains. This thesis synthesises these into a single matrix of arguments over climate change (Appendix E). Three studies are used to address the following research questions:

1. Does this matrix provide a plausible account of the climate change debate?
2. Does an account that integrates the Equality Matching Model have advantages over the account provided by Thompson and Rayner?
3. Does this account offer insight into Helm's question 'Why has so little been achieved??'

7.2 The three studies

7.2.1 Media content analysis:

7.2.1.1 *Media content analysis: procedure*

180 UK national newspaper articles were randomly selected from the Nexis database. These were analysed using a general coding frame and a Relational Model coding matrix. As described in detail in Chapter 3, the coding matrix was distilled from the theoretical literature and the pilot analysis work. As an interpretative exercise it follows the lead of Thompson & Rayner (1998)'s use of Cultural Theory: what is different is the formal application of a defined coding frame to a random sample.

7.2.1.2 *Media content analysis: outcome*

The analysis was necessarily interpretative and therefore not easily susceptible in any strict sense to reliability tests. However, the sample was coded twice, separately, for Relational Model content with the differences requiring reconciliation. Material not accounted for within the Relational Model matrix was reviewed to determine whether the matrix was failing to account for significant moral or value-based arguments within the climate change debate.

Chapter 4 used the matrix to generate a ‘thickly descriptive’ interpretation of the sample material: this justified the view that the Relational Models are indeed manifested in the climate change debate and that the Standpoints categorise the arguments effectively. Furthermore, all of the 46 arguments identified in the Relational Model matrix were well represented in the sample Appendix H.

7.2.1.3 *Sceptical voices infrequent in the media content*

There is an extensive literature documenting the role of vested interests in fostering ‘sceptical’ opinion in the media, particularly in the US (Oreskes & Conway, 2008) and opinion polls (Ipsos-Mori, 2008; Leiserowitz, et al., 2011) suggest many of the public remain unconvinced by the ‘consensus’ science. Contrary to the view that the media have fostered confusion in the name of ‘balance’, the random sample reflected an overwhelming endorsement of the consensus position on the science 4.4.5; the debate rages over what to do about it.

7.2.1.4 *Authority Ranking the dominant Model in the media content*

The prevalence of the AR Standpoint in the sample stems from two main reasons. First, the national media devote much space to the words and deeds of political leaders at home and abroad. With political leaders keen to offer reassurance alongside solutions, and keen to sustain the systems that have placed them in power, it is unsurprising that the Authority Ranking Standpoint’s preference for ‘Business as Usual’ appears frequently in the sample. Second, qualified expertise acts a gatekeeper for the voices admitted in to the media. Section 4.9.6 notes the weight accorded to established expertise: professors with narrow specialisms are nevertheless encouraged to opine on the broad social issues of the climate change challenge. The conservatism of this reliance on expertise proven through

lengthy steps of qualification and on scientific procedure honed over many generations is a hallmark of the Authority Ranking Standpoint.

As the Focus Groups also show, once the problem of global warming is acknowledged and accepted, it is hard to avoid solving the Commons Dilemma except by recourse to centralised authority. The media accepts the consensus, and accepts that government should be doing something about global warming. That still leaves plenty of scope for argument over what the government should be doing, and whether or not the 'Central Authority' should be international.

7.2.1.5 *Role of Equality Matching, and why so little has been achieved.*

As anticipated in Chapter 2, the Equality Matching Standpoint offers a powerful explanation of why 'so little has been achieved'. In a Commons Dilemma it makes no rational sense to disadvantage yourself individually when achieving no benefit to either yourself or the common good. Not only do individuals manifest this RM in their justifications for not doing anything, but political leaders also resist unilateral national emissions cuts for the same reason. The sample provides good examples of both.

7.2.1.6 *Interaction between Relational Models*

Chapter 1 discussed the different diagnoses available to explain the challenge of global warming. The most common diagnoses are captured by the equation ' $I = PAT$ '. Competing Standpoints argue over whether to reduce 'I' (environmental impact) by reducing population (P) or affluence (A), or by improving technological efficiency (T). A focus on affluence and excess consumption manifests the Communal Sharing Standpoint's concern over human and natural limits: a focus on technological innovation manifests the Market Pricing Standpoint's confidence in human possibilities and the opportunities offered by the natural world.

Both the CS and MP Standpoints require the 'Central Authority' to intervene to endorse and enforce their diagnosis and prescription, and the media representation of the debate carries many examples of the two vying for that endorsement in the sample. Currently the Authority Ranking Standpoint has largely abandoned its tendency to diagnose overpopulation as the problem (Thompson & Rayner, 1998, see also 4.9.3): preserving the 'Business As Usual' of a market society the AR Standpoint emphasises efficiency and the elimination of

waste even ahead of innovation as the first steps towards a solution, endorsing a rather unambitious vision of technological change.

7.2.2 Focus Group Analysis

7.2.2.1 *Focus Group Content Analysis: Procedure*

Six focus group meetings were held in November/December 2009, around the time of the UNFCCC summit in Copenhagen: these had between four and seven participants and lasted between 73 and 92 minutes. Transcriptions of the group discussions were coded using the same coding frame as the media content.

7.2.2.2 *Focus Group Content Analysis: Outcome*

The Relational Model coding matrix provided a rich and comprehensive account of the moral and value based content of the group discussions. As with the media sample, the coding exercise was necessarily interpretative and not easily susceptible in any strict sense to reliability tests. An alternative method of coding the content was used to confirm that 'value based' content addressing the issue of climate change was indeed covered by the Relational Model scheme and this was shown to be the case in all six groups.

7.2.2.3 *'Simplicity' of the dilemma recognised*

Although many participants bewail the confusing messages they receive, and the uncertainty over what they can do, the simplicity of the core structure of the problem is evident. Participants recognise the challenge of consumption styles in the Western world, rising affluence in the developing world and likely natural limits. They can anticipate, from a standing start, the necessary framework for a 'global deal' (5.2.3): they can anticipate that 194 parties are unlikely to agree and that the eventual solution will require the major emitters to get together separately (5.4.5) as indeed took place in the creation of the Copenhagen Accord (Environmental News Bulletin, 2009).

Some participants are more sceptical, but Nigel in LG1 does appear to speak for the others in saying that 'deep down most of us know' there is a problem (5.2.6). Participants' scepticism more readily finds expression in frustration at the confusing messages over what should be done, and in splanetic, generalised distrust of the politicians as the messengers.

7.2.2.4 *Dominance of the Equality Matching Standpoint*

Participants are smart enough to understand the issues from the Standpoint of the detached observer, or as one participant expressed it, from the Standpoint of ‘little green men looking’ down on our planet (5.2.2). However, down on earth, as citizens of the global ‘Commons’, the simplicity turns into complexity and their sense of powerlessness dominates: the science is confusing and the links between their own behaviour and climate change, or the then topical floods in Cumbria, too disconnected. The EM Standpoint is already convinced that life is tough: unreciprocated additional constraints in the form of taxes or higher energy costs would make it tougher still and are resisted strongly. These barriers to engagement are similar to those found in other studies (Lorenzoni, et al., 2007).

Section 5.6.2 discusses the extent to which the strength of the EM Standpoint in the focus groups is a function of the focus group format. Discussions take place isolated from any consequences, and this may encourage participants’ detachment from the issue and tendency to look to others for solutions (see Bickerstaff, et al., 2008).

7.2.2.5 *Interaction between Relational Models*

The dominant Relational Model dynamics are different from the media sample. In the focus groups the Communal Sharing Standpoint’s concern for future generations (in particular our own descendants), and for the planet in general, energises the discussion, as does the opposing Equality Matching’s self-defensiveness. Authority Ranking is frequently introduced in order to reject it, the lack of trust in politicians constantly surfacing in the four non-student groups.

However, as the discussion progresses the groups typically reconcile the CS and EM positions by looking to the government to do something (5.2.3), and they engage with many of the arguments of the Authority Ranking Standpoint. Empirically, the groups can see that social change does happen (5.4.3, 5.6.5) and typically this is associated with government campaigns, e.g. over littering or cigarettes in LG1. The irony of this being the government they so distrust is also recognised (5.2.7). Frequently the belief that it will need government action is expressed from an EM Standpoint: responsibility for dealing with the problem is someone else’s. Miles captures this in arguing that if climate change really was a problem ‘there would be’ laws to do something about it (MG1). Solomon echoes one of the letters in the

media sample (#138, 4.8.7) in arguing ‘Scientists should be out there’ doing something about it (5.5.2), as if the IPCC did not exist.

The logic of the EM Standpoint requires that there has to be something in it for you, some reciprocation, in order to act. A feature of the discussion is how personal experience can generate the relevance of climate change as an issue: direct experience by oneself or one’s family of extreme weather-related events, such as the bushfires in Australia (5.6.3), strengthens CS concern - potentially to a sufficient degree to make it worthwhile acting. The theoretical benefit to the common good of one’s own reduced consumption is enough of a payback, albeit not directly reciprocal, to motivate action.

However, although many participants are concerned, few are willing to take significant action in the sense of radically reducing their environmental footprint. Ryan Air boss O’Leary’s caustic comment that most footprint reduction “just panders to your middle-class, middle-aged angst and guilt” (#121) seems entirely justified when listening to participants justifying their continued willingness, or need, to fly. Only rarely do participants unashamedly assert that they fly because they can, and it’s cheap so they will, the empowered expression of the Market Pricing Standpoint.

7.2.2.6 *A smack in the face*

The groups acknowledge where their own approaches to climate change lead. The problem is not personally relevant to them: there is nothing in it for them to change unilaterally their style of living. A few, typically women, follow the CS logic of simply wanting to do the right thing, to have a clear conscience. But generally, until the context changes, they will not or cannot change. Bill in MG2 suggests we need a smack in the face to get us to pay attention. For the groups, in the UK, this means more floods: in the media sample it extends across the range of biblical plagues and natural disasters (4.8.4). The logic of the Equality Matching Standpoint drives people’s willingness, or unwillingness, to act. The Standpoint seems determined to fulfil its own pessimistic outlook.

7.2.3 Survey Data

7.2.3.1 *Surveys: procedure*

Three internet surveys were run. The first was a pilot survey recruiting by snowball with 101 respondents. The second two recruited a total of 578 respondents through two different agencies, a market research agency and a shopping aggregator. The main analysis was confined to the second two surveys. The question set comprised:

- 41 statements about climate change, measuring level of agreement on a 7-point Likert Scale
- 15 questions requiring respondents to choose which statement or policy they preferred out of either 2 or 3 alternatives
- 5 demographic questions.

The diversity within the demographics does suggest that this method of recruitment was significantly better than, say, a sample drawn from university students. However, there are potential biases in the sample selection that might well correlate with respondents' general outlook and hence their views on climate change. Indeed, there were small but statistically significant differences between the response sets drawn from the two agencies. The sample cannot be treated as properly representative of the UK population as a whole.

7.2.3.2 *Survey: research questions*

The analysis of the survey data was designed to address the following questions:

- A. Do the survey responses form coherent Standpoints based upon the Relational Models?
- B. The Media analysis and the Focus Group interviews both emphasise the role of the Equality Matching Standpoint: is this evident in the survey?
- C. Do individuals entertain multiple Relational Models?

7.2.3.3 *A: Coherent Standpoints?*

The clearest segmentation in the response set was between those who considered climate change to be a real threat requiring action, and those who did not (6.5). However, exploratory factor analysis showed that this division included two distinct factors. The first represents what could be termed a 'Mainstream' view

of climate change and the potential solutions to it (that it is/isn't a real threat, and it is/isn't something that society will have to prioritise). The second represents a response that we should/shouldn't 'Reject and ignore the issue'.

This division overshadows the coherence revealed for the Relational Models Standpoints. The CS and AR Standpoints appear to line up with the first factor, or the 'mainstream' view. The EM Standpoint appears to be central to the second factor. The MP Standpoint presents a more complex picture as discussed below. A Confirmatory Factor Analysis does provide tentative support for the view that the framework based upon the Relational Models does account for some of the variation in the responses and can be used to describe the patterning of the response set.

7.2.3.4 *A: the MP Standpoint*

The survey responses gave good support (6.5) for the hypothesis that the Communal Sharing, Authority Ranking and Equality Matching Models would form coherent Standpoints within people's views about the issue. This was not the case for the Market Pricing Model (6.3.7): respondents split the arguments expressing the Market Pricing Model into two divergent Standpoints, one emphasising the need to empower individuals to find solutions to climate change ('MP Empower'), the other assuming that climate change was not a problem and that individuals should be allowed to get on with their lives (MP Laissez-faire). However, the MP Model itself provides a persuasive explanation of this. The Market Pricing Model emphasises human ingenuity and the need to adapt to changing circumstances or different contexts. The logic of the RM will produce profoundly different responses according to whether an individual thinks that climate change is a serious problem, i.e. that the weight of evidence is sufficiently persuasive to assume that the circumstances have changed and that we need to do something about it. Respondents' adherence to either the MP Empower or MP Laissez-faire variations of the MP Model was closely associated with levels of belief in AGW as a serious/not serious issue.

7.2.3.5 *B: The EM Standpoint*

The survey provided considerable support for the view that the Equality Matching RM is central to people's reasoning about climate change. It emerged at the heart of one of the two key factors in the Exploratory Factor Analysis, forming a distinct

position of its own rather than simply a negative rejection of the ‘mainstream’ view.

7.2.3.6 *C: Do individuals use multiple RMs?*

The survey provided some limited support for the hypothesis that individuals would make use of multiple RMs in their views of climate change (6.6). Further, the two main factors behind the principal division in the response demonstrate that respondents can and often do hold conflicting positions. They can embrace the arguments motivated towards a group goal (the mainstream position) while at the same time resisting the consequent demands the group puts upon them as individuals (see section 6.4.1).

7.2.3.7 *Interactions between Relational Models*

The two main positions in the debate seem to represent a combination of arguments from different Relational Models. Consistent with the findings of the other two studies, a ‘centre’ or mainstream core combines AR arguments and those of ‘MP Empower’: for individuals, concern is motivated by Communal Sharing arguments, and many agree with Statements arguing for radical change. Although on the same side of the main divide, these Communal Sharing arguments for change represent a separate Standpoint from the Business as Usual preferred by the mainstream core.

On the other side of the divide, the Equality Matching arguments are closely associated with those of the ‘MP Laissez-faire’ Standpoint. However, the question set also included a disparate group of Statements that loosely express a generalised pessimism. The Communal Sharing argument (Statement 3) ‘There are limits: we cannot go on improving everyone’s lifestyle for ever’ and the Authority Ranking argument (10) ‘By some means the world’s population growth must be reduced’ both imply that climate change is a symptom, not the problem itself. The cluster analyses place the responses to these statements closer to the EM position than the other AR, CS and ‘MP Empower’ statements. As with MP, these two RMs appear to have different responses according to how the context to which they are responding is defined.

Fiske’s theory (1992, 2004b) suggests that culture will prescribe which RM is appropriate in a given context. We should expect, therefore, that for a contested

context like climate change individuals will be uncertain which to use: furthermore, the definition of the context - and therefore the determination of the right RM to use - remains unclear for many. Is climate change a real challenge or not?

7.2.3.8 *Survey limitations*

A persistent problem is now emerging. Based on Cultural Theory, and many other frameworks offered in the sociology of knowledge, we should expect the Relational Models, and the ideological Standpoints associated with them, to influence strongly whether respondents believe AGW to be a threat: the RMs should help to 'define the context' to which the views being surveyed are addressed. Yet at the same time, how the context is defined plays a part in determining which Relational Model might be the appropriate basis for addressing the issue. The survey used is too simplistic an instrument to unpick this circular interaction.

Sections 6.3.8 and 6.7.2 discuss some of the shortcomings in the survey. Some of the individual Statements were imperfect indicators for the arguments they were supposed to capture, and the question set would have benefited from refinement.

Although the analysis shows that the division of the response set reflects more than simply levels of belief in AGW as real issue, nevertheless high levels of belief correlate strongly with commitment to the mainstream view, while low levels of belief correlate strongly with adherence to the 'reject and ignore' position (consistent with Cultural Theory's argument that ideology and risk assessment are linked). Although many respondents tended to agree or disagree only weakly with the different statements, this gives an impression of rational choice, and a degree of certainty, to people's views. The survey design did not get behind this to unpack the uncertainty people feel (Whitmarsh, 2011) as much as could be wished.

7.2.4 Acknowledging some problems in the three studies

The summaries above recognise a number of limitations in the methods and implementation of the three studies. To put these into context, the research questions set out in 2.5.4 were open ended, or exploratory, in nature. On the one hand, the qualitative analyses could only yield the kind of thick description that is

essentially justified by the quality of insight offered in the account given of the debate. On the other, some of the current difficulties in the schemas hypothesised by each of RMT and CT, and discussed further below in 7.4, suggest that the four Relational Models, or worldviews, will be hard to disentangle from each other. At some level they may exist independently, but when instantiated in debate over a real social issue their interactions are multi-layered. Kahan's studies successfully demonstrate the relationship between particular worldviews and specific risk perceptions: and the survey in this thesis also gives some support to the idea that individuals have coherent Standpoints that are identifiable with the Relational Models when it comes to arguing about the risk of climate change. But this is not the same as testing a falsifiable hypothesis that four Relational Models account comprehensively for the debate or indeed that the RMs precisely define the only four Standpoints in the debate.

Fiske's elucidation of RMT has primarily been at the level of individual cognition, and much of the literature provides examples of how culture specifies which Relational Model is appropriate to which context. This tends to emphasise how effective the RMs are at orientating an individual's social relationships. At the societal level, which RM to use in respect of an issue like climate change is ambiguous and contested. Synthesising the Standpoints from CT and RMT has improved CT's account of the social level debate, but it is still subject to the same problems in that categorising the debate into just four positions still feels somewhat arbitrary. On the one hand, the studies suggest that, as a debate, the different arguments condense in to just two main approaches; on the other, just four positions oversimplifies the 'infinite variety out there' (2.4.1).

7.2.5 Consequences of the time sequence of the studies.

The three studies covered, or took place at, different times within the debate. Thus, the media analysis drew from articles up until August 2009: subsequent to that date the 'climategate' leaked email scandal cast doubt on the science of climate change ((Nature Editorial, 2009b) and the failed Copenhagen summit disenchanted the public (see 4.3.3). The focus groups took place either in the immediate run up to or during the early stages of the Copenhagen summit, while the survey was fielded in October 2010.

Generally, surveys show that the events at the end of 2009 were followed by a decline in concern about climate change (Poortinga, et al., 2011; Taylor, 2012).

More recent surveys suggest this decline has halted: the most recent 6 Americas survey shows a slight rebound in some measures, but not in others (Leiserowitz et al., 2012).

Sceptical views were notably absent in the media sample (4.4.5); were present, but usually faded behind a consensus position on climate change over the course of the focus groups (5.2.6); but were more obvious in the raw opinions of the survey (24% disagreed with the statement “It is now an established scientific fact that climate change is largely man-made”). It was particularly noticeable that the focus groups made no specific reference to the ‘climategate’ emails even as participants stated that they found all the divergent opinions confusing: uncertainty and confusion felt as if they were an in-built, longstanding quality of the debate, not something that had been stoked up recently. Other studies show the persistent influence of uncertainty in recent years (Lorenzoni, et al., 2007; Whitmarsh, 2011).

It is not really possible to judge how background policy-making events impacted the three studies. The media articles necessarily often reported such events. That the focus groups took place at the time of the Copenhagen summit could conceivably have influenced participant views in a number of directions. Certainly it would have made the topic salient, but Copenhagen itself was usually introduced into the discussion by the facilitator. Generally speaking, participant response to policy making is subsumed by their lack of confidence in politicians, a feature highlighted in sections 5.4, 5.5.2 and 5.6.9. The general social background, such as the context of economic crisis, would be expected to impact the perceived importance of climate change (see 1.7.2.2 and Downs, 1972). This may be reflected in the news intensity trends in the media analysis (4.3) but is not clearly detectable in the focus groups or survey both of which took place after the onset of the credit crunch and ensuing financial crisis.

Putting the 3 studies in sequence leaves an impression that scepticism has risen over time across the period during which the studies took place. Yet, as Poortinga and others (2011) note, the overall level of scepticism in the UK is modest even after the shift in recent years, and the survey results in this thesis accord with this. The possibility that these contextual changes over time have influenced the results cannot be discounted. However, it seems likely that variance in levels of

scepticism between the 3 studies is more a reflection of methodological influences - essentially what is likely to be identified and measured by each study:

- The media opinions seem to have been filtered by the consensus view,
- The focus groups suggested uncertainty and resignation rather than scepticism, and sceptical views were moderated by the focus group passage towards a consensus,
- The survey gave voice to a sceptical minority, whose online views were unimpeded by the social context.

7.2.6 Role of different methods in the studies generating differing accounts of the debate

The foregoing sections discuss a number of aspects in which the specific method of each study may influence the way the study accounts for the debate, both in general terms (e.g. regarding scepticism above) or in terms of the emergence of the Relational Models.

In particular, the subject matter of the media articles and their focus both on political activity and on reporting expert views seems to encourage the dominance of the Authority Ranking Standpoint in that study (7.2.1.4). Further, in the focus groups the format itself may have played a part in the strength of the Equality Matching Standpoint in that study (7.2.2.4). Lastly, section 7.2.3 discusses some of the limitations of the survey and the impact of the survey design on the results and the difficulty experienced in trying to disentangle the different Relational Models.

7.3 Comparison with Cultural Theory

7.3.1 Background

Cultural Theory argues that risks are not objective threat assessments but that organisations and societies choose the risks they are concerned about, and the risks chosen reflect the nature of the organisation or society. Organisations and societies have a view of how the world ought to be, and risks are only those potential events that threaten this 'worldview'. The theory goes further, suggesting that there are only four possible worldviews for societies (or organisations) to hold. In its purest form the theory only makes claims about social phenomena, but Cultural Theorists frequently illustrate their arguments with descriptions of individuals stereotypical of one of these four possible

worldviews. The theory has been influential: in part this influence derives from the simple plausibility of the stereotypical individuals. But the theory can give no account for how individuals gain or use the worldviews generated by social structures, and this weakness has been criticised very frequently (2.2.4).

Relational Models Theory sidesteps this problem by proposing an account of individual cognition which is mirrored in societal level structures. Relational Models are models of social exchange, and so they are dynamic and lived or enacted on a daily basis. This contrasts with Cultural Theory's inevitable emphasis on stability, on explaining how societies defend and maintain a seemingly rigid worldview, try as cultural theorists may to stress that tension between the opposing worldviews is necessarily unstable and over time, impermanent.

Both RMT and CT proposed matrices of arguments associated with each of their four worldviews or RMs. This thesis has synthesised sets of arguments from each of these into a matrix comprising arguments from four Standpoints on climate change (Section 3.4).

7.3.2 The Equality Matching Standpoint

RMT's Equality Matching Model naturally aligns with CT's 'fatalist' worldview. However, Cultural Theory explicitly excludes this worldview from playing an active role in shaping societal responses to contested issues (Thompson, et al., 1990, referred to as 'TEW' for convenience in this thesis; Thompson & Rayner, 1998). In CT's grid-group schema, fatalists passively accept the box into which the socially rigid grid places them.

As a model of exchange EM is an active stance. Daily life sees a constant flow of tit-for-tat reciprocation, of both favours and slights. Furthermore, the logic of the EM Standpoint justifies saying 'No' when an offered exchange does not achieve an adequate reciprocation. Cultural Theorists are right to say that this negativity cannot sustain an organisation of any size or longevity (TEW), but this misses the formidable role that the EM position plays in blocking the social responses proposed by each of the other three positions. The survey results particularly highlighted EMs importance to arguments for rejecting and ignoring AGW as a problem. As of 2012, the EM position that requires reciprocation for steps taken to combat climate change is the strongest determinant of policy.

Unsurprisingly the media sample has several examples of this EM logic blocking action, at the level of nation states (e.g. #16), at the corporate level (#67) and at the individual level (#136). The CT account of the debate is incomplete without the EM Model.

TEW characterise the fatalists as an unattached pool from which the other three active worldviews can recruit (2.3.6). The focus groups particularly bear this out. Participants, following the EM Model, are not ready to see anything done about climate change when it feels unfair, when there is nothing in it for them to submit to restrictions or extra costs. Yet once they are genuinely concerned about a threat which might affect them, which has personal relevance, the logic of reciprocation justifies shifting to an Authority Ranking Standpoint. Participants look to the government for protection against the now real threat, accepting legislation in return.

While wrong to marginalise ‘fatalism’ in their account, Cultural Theorists are right in arguing that fatalism, or Equality Matching, cannot be the basis for organising a long term, sustainable, society. The EM Model demands transparency in exchanges, avoiding reliance on trust or the co-operation born of mutual interest. Edward Banfield (1958) describes how the villagers of Montegrano in Southern Italy live impoverished lives dominated by a complete lack of trust so that almost any offered exchange is viewed with suspicion. His introduction stresses that the co-operation and institution building which lay the foundations of modern society, and which we take for granted, are in fact relatively novel and unusual⁶⁵. A serious account of the climate change debate has to integrate the reasons why humanity may fail to resolve the Commons Dilemma, namely the EM logic which blocks co-operative policies dependent upon trust and shared identity. Banfield’s title, ‘The Moral Basis of a Backward Society’, should serve as a warning. Today’s tit-for-tat intransigence is not the basis for a long term, sustainable society.

7.3.3 The relationship between Man and Nature

An important element of the Standpoint matrix put forward by this thesis is the arguments over the relationship between Man and Nature. In its very earliest

⁶⁵ Montegrano is a fictitious name for a real community. Its peasants do not actually subsist in an institutional vacuum. They are subject to governmental interventions from the provincial capital, but this is a government they play no part in, something that is just an external feature of the harsh environment they live in. Verweij (2007) drew attention to the insight Banfield’s study offers to both CT and RMT.

form, Cultural Theory linked low-group worldviews (equivalent to the Market Pricing and Equality Matching RMs) with views that identified nature as separate from Man, and high-group worldviews (equivalent to Communal Sharing or Authority Ranking) with views treating Man as integrated with Nature (Ostrander, 1982). RMT extends this idea by treating Man's relationship with nature as similar to Man's relationship with other people. The MP and EM Standpoints treat Nature as 'other'. MP encourages investment in nature in return for which there will be increased opportunity, a to and fro of adapting nature and adapting to nature. The EM Standpoint is best characterised by pre-enlightenment attitudes to nature, where the difficulty of trading reciprocally with an unpredictable nature encouraged superstition (biblical plagues as the wages of sin, #99) or terrified awe (#111)(Fagan, 2008). The other Standpoints treat nature as part of the community, to be nurtured (CS) or stewarded (AR).

The focus groups show that it is only when the Equality Matching Standpoint is faced with the terrifying awe of nature, or perhaps the extreme weather events anticipated as the reciprocal consequences of human CO₂ emissions, that people will revert to the Authority Ranking Standpoint and demand government action. This prospect eerily echoes the Alpine villagers begging their feudal lords to save them from the advancing glaciers in the little ice age (#111).

7.3.4 Cultural Theory and Relational Model theory combined

Synthesising CT and RMT provides a stronger account of the climate change debate than CT on its own. Yet both theories fail to provide convincing explanations of the structure linking the four types in their typologies. The next section examines what we might learn from this.

7.4 The Structure of the Standpoints

7.4.1 RMT and CT structures compared

Both RMT and CT propose taxonomies of four 'types'. CT treats these as a 2x2 matrix and RMT treats them as four discrete models, but with the suggestion that the simpler RMs are nested within the increasingly complex RMs (Fiske, 2004b, p. 8). Both theories have a floating detached or 'asocial' position that is not satisfactorily integrated into a comprehensive framework.

Both theories also treat one of their four types as different in quality from the others. For CT, the fatalist worldview is considered passive in contrast to the active engagement of the other three. For RMT, Market Pricing is considered to be emergent in developed societies and often virtually absent in less economically developed societies. Once Fiske had named this Model ‘Market Pricing’ this conclusion became almost inevitable.

The fatalist worldview (=EM) and MP Standpoint (= Individualist worldview) are both on the ‘low-Group’ side of CT’s 2x2 schema: by contrast to these two, the ‘high-Group’ Communal Sharing (=Egalitarian Worldview) and Authority Ranking Standpoints (=Hierarchist) are unproblematic, easily defined and demonstrably present in many social domains.

7.4.2 The Individual and the Group

Both the EM and MP Standpoints are most easily understood as expressing arguments of the individual, in interaction either with other individuals or with groups or wider society. In each of the empirical studies, overlaps between EM arguments and MP arguments were evident (4.11.3, 5.3.7, 6.7.8). The content analyses showed writers and speakers feeling that good manners should sometimes restrain the expression of both MP and EM arguments. The extreme MP position (“I’ve worked hard and I’ll spend my money as I like) is offensive and boorish: the extreme EM position (“That’s not fair, what’s in it for me?”) sounds pathetic and whingeing. In both cases individual expression of self-interest takes place in a social context, mindful of the social reaction to that expression. Individuals therefore temper and disguise their self-expression and inevitably this makes it harder to categorise expressions of self-interest⁶⁶.

This difficulty in disentangling the Standpoints extends to the pervasive role of money. Ostensibly, money as an external measure of value, and the use of market solutions to address climate change, both suggest that references to money form part of MP argumentation. Yet for many individuals money, and not having enough of it, is an oppressive thing. For them, concern about increased energy prices most easily finds voice in EM arguments that change is not fair, and that they are not getting anything in return. For them ‘money’ is part of the tough social environment they have to survive in, and their defensive, sometimes

⁶⁶ See also 4.7.1, 4.7.7, 4.8.6, 5.2.2, 5.6.3 and Appendix J3 LG2, which identify awareness of good manners affecting how people assert themselves against the group interest.

fatalistic arguments echo the EM arguments of earlier times when agriculturally based individuals survived in an unpredictable natural environment. As a result categorising arguments about money and prices is often particularly difficult. The EM fatalism even merges into CS rejection of the market society when Jayne complains “You can’t eat money, you can’t breathe money” (MG2.665).

This thesis has broadened the conceptualisation of the MP Standpoint compared to Fiske’s formulation. In part this imports aspects of CT’s Individualist worldview. More generally, it is an attempt to make explicit the unstated assumption that to have an equity based system of value, the individual must have the libertarian right to enjoy unimpeded the proportional fruits of his labour and investment. Without this essential social element, Fiske’s emphasis on rational calculations of cost and benefit measured against external standards is almost asocial. Yet the necessary consequences of this wider understanding of MP is to generate a potential opposition between the individual and the group and to make an overlap with EM more likely.

7.4.3 The defensive and assertive individual

The logic of the EM Standpoint, based on reciprocity, and the logic of the MP Standpoint, based on equity, are exactly as spelt out for the RMs by Fiske. However, when it comes to interacting with ‘the group’, the data in this thesis often show the EM Standpoint as a defensive position. Individual citizens look for something in return from society to reciprocate their contribution, and are constantly wary of having things taken from them and getting nothing in return. By contrast, the MP Standpoint is commonly an assertive stance, for which society is potentially a restrictive hindrance to the individual’s right to maximise opportunities.

In his original formulation of RMT, Fiske references Piaget and emphasises the developmental sequence in which children first externalise each RM, and he sequences his account of the four RMs accordingly, CS, AR, EM and MP (Fiske, 1992). Subsequently he speculated on the possible evolution of the RMs (Fiske, 2000, 2004b) but this misses the opportunity to consider the developmental path of actual relationships over time. For Fiske a ‘fundamental tenet’ of his theory is that the RMs are ‘discrete cognitive categories’ (Fiske, 2004b, p. 19). Haslam’s studies demonstrated the ‘systematic covariation of some models as a function of contingent social and cultural norms’ (Haslam, 2004, p. 30) but the overall

approach, defining a relationship at a particular moment through questionnaire responses, underplays the fluidity of actual lived relationships. Parties to exchanges based on one RM will also exchange using the logic of other RMs - the boss at work (AR) frequently seeks to be one of the lads (EM). Fiske and others have researched the misunderstandings and taboos surrounding the application of the wrong RM to an exchange (Fiske & Tetlock, 1997; Tetlock, McGraw, & Kristel, 2004) which again tends to emphasise rigidity rather than fluidity⁶⁷.

Cultural Theorist Verweij (2007) criticised Fiske for failing to isolate the four RMs, arguing that a scheme which could not demonstrate the clear independence of its four categories would not be useful. Fiske makes very clear that instantiation of the RMs involves complex interactions and combinations between the RMs (Fiske, 2004b). His delineation of the four distinct RMs cannot avoid oversimplifying these. To isolate the RMs requires fixing them at a point in time, to emphasise relationships rather than relating. Looking at how the process of relating ebbs and flows can create a different perspective.

Instead of concentrating on the individual's developmental trajectory, it helps to look at the lifespan of the relationship itself, or the process of relating. Two strangers, or two groups that have not encountered each other, are likely to engage initially in EM exchanges. If these build up trust, CS exchanges are possible, with the parties no longer needing transparent assurances of reciprocation. Within more complex societies involving multiple parties, interdependence is likely to lead to power differences and AR ordering of exchanges. Individuals who have been brought into the group (whether structured on AR or CS lines) will then have a dual position, as a group member and as an individual. As individuals, they can pause to reflect on what is in it for them to *be* group members⁶⁸. From this perspective, exchanges with the group will follow either EM or MP logic: in EM, the individual demands fair and reciprocal treatment in a social contract in which the individual accepts the burdens of citizenship. In MP, the individual asks society to facilitate his efforts (MP Empower) or at least for society not to hinder his freedom to act (MP Laissez-faire). Typically the group

⁶⁷ 7.3.1 criticised Cultural Theory for its focus on stability, and suggested RMT offered a more dynamic picture based on social exchange. Yet now the RM Standpoint framework is criticised for failing to capture the fluidity of relating over time. This challenge between specificity and generality, illumination and oversimplification, is inescapable.

⁶⁸ Clearly, a consequence of the RMs is that group members rarely stand back and question their membership. Most of the time they simply follow the prescriptions of either the CS or AR Models. But the underlying contract is still there.

or society construes the first of these exchanges within an AR logic: citizen submits to the burdens of citizenship in return for protection (in the form of policemen, doctors, traffic lights etc.). In the second, CS logic justifies the group, society or the state facilitating individual effort (in the form of subsidies, schools, progressively freer trade and travel etc.) in the expectation of benefits from empowered individual effort that all can gain from.

Fiske notes the mathematical logic underlying the exchanges, and this supports the developmental trajectory described above. The initial EM and CS relationships both target equality, while the AR and MP relationships that imply more developed interaction both seek to maintain asymmetries. This antithesis is similar to Douglas and Wildavsky's (1982) pared down version of CT into the border versus the centre.

This account also offers the opportunity to integrate the 'asocial' Standpoint floating unsatisfactorily around both CT's and RMT's schemas. At the extremes, both the EM and MP modes of relating to the group (or individuals) will slip into asociality. If trust builds through successful EM exchanges, CS relationships can follow: if trust breaks down from failed EM exchanges, asocial relationships follow or the minimal exchanges characteristic of Banfield's backward society. Aggressive individualists demanding empowerment by the state can also lose sight of the implicit social contract within MP: a century ago they might be described as robber barons, now society decries stateless financiers swapping tax domiciles in a disconnected derivatives world of their own making. Detached observers are asocial too: their licence to think freely and criticise the established order occupies an MP position. Taken to the extreme, as when John Gray (2006) argues that mankind is not up to the challenge of global warming, the detached observer ends up in the asocial position of the 'little green men' in focus group MG1.

Fiske & Haslam claimed that the four RMs were discrete categories, not continuous dimensions: e.g. either the logic of an exchange follows EM rules or it does not (Fiske, 2004b; Haslam, 2004; Haslam & Fiske, 1999). They then argue that culture prescribes which RM rules to follow in different domains and different relationships. Across time, though, parties to a relationship build and lose trust⁶⁹

⁶⁹ The example in 2.4.6 of separated couples reverting to EM exchanges provides a good illustration here. Vestigial CS exchanges, even 'trying to get back together again', coexist with bitter EM resolutions to the practical problems that have to be resolved on a week-to-

on a continuum so that during the same period (as opposed to a precise moment and situation) the rules from different RMs will be appropriate to different circumstances. We should therefore expect the Standpoints to overlap in the way that the media sample and focus groups demonstrated.

7.4.4 The role of Equality Matching

Interpreting both the EM and MP Standpoints as defining relationships between individuals and the group or society, as well as between one individual and another, makes it easier to understand why Cultural Theory explains societal phenomena using only one 'low group' worldview (the individualist, ≈MP) together with the hierarchist (≈AR) and the egalitarian (≈CS) 'high group' worldviews. The arguments of the EM and MP Standpoints, when emphasising opposition between the individual and the group, are hard to distinguish: 'MP Laissez-faire' has similar consequences to EM's resistance to disadvantageous change. However, the two Standpoints have fundamentally different responses to social problems. Once the problem is taken seriously, EM will necessarily be 'recruited', to use CT's analysis, into the AR Standpoint. MP will continue to argue for independence.

7.4.5 How to improve the theoretical framework of the RM Standpoints

Section 7.2.4 described the research questions in this thesis as exploratory. They have been tested first by qualitative analyses to see whether the framework of RM Standpoints provides an effective account of the debate, and second through a quantitative analysis to assess whether the arguments used by individuals do form coherent Standpoints along the lines proposed by the framework.

Section 7.2.4 anticipates that the layering of Relational Model arguments in real life debate makes disentangling the independent RMs almost impossible; section 7.4.3 worries that disentangling them misses the point. On the one hand, Fiske's quest is essential to identify and define genuinely distinct RMs. On the other, the quest itself obscures the fluid process of relating over time. However, further work can address important questions that have emerged:

- A refined survey question set is needed (1) to unpack the relationship between the two main factors underlying responses and levels of belief in/scepticism about global warming, and (2) to test whether EM arguments

week basis. Successful EM exchanges could establish a new CS foundation (we're still best friends); unsuccessful EM exchanges will gradually drift towards the asocial.

and (3) MP Laissez-faire arguments can be shown to be distinct. In addition, the presumption that EM arguments will give way to AR solutions when climate impacts hit needs to be tested by examining whether those advocating EM arguments are more easily drawn towards AR solutions than those advocating MP Laissez-faire arguments.

- An alternative split ballot survey is needed to test whether (1) belief in/scepticism about global warming or (2) an EM Standpoint plays a stronger role in generating the other.
- The broader definition of the MP Standpoint used in this thesis compared to Fiske's RM needs justification. Largely it was driven by dissatisfaction with Fiske's suggestion that MP is only emergent in developed societies. If the account in 7.4.3 is correct, the MP Standpoint would have been present in earlier societies. A qualitative study of pre-enlightenment textual material would be needed to test this⁷⁰.

Beyond theoretical interest, the value of further study is driven by the importance of better understanding the EM Standpoint. It is the EM Standpoint that blocks resolution of the Commons Dilemma.

7.5 Implications for understanding sustainability

7.5.1 Reformulating "I = PAT"

Thompson and Rayner (1998) tie the three active worldviews to specific diagnoses of the global warming problem: the hierarchist (\approx AR) blames overpopulation, the individualist (\approx MP) attributes the problem to market pricing failures and deficiencies in property rights legislation, while the egalitarian (\approx CS) blames overconsumption. The logic of improving market pricing or the legislative framework is to encourage technological innovation. Once the individualist/MP diagnosis has been redescribed as a diagnosis demanding technological solutions, the three worldviews can be seen to be taking different positions on how to change environmental impact in the equation:

⁷⁰ This will not be straightforward. The dominance in the Western world of free market philosophy follows the rejection of fascist and communist authoritarianism. The disciples of Hayek (1944), Friedman (2002) and Popper (2002) ensure that CS values are under constant attack as (they argue) inescapably leading to authoritarian control. In the same way, we should expect that radical free thinking in the past would have been suppressed in societies where concentrated power was the norm. On a day-to-day basis, individuals may have used the logic of the MP Standpoint, but explicit written statements of it as guiding philosophy are likely to be rarer.

$$I = PAT: (P - AR, A - CS, T - MP)$$

Environmental sustainability is a social problem as much as an economic one, yet this widely influential equation (1.3.6) is exclusively materialistic. At a point in time, the number of people multiplied by the material consumption ‘multiplied by’ the technology employed to feed the consumption creates the impact. But over time, change in any of these three factors requires co-operation and social cohesion. The change in environmental impact over time is therefore a function of four elements:

$$\Delta^I = (PAT)^C,$$

where ‘C’ seeks to capture the level and nature of social cohesion. The RM Standpoints framework suggests relating through successful EM exchange is fundamental to the building of trust. The Commons Dilemma cannot be solved without co-operative agreement as to what combination of population control, consumption restraint or technological innovation the commoners are going to employ. EM intransigence, bordering on the asocial, currently determines international negotiating stances at the UNFCCC conferences, and as a consequence environmental impact is increasing over time.

7.5.2 Building Trust

This reformulation is helpful in getting an equation that sums up sustainable economics beyond a narrow materialist framing. Unfortunately the reformulation leads towards gradualist conclusions similar to those of David Victor (2004). We need to build trust from smaller scale co-ordination of climate change policies before blithely assuming a ‘global deal’ can be struck and kept. A particular problem for this trust building exercise is the issue of timescale. Transparency of exchange requires short term reciprocation. The co-operation needed will only bear fruit over the long term.

These observations are not new: Mancur Olson (1965) emphasised the conflict between rational self-interest and collective goals, and Onora O’Neill (2002) has commented on the challenges to maintaining trust in modern society. Others, such as Elinor Ostrom (1990), have studied the ways in which Common Pool Resources can be successfully managed. Trust, and transparency, are essential:

“When resource users cannot communicate and have no way of developing trust in each other or in the management regime, they tend to overuse or destroy their resource as the [tragedy of the commons] model predicts. Under more typical circumstances of resource use, however, users can communicate and have ways of developing trust (Stern et al., 2002, p. 456)”.

The authors of the above quote, including both Ostrom and VBN theorist Paul Stern (see 1.6.1), go on to list a number of Group and Individual characteristics that impact the development of co-operation. Unsurprisingly, smaller, homogeneous groups find co-operation easier (p488). Such positive case studies of successful management of Common Pool Resources, often in geographical spaces that have definable boundaries, serve to highlight the unique challenge posed by global warming.

7.6 Attitude Theory

7.6.1 Pro-environmental attitudes

Ostrom’s work notes the importance of internalised norms (Ostrom, 1990). The rational actor models used in attitude theory seek to incorporate such deep lying values, as, for example, in Paul Stern’s Value-Belief-Norm model (Stern, 2000b), see Chapter 1.

Rational actor models accommodate the original framing of the $I=PAT$ equation very easily. Concern for the environment (I) requires the rational actor to look at each of the population (P), affluence (A) and technology factors (T), to perform the utilitarian calculus. Unfortunately, this framing encourages the reduction of the individual rational actor’s calculation to a straight choice between impact on the environment and personal affluence. Technological development and population levels lie outside the perceived behavioural control of the individual, with technology likely to become merely a means to increase individual affluence.

Yet people clearly do have pro-environmental attitudes, and do act upon them. PC Stern sought to specify the deeper values that might underpin pro-environmental attitudes and behaviour (Stern, et al., 1999). Stern attributed ‘biospheric’, ‘altruistic’ and ‘egoistic’ values to individuals, inferred from surface indicator variables. That these values exist in some sense can hardly be challenged: both the media sample and the focus groups provide plenty of examples where, respectively, concern for the environment, concern for other people and self-centred concerns are manifest. The survey respondents express these collective ‘values’ too, alongside values expressing self-interest..

The origin and structure of these values remains mysterious. Clearly they could also be mutually incompatible in some contexts. The incompatibility is what creates the debate, and is what the media and focus group material constantly wrestles with. The survey too revealed respondents committed to both collective and self-interested goals: but because the rational actor model accounts for behaviour empirically, if the actor makes a choice between mutually incompatible goals then somehow the actor must have resolved the incompatibility within the utilitarian calculus. The actual choice made is taken to reveal the actor's true preference.

7.6.2 Accounting for what has happened

The rational actor model can account for many of the key elements in the climate change debate:

- **Uncertainty:** transparent information is vital to the rational actor. The lack of certainty regarding the science and the complex causal chain between emissions from citizens driving their cars and subsequent increased flooding or drought inhibits action. All of the focus groups provide examples of individuals inhibited by confusion over the science. In the media examples, consensus science takes lack of complete certainty for granted: e.g. #29 'the effects of climatic change are difficult to predict'.
- **Accessibility:** the need for trustworthy information puts a premium on accessibility. As a result information gained through personal experience or direct relevance powerfully influences decision making. When it's snowing outside, how can the world be warming? The focus group participants frequently look to their own experiences of the weather. For the media, the use of authoritative opinion encourages specialists to rely on their area of expertise. Climate change become meaningful for birdwatchers when observing changes in numbers when counting birds (#115).
- **Inconsequence of one's own actions:** the Commons Dilemma can be explained by Ajzen and Madden's 'Perceived Behavioural Control'. One's own emission reductions are dwarfed by the growing emissions in the developing world: it is irrational to sacrifice one's own interests. As Emma in LG2 says 'we are a tiny country compared to somewhere like China'.

- **Shortening the horizon:** This necessarily leads to the conclusion that society must make behaving pro-environmentally in the individual's own direct short-term interest (Miles in MG2 declares: "I'll do things that are green purely if they benefit me"). Society's strongest levers are pricing or shame, both potentially high currency in the utilitarian calculus. Yet to motivate action, the shame or cost impacts have to hit in the near term: the focus groups provide several examples of participants taking comfort from the idea that the worst impacts will be after their lifetime. The Relational Models account and the Attitude Theory account both emphasise the importance of personal relevance in motivating action. The inevitable implication of this is that we 'smack in the face' (MG2) from, for example, extreme weather before concern will translate into concerted action.
- **Subjective norms:** Ajzen and Fishbein's model (1980) incorporated this element of shame by including subjective norms as an independent variable. You do not litter because it is frowned upon more than because you might be fined. Yet the attitude theory's analysis of individual calculation cannot really explain where this shame comes from, or why and how society gradually deems it unacceptable to litter. An account of social processes, such as Elias' (2000) detailed analysis of the evolution of good manners, seems necessary to explain how the individual internalises societal values. The focus groups frequently reflect upon this gradual process of social change, looking at smoking and littering as examples. With respect to current materialist life styles they assume that the current generation is incorrigible and only extended socialisation will change the next generations habits.
- **Discount rates:** Can the rational actor account explain what drives a societal intervention or justify why a society should choose pro-environmental action for the sake of future generations? Why should the individuals who make up or lead society take these choices? The Stern Review calls for extremely low discount rates to make the cost benefit analysis work (Stern, 2007): many challenge this (e.g. Schelling, 2000). They presume that future generations will be considerably better off than present generations, so that it is illogical, even unethical, to ask present generations to foot the bill for their richer descendants. Over two thirds of survey respondent agreed with both Statement 7 ('It's not fair for us to leave future generations with a worse environment than we have now')

and Statement 35 ('When it's clearer what the impacts of climate change are, future generations will be better placed than us to address the problems of climate change'). Both seem to be reasonable, and morally defensible, positions.

The rational actor account, to which attitude theory is closely bound, now feels inadequate. First it must conjure up 'society' to generate environmental constraints (imposed pricing or shame) to which individuals will adapt, without really being able to explain what will motivate society's individuals to do this. The explanations tend to resort to social values that go beyond utilitarian self-interest. So the rational actor approach has a similar problem at the practical level to the attitude models at the theoretical level: exactly where do 'non-utilitarian' values come from?

The extreme utilitarian position can remain true to its principles by arguing that we should let the next generation look after itself. Many argue that this pure Market Pricing position is morally right (e.g. Lawson, 2008). Sticking to induction, we can rely on the evidence in the rear-view mirror, and reject the Malthusians' deductive claims that theory tells them the CO₂ concentrations will eventually be too high. Joe Rogaly neatly captures the Malthusian, Communal Sharing response in #34 of the media sample: "You might as well tell people on a raft on the Zambezi that there is no such thing as a waterfall, since the Victoria Falls has not yet been encountered".

7.6.3 A plural values approach

It is not enough to dismiss the Malthusian response as irrational panic as e.g. Booker & North do (2007). History tells us the doom-mongers are sometimes right (Diamond, 2006). Different contexts call for different approaches and this thesis has followed Kluckhohn & Strodtbeck (1961) in assuming that human beings have been faced with recurring problems over time, and employ a limited number of approaches to address these different contexts. These approaches cannot be collapsed into the logic of one super-ordinate approach such as utility maximisation. Prioritising utility maximisation is a normative choice not a complete description of individual reasoning and behaviour.

Engaging with the Malthusian response rather than dismissing it out of hand requires us to take its pessimistic conclusions seriously. The next section considers where this leads.

7.7 Determinism and pessimism

7.7.1 Background

Cultural Theory is criticised for being deterministic (2.2.4.2). Describing the social world in a way that tries to explain why the world is structured as it is suggests that it cannot be changed. Further, it can be seen as defending the status quo and supporting prevailing power structures. When determinism is accused of arguing fatalistically that the present state of affairs could not have been avoided (as well as cannot be changed) it is often treated as a taboo. Historical events and sociological phenomena derive from the interaction of people and the environment. Whether we explain those events with reference to how societies are organised (e.g. Cultural Theory), human nature (e.g. the Bell Curve, (Herrnstein & Murray, 1994)) or accidents of the environment (e.g. Jared Diamond's Guns Germs and Steel (2005)), critics take such explanations to deny free human agency or to discriminate against disadvantaged groups.

Pessimism too often seems taboo, especially on the subject of climate change. Commentators are required to provide solutions, and to say 'Yes, we can do it!' Diamond sought to answer critics of the supposed determinism in Guns Germs and Steel by titling a subsequent book 'Collapse: How Societies Choose to Fail or Survive'. Diamond's solution is the same as the focus groups' conclusion, a resort to Authority Ranking arguments. For him how societies choose to survive 'involves the courage to make painful decisions about values' (p523) and the willingness 'to subordinate ... individual rights to group interests' (p524), going on to write approvingly of China's restriction of 'the traditional freedom of reproductive choice' (p524). The reluctance of democratically elected governments to make tough choices came through in the media sample (Section 4.13).

The belief that resorting to stronger central control is the only ultimate solution is commonplace. Some political scientists (e.g. Shearman & Smith, 2007) argue that problems like climate change spell out the inadequacy of democratic government since in their view the challenge can only be met by authoritarian control. Diamond is relatively guarded in his discussion. Others, such as Garrett

Hardin (1974, 1999) and Paul Ehrlich (1971), are much more explicit in advocating nationalistic and illiberal policies in the face of ecological threats. Can we tackle the problem of climate change without resorting to authoritarian restrictions and international resource conflicts?

7.7.2 Standpoints and solutions

The Equality Matching Standpoint provides the foundational logic for the Commons Dilemma. The Standpoint does not form the basis for a sustainable society. The media and focus group studies both support the view that advocates of EM arguments, if alarmed enough by the threat of climate change, will shift to the Authority Ranking Standpoint. EM will be recruited by AR (to use Cultural Theory's terminology). The other two Standpoints will resist this. Communal Sharing objects to the pessimistic and deterministic narratives because their AR solutions deny emancipation. The Market Pricing Standpoint objects to the narratives because the solutions are illiberal. Yet each of the CS and MP Standpoints are happy with government intervention provided that it targets their own definition of the problem.

If you accept the consensus science, you can still take the extreme MP view and argue that we should expect future generations to look after themselves. Probably, this means trusting in geo-engineering solutions to prevent excessive warming. But most people taking the extreme MP position have not really accepted the science and trivialise environmental concern as alarmism (Booker & North, 2007; Lawson, 2008). The science indicates that there are thresholds or tipping points and it is the idea of these that generates alarm.

7.7.3 Reasons for alarm

The IPCC's third assessment report summarised the 'Reasons for Concern' over the impacts of climate change in a graphic (McCarthy & Intergovernmental Panel on Climate Change. Working Group II., 2001, p. 958). The reasons for concern, divided into five categories, are plotted as coloured⁷¹ bars measuring severity against the increase in global mean temperature. Referred to as the 'burning embers diagram' the bars move from yellow to orange to red with increasing severity as the temperature rises. The graphic is potentially strong propaganda (Revkin, 2009): an updated version shows that reasons for concern have increased

⁷¹ The original was printed in black and white, but subsequent reworkings of the diagram usually use the colours that gave the graphic the 'burning embers' name.

considerably (Smith et al., 2009). When authors take a detached view, and projections are projections not policy targets designed to make a not-too-alarming outcome seem possible, the conclusion is that humanity will take earth well into the red zone (Hamilton, 2010, p. 228).

Yet this is just to worry about global warming. Rockstrom (2009) and others produced their own graphic in *Nature*, 'Beyond the Boundary', mapping what they term to be a safe operating space for humanity across nine planetary systems. Their graphic suggests that although projected climate change will cross the threshold, the state of the nitrogen cycle and the level of biodiversity loss is already far more critical.

Rayner's studies of millenarian cults led him to argue that egalitarians (\approx CS) take a compressed view of time: we are on the threshold, the moment is now. The discourse of 'Peak Oil' is typically presented in these threshold terms, sometimes carefully reasoned (Leggett, 2005), sometimes more apocalyptically (Mobbs, 2005). Peak Oil is a key factor in motivating the Transition Town movement, a typically CS solution to environmental threats (Chamberlin, 2009). Ehrlich's 'the Population Bomb' (1971) predicted that mass starvation would start in the following decade. With only one life we each have a self-centred experience of time: our own moment is now. Astronomer Royal Martin Rees wrote:

'this century is special. It's the first in our planet's history where one species - ours - has Earth's future in its hands, and could jeopardise not only itself, but life's immense potential' (Rees, 2009).

Like Ehrlich he included food security as a real concern, and like many of Ehrlich's generation he includes our technological capacity for destruction as a further risk. There is the threat from biological warfare and newly emergent superbugs as well. Rees predicted a 'perfect storm' of challenges to human prosperity emerging in the 2030's (Rees, 2003). Yet in the meantime, more short term problems like the economy dominate the agenda⁷².

Amidst the welter of prophecies and warnings, it is worth remembering that all of these factors are inter-connected. As a result, we will almost certainly be surprised by the actual sequence of events. Nevertheless, it does seem fair to

⁷² Searching Nexis as in 4.3.2, articles in UK National Newspapers with the terms 'climate change' or 'global warming' numbered 2,957 in the first half of 2011. Articles with the terms 'debt/ credit/ financial crisis' or 'budget deficit' numbered 7,056 over the same period.

assume that during this century the balance of the $I=PAT$ equation will cross a threshold, and that the consequences will move society from debating alarmist warnings to responding to severe and present challenges, and these will be challenges that generate serious alarm amongst the general population. The definition of the context will shift decisively to one where the majority accept environmental stress and its indirect effects as a present, global reality. Electorates will mandate governments to prioritise the issue, to make the tough choices currently avoided. In other words, a social threshold will have been crossed alongside (albeit possibly lagging) the material thresholds. How best should we manage the alarm? What would be 'good' tough choices?

7.7.4 Restrictions without authoritarianism

The Standpoint framework predicts that we will only cross the social threshold required to start acting decisively in response to climate change threats when those become real, not forecast⁷³. Even then Market Pricing adherents may well advocate massive geo-engineering solutions, but at some point a more purely Authority Ranking Standpoint will become dominant. Shortages will engender restrictions. The social challenge will be to avoid the worst horrors of authoritarian government.

At points of crisis the EM Standpoint blames others. Social Identity dynamics easily fuel nationalism in crises⁷⁴, and centralised authorities can legitimate isolationist, lifeboat ethics by scapegoating outsiders. This is the social risk to go alongside the risk of climate change.

7.7.5 A good life in a difficult world

Ehrlich and Hardin's solutions, the lifeboat ethics of metaphorically tipping excess passengers overboard, seem repulsive. They justify libertarian fear of CS values: CS preaches equality, but the CS Standpoint towards others is likely to show the same discrimination between in-group and out-group members identified for the AR Standpoint (4.9.7). Group members have no obligation towards those outside

⁷³ The utilitarian account can make sense of this equally well. Remote consequences are discounted.

⁷⁴ Different social psychological theories all provide useful accounts. Tajfel (1982) demonstrates how antagonistic nationalism emerges if we define ourselves as different. Sherif's (1966) realistic conflict theory demonstrates first how scarce resources can intensify inter-group conflict, and second how the solution requires the recognition of a shared 'superordinate' goal.

the group, endorsing asocial relations with out-group members. This may seem repugnant, but in a world of shortages, a way through the tough choices will have to be found.

For the individual consumer, the choices are also confusing. On the global commons, cutting your footprint by not flying *does* only make an infinitesimal difference. So what makes a good life in a post-tipping point world?

None of these challenges are novel. People in many parts of the world frequently have to choose between their own needs and those of others: and those who do not, or who are not forced to notice that they are making such choices, should count themselves lucky. What varies is the specificity of the historical and geographical context. It is worth repeating Kluckhohn and Strodtbeck (1961, p. 10):

“...There is a limited number of common human problems for which all peoples at all times must find some solutions. This is the universal aspect of value orientations because the human problems to be treated arise inevitably out of the human situation. .. While there is variability in solutions of all the problems, it is neither limitless nor random but is definitely variable within a range of possible solutions”.

7.7.6 Being Human not Martian

The Standpoint of the detached observer, of the little green man, encourages some pessimistic conclusions. Watching the deliberations at UNFCCC meetings, the process does not look promising. It is easy to criticise, but what else can we do? As Miles in LG1 works out for himself, the simple logic of the Commons Dilemma demands co-operation enforced, or at least enabled, by central control. That central control will inevitably be guided by relevant, evidence-based expert opinion. So we cannot abandon the IPCC and UNFCCC processes; rather, the challenge is to make them credible.

Following the logic of the Relational Models:

- Climate change is a Commons Dilemma, and requires Commons-based responses, ie the ‘all-in-it-together’ logic of Communal Sharing. This requires transparency and trust.
- This is a global commons, not the village green, so the scale of the issue demands delegated central co-ordination. This requires trust in the central authorities.

- Assessment of future risks and the technological advances necessary to mitigate or adapt to them will rely on expert opinion. This requires trust in the experts.
- All of the above demand trust building actions, both small and large. This has to be done gradually. Chapter 1 opened with the suggestion that political leaders were not living up to their ambitious rhetoric in proposing modest emissions cuts. Yet if gradualism is all we can achieve, we cannot decry gradualism as not enough. Gradualism in trust building is similar to gradualism in carbon emissions reduction - some progress is better than none. For emissions, we have to assume that 4° of warming is better than 5°. With trust, any successful steps in trust building now make it more likely that levels of trust will be higher when the alarm grows and the EM clamour for protectionist policies reaches a crescendo. Trust building steps could be in the form of regional initiatives, emissions trading that generates bona fide overall reductions, or the individual self-restraint that currently seem too feeble in scope to make a difference.
- The MP Standpoint will continue to advocate subsequent adaptation, eventually relying on geo-engineering. This takes the denial of natural limits to the extreme. This approach needs to be anticipated and discussed openly now, so that in future times of alarm it will not be embraced so readily as a panacea.
- The prediction that there will be a social threshold follows the millennial thinking of the CS Standpoint: at the moment, the CS Standpoint is accused of alarmism. Yet, based on the scientific predictions, at a point in the future there will be genuine and widespread alarm over climate change, alarm mandating decisive policy responses. The purpose of nurturing the social environment in the meantime is to make co-operative responses more likely than isolationist lifeboat ethics at such pivotal moments.

Offering the best policies for damage limitation is not an effective manifesto in a political world that sees leaders elected on visionary promises of opportunity and possibility. Advocates of policies based on natural limits have to maintain their stance, do what they can to build trust, and try to maintain influence for when the climate changes.

7.8 Conclusions

1. The three studies provide support for an account of the debate based on Standpoints derived from Relational Models Theory. The Standpoints can explain the debate comprehensively and in a manner that improves our understanding of the social psychological foundations of the debate.
2. Synthesising the Relational Models account improves the analysis offered by Cultural Theory by using the Equality Matching Standpoint to explain the Commons Dilemma.
3. Many loose ends remain. Although there is plenty of scope for refinement, the culturally embedded nature of the Relational Models suggests that there will always be further loose ends. The most useful further work will be to unearth the Equality Matching Standpoint as much as possible, and to fully distinguish it from the other Standpoints.
4. A Relational Models based account provides salutary pointers for society's response to the challenge of climate change.

APPENDICES

Appendix A: Timeline of key events and publications in the development of the climate change debate.

	UN/IPCC activity	Scientific/environmental background
1896		Aarhenius
1962		Silent Spring
1968		Hardin's Tragedy of the Commons; Ehrlich's Population Bomb
1969		
1970		US EPA established
1971		
1972		Club of Rome 'Limits to Growth'; A Blueprint for Survival
1973		
1974		
1975		
1976		
1977		
1978		
1979		Three mile island nuclear accident
1980		
1981		
1982		
1983		Brundtland Commission convened
1984		
1985		
1986		Chernobyl nuclear accident
1987		'Our Common Future'; Montreal Ozone Protocol
1988	IPCC established	Jim Hansen in US Senate; Thatcher at Royal society
1989		
1990	IPCC AR1	
1991		
1992	Adoption of UNFCCC.	Earth Summit, Rio de Janeiro.
1993		
1994	UNFCCC comes into force	
1995	IPCC AR2	
1996		
1997	Kyoto Protocol	
1998		Mann's hockey stick graph
1999		
2000		
2001	IPCC AR3	
2002		
2003		
2004		Oreskes' consensus review
2005	Kyoto protocol now in force	
2006		Stern Review; Inconvenient Truth
2007	IPCC AR4; Bali roadmap	Nobel prize for Gore/IPCC
2008		
2009	Copenhagen COP15	UEA 'climategate'
2010	Cancun COP16	
2011	Durban COP17	

References not covered elsewhere: Aarhenius (Henson, 2006), Silent Spring (Carson, 1992).

Appendix C: "Arguments" for each relational model from the literature

Page 1 of 4

						References and notes
Field						My amendments to the refs in []
RM	Communal sharing	Authority ranking	Equality matching	Market pricing		
	CS	AR	EM	MP		
Worldview	Egalitarian	Hierarchical	"Fatalist"	Individualist		
JUSTICE						
1 Distributive -Deutsch	Need [commons]	Winner-takes-all [Priority]	Equality	Equity/Proportionality		Deutsch 1985 pp 38, 135
2 Fiske version	Common resources	By rank [priority]	Equal shares	Proportional		Fiske 1992 p694
3 Procedural justice	Trust	[Standing]	Standing [Equality]	Neutrality		Folger et al pp 271-6 'FSB*'
4 Organisational goal	Member wellbeing	[due process?]	member retention	productive efficiency		Deutsch p38-45/FSB
5						
6 TIME						
7 Meaning	Eternal/tradition	Priority to seniors	Turn taking	Time = money		Fiske 1992 p695, adapted
8 Intergen equity (T&R*)	Future>Present	Present>Future	N/A	Present>Future		Thompson & Rayner 1998 ('T&R'), p331
9 Intergen equity (variant)	Eternal via future	[Past &] Present > future	[Present via past]	Present & future		
10 Time perspective	Compressed/[long term]	Long term [history]		Short-term		T&R 1998, p329
11 Precious time	Running out	Ancestral past/golden age	Carpe diem	Yours: let future look after self		
12						
13 SOCIAL INFLUENCE	Conformity	Obedience	Reflexive Obligation	Contract		Fiske 1992 p695, adapted
14						
15 POLICY FOUNDATIONS						
16 Moral legitimation	Traditional, "natural"	Established authority	Recipricocity/fairness	Rational-legal		Fiske 1992 p695
17 Land (occupied)	Motherland	'Feudal' ownership	Equal plots	Capital; domesticated		Fiske 1992 p694
18						
19 Decision-making	Unified consensus	Authoritative decree	One man one vote	Utility calculated by market		Fiske 1992 p695
20						
21 Risk orientation	prevention	risk management	commons dilemma	adaptation, calculation		see Fiske 1992 p696 on misfortune
22 (Un)Certainty	precautionary principle			Familiarity principle [proof first]		Gaskell & Allum 2001.; [vs Rayner 1992 p110]
23 Preventative measures	Act irrespective	Act if effective	Act if fair to all, esp you	Act if certain of benefits		'Proof first' uses the logic of pre-caution to say only restrict when we know
24						
25						

27						References and notes
28	Field					[Refs] in [] are as interpreted in this thesis
29	RM	Communal sharing	Authority ranking	Equality matching	Market pricing	Fiske 1992
30		CS	AR	EM	MP	
31	Worldview	Egalitarian	Hierarchical	"Fatalist"	Individualist	TEW 1990
32						
33	NATURE					
34	Cultural theory	Ephemeral	Perverse/tolerant	Capricious	Benign	T&R 1998 p284
35	Extension of CT	Fragile	Robust within limits	[unpredictable]	Robust, unlimited	see Gaskell & Allum 2001
36	Extension of CT	Romantic	Rational Romantic	Realistic/Pessimistic	Rational	[Ref]
37	Scream metaphor	Pain/Anger	Pain	Anger/irritation	Irritation	Giddens 2008: earth's response to AGW
38	Value of nature	Intrinsic	[Both]/[Inherent]	[Neither?]	Instrumental: exploit	Connelly & Smith 2003, p26
39	Foundational goal	Eco-centric	System-centric		Anthropocentric	Connelly & Smith 2003, p26
40	Narrative of humanity	Decline/fall	Realising the true order	No overall pattern, but individ fates have logic	Progress = rational discovery	[Interpreting Kluckhohn & Strodtbeck 1961 p12]
41						
42						
43	Nature > man	pure > polluting	Awesome/marvellous	Threat	Opportunity	AR may treat Nature or Man as master of the other
44	Man > nature	Capable of destroying	Steward	Survival	Progressive development	Kluckhohn & Strodtbeck 1961 p12
45	wilderness	pure	owned/to be conquered	potentially equal plots	opportunity/threat; barren	
46		preservation	conservation		[innovation]	Connelly & Smith 2003, p15-16
47						
48	GLOBAL WARMING					
49	GW sci evidence (1)	True Believer	Authoritative consensus	nature unpredictable =	Sceptic	
50	GW sci evidence (2)	Deductive doom	Probabilistic consensus	science too uncertain	Natural cycles	
51	Externalities incl	unknown unknowns	all knowns		known knowns only	[T&R; Neumayer]
52	How much 'A' in GW?	All A	Natural & man-made	senseless question	Natural	
53	Consequences of GW	Catastrophic	To be managed	no point predicting	Beneficial/exaggerated	NB: does not cover 'response to migrants'
54						
55						

56							References and notes		
57	Field						[Refs] in [] are as interpreted in this thesis		
58	RM	Communal sharing	Authority ranking	Equality matching	Market pricing		Fiske 1992		
59		CS	AR	EM	MP				
60	Worldview	Egalitarian	Hierarchical	"Fatalist"	Individualist		TEW 1990		
61									
62									
63	GW POLICY FOUNDATIONS								
64	Policy bias, CT	Egalitarian	Contractarian	N/A	Libertarian		T&R 1998, p331		
65	Policy bias, RMT	Egalitarian	Seniority/priority	Avoid unfair treatment of any individual	Individual merit protected by contractual rights		Deduced from moral legit (line 16) and distributive justice (2)		
66							[Neumayer]		
67	Economic objective	sustainability (strong)	sustainability (weak)		Growth		Gaskell & Allum 2001		
68	Policy style	Egalitarian	Bureaucrat	[Fatalist]	Entrepreneur		T&R 1998 p294-301		
69	Diagnosis	Profligacy	Population	Profligate population	Pricing				
70									
71	Gains - rights	Socialised	Greatest good	[You mustn't gain more]	Private		} T&R p318: but see Ch2 discusses		
72	Losses - costs	Private: Strict fault	Least Harm	[I mustn't lose more]	Socialised		} interchangeable logic AR/MP		
73	Intergen responsibility	Strong	Balanced	Weak	Weak				
74									

75							References and notes				
76	Field						[Refs] in [] are as interpreted in this thesis				
77	RM	Communal sharing	Authority ranking	Equality matching	Market pricing		Fiske 1992				
78		CS	AR	EM	MP						
79	Worldview	Egalitarian	Hierarchical	"Fatalist"	Individualist		TEW 1990				
80											
81											
82											
83	POLICIES										
84	Discount rate	Zero or -ve	Technical [Stern]		High [Nordhaus]		T&R 1998, p331; Dietz & Neumayer [2007] p 302-7				
85	Historic GHG emissions	Included in calc	Acknowledged (balance) {		Ignored		} Adapt from T&R 1998,				
86	Present GHG emissions	Ignored	Greater good (pareto)	{UNFCCC deadlock	Priority rights		} p 309-321, but note, as above				
87	Target future emissions	Developed < Developing	Greater good (pareto)	{Byrd-Hagel resolution	Developed>Developing		} interchangeable logic AR/MP				
88	Mitigation costs	Technology Transfer	Emission permits	Polluter pays should =	Market - auctioned permits						
89	Adaptation costs	Developed world pays	Emission permits fund	Carbon tax	Market (= insurance?)						
90											
91	FORM OF ACTION	Local pre-emptive	Global concerted	Inaction - commons dilem	Market instruments		T&R 1998 (CS p297; MP p299, but not AR, EM)				
92		Individual sacrifice	Regs and restrictions	Underlying logic of offset	Tradeable permits		For EM: analysed in this thesis as generating				
93		Ostracise/penalise	Caps and targets		[encompasses offsets]		the commons dilemma.				
94		polluters					AR: UNFCCC process (not pop'n control T&Rp301)				
95	OTHER										
96	Media of expression }	Bodily consubstantiation		Operational equality - ritual			{Fiske 2004				
98	}		Ranking in space, time, force		Abstract symbols, numbers		{				
99	IMPLICATIONS										
100	Exchange transparency	No secrets	Rely on authority (system)	Transparency essential:	Rely on system/market to make transparent		Derived from above in this thesis				
101		Rely on trust instead		else trust in custom/ritual	Rely on contract and property law						
102											
103	System	Realised in the family?	Realised in the leader/	Realised in ritual exchange	Realised in money and contract		Derived from above in this thesis				
104			institutions								
105	Foundational principle	Group need	Established Order	Equal exchange	Rationality & individual liberty						
106											
107											

APPENDIX D: "Arguments" for each Relational Model applied to themes identified through open coding

	RM >>>>	Communal sharing	Authority ranking	Equality matching	Market pricing						
		CS	AR	EM	MP	Coded at pilot item number #:					
	Worldview >>>>	Egalitarian	Hierarchical	"Fatalist"	Individualist	[no.]= only partial fit;[name]=othe					
	Text coding node					CS	AR	EM	MI		
	Apocalypse										
1	GW will be very bad	because nature fragile	so we must take charge	commons dilemma	They say that, but humanity...	26,	[?Blair]	[58]	[53,57]		
2	Cassandras	Oh Woe!	No good hand-wringing	Oh Woe!	Just another apocalyptic vision	16,29,59	[Stern]	[19 CS?]	25,55		
3	Local consequences	Local eco-system collapse	specific issues: specific measur	Unfair distribution	Risk analysis	6,26	[56]				
4		Feedback holistic system effec				3,44,48					
5											
6	Adaptation	Not enough/Sticking plaster	Planned responses	Every man for himself	Man has always adapted	56,	4,	6,	39,		
7	Adapting to new regs	Fiddling while Rome burns	Regulation changes behaviour		Regs part of the enviroment		44,		44,		
8											
9	Alternative energy	Ignores over-consumption	To maintain way of life	problems whatever we do	Fossil fuels exhausted>demand		60,31,	49,	11,		
10					Priced externalities > demand						
11	Specific technologies	Green=good	Managed nature(wind,solar,wa	Local self-sufficiency (=CS?)	opportunities, innovation				44,27		
12	Nuclear - issues	Eco dilemma	Big problems need big solutions	Last hope	opportunities, innovation	5,57,49	37,	[27]			
13	Biofuels - issues	Good idea corrupted	Subsidy issues	Unfair distribution of conseque	opportunities, innovation			49,47,46	47,		
14	Other issues	Maize madness	Energy Security		price distortions		47,[42]	46	47,		
15											
16	Argument over AGW in public sphere					Key text 36: scientist on scientists exaggeratir					
17	Scientific evidence	Understates risks	Responsible consensus:IPCC	who to believe?	Overstates risks/what consensus?	48,	44,36,38		58,14,		
18				Vested interest to science	Vested interest to science			54,	54,		
19	Complexity	fragile system > feedback mec	So co-ordinated response need	so it's all too diffiuctl	Fanatics oversimplify causes,solutions	53,4			14,58		
20	Uncertainty	Precaution principle; pessimist	Manage the measurable	Unpredictable and unmanageal	Man can adapt unpredictably - optimist						
21	Apocalypse (see above)	Urgency	Can't afford to be pessimistic		False Prophets/exaggerated	48,	[Stern]		55,14,54		
22	To act or not to act	Take all steps/can't afford not	Risk management	No point acting: China, too lat	Cost-benefit analysis	48,		40,60,58			
23	Unintended consequences	Tech solutions cause new prob:	Un-joined up gov't	so it's all too diffiuctl	so avoid distorting market	53,	33,[47]	15,[34]	47		
24	Should we have targets?	Avoiding the issue	Essential	Need transparency	Need predictable regulatory enviro		41,47,55		30,40		
25					but we need sensible/minimal regs				44,		
26	Proposed targets	Too low //not achieved	Realistic & effective	Unachievable	Will they be enforced?	15,19		15,	[30]		
27	Attributed itrationality	[Sky will fall on our heads >>]	[no leadership]	[<<headless chickens]	Head in the sand	59,	15,		53,		
28	...claimed rationality		Pragmatic		Realistic, empirical				54,55,t		
29	Names called(1)	Puritans; hypocrites	Not grasping seriousness; ineff	Passive: no policy impact	freemarket fundamentalists; deniers		15,22,33	[CT]	53,13		
30	Names called(2)	Research fund addicts	Looking for an excuse to tax u	"Life's tough enough for me alr	Oil industry pawns				13,15		
31	Names called(3)	Consumer/1st world guilt	In thrall to business		business fighting tooth and nail	10,52	19,37		19,57		
32	The public are... +ve	ahead of policy	need leadership	Trapped	Not taken in				58,		
33	The public are... -ve	addicted consumers	want cake and eat it	[opting out hermits?]	hypocritical consumers						
34	Extreme weather	evidence, a warning	Need forecasting, clean-up sys	Oh woe!	Natural	19,		19,	31,		
35	Blame			Others not doing enough (USA)				2,	13,		
36	Diagnosis	Profligacy	Population	Profligate population	Pricing		57,	Gray			
37	The "planet", "earth"	code for "fragile", vulnerable			usu sarcastically invoked				14,		
38											
39											
40	Communities	Small is beautiful/all in togethe	Need organisation to meet cha	Man the lifeboats/repel boarder	Open marketplace liberates/empowers	[33]	33,	6,			
41											
42	Conferences	Mobilize; empower developing	Established forums	Chaos out of order	Talking shops		31,	15,	10,		
43		nations									

APPENDIX D: "Arguments" for each Relational Model applied to themes identified through open coding

Text	RM >>>>	Communal sharing	Authority ranking	Equality matching	Market pricing	Coded at pilot item number #:			
Coding		CS	AR	EM	MP	[no.] = only partial fit; [name] = other ref.			
Node ↓	Worldview >>>>	Egalitarian	Hierarchical	"Fatalist"	Individualist	CS	AR	EM	MP
44	Consequences	Threats	Predict and manage	Diverse - almost perverse	Overstated threats; opportunities	16,	4,32,[48]	16,29	[12]
45	Iconic consequences	Inundation & aridity; glaciers	Seawalls and regulations	Refugees	Repeating cycles - wine in north, ice age	6,56	4,	6,	31 [38][25]
46	New consequences	New dire consequences	New, cumulative local		Function of human development	16,48	38,		54,
47									
48	Climate refugees	Condemnation of econom orde	Govts must manage security th	Lifeboat ethics	Need economic empowerment		[42]	6,	
49					for self-determination				
50	Consumerism	See "the public are..."							
51	Functions?	Vanity // Belonging	Coherence, Status marking	[xxx exchange?]	Right to choose		52,		
52	"I, as a consumer.."	want to buy ethical / [sustaina	will buy what regs allow me to	don't know what to do: too dif	will buy what I want and can afford	35,		18,35	
53				like comfort and convenience				35,	
54	Economics								
55	Gains- rights	Socialised	Private	No excessive winners	Greatest good				44,
56	Losses - costs	Private: Strict fault	Socialised	No excessive losers	Least Harm				
57	Discount rate	Zero or -ve	Technical (Stern)	[inappropriate tool]	High (Nordhaus)				
58	Historic GHG emissions	Included in calc	Acknowledged (balance)	Equal - but on what criteria?	Ignored		[40]		
59	Present GHG emissions	Ignored	Priority rights	Equal - but on what criteria?	Pareto optimality				
60	Target future emissions	Developed < Developing	Developed>Developing	Equal - but on what criteria?	Pareto optimality				
61	Mitigation costs	Technology Transfer	Emission permits	Polluter pays but don't tax me!	Market	[31]		[51]	51,
62	Adaptation costs	Developed world pays	Emission permits fund	Polluter pays but don't tax me!	Market				
		<i>nb: UNFCCC logic is to target equal future emissions, with developed world compensating developing for historic emissions with technology/adaptation funding</i>							
63									
64	Economic objectives: planet & GDP	Planet before growth	Sustainable growth	[no loss dev'd world: growth de	Growth	57,	57,		
65	Business - risks		Regulatory uncertainty		enviro disruption		30,		32,
66	Business - opportunities								44,47,30
67	pressure on bus to be green				customers, investors				44,30
68									
69	Finite Resources	Generalised over-consumption	S/T managed allocations	commons dilemma	human resourcefulness; market solutions	57,	[11]		
70			L/T technological solutions		historic record; tech innovation				
71									
72	Forests & living resources	Natural treasure, disappearing	Manageable resource	commons dilemma	Market pricing of long term value	15,[26]	[57]		
73	Deforestation	Wanton destruction	Resource wastefulness	Compensation, corruption	Market pricing of long term value	15,[26],	47,	[47]	
74	biodiversity	Wanton destruction			need to avoid loss of opportunities	15,			
75									
76	Global politics and relations								
77	Developing world	Exploited, exposed to our pollu	At fault (colonial)	[their turn now?]	Needs growth; not elitist lectures	6,57	57,	56,	
78	Developing world		Needs help (post-colonial)...	..but that help destructive	resource curse/disempowered		10,	15,	15,
79	Iconic nations	"us"; sometimes Scandinavians	If only there was one. "IPCC"	China	USA			56,	2,10,23
80	Security issues	Generalised unsustainability	Climate refugees & enery secu	Climate refugees	Resource reliance on unstable states				
81	Local v global	??	??	??	??	[15]		[15]	
82	Governmental action								
83	Generally, governments	Need to do more/the right thi	Are managing the problem		need to enable individuals to solve				30,40
84	Subsidies	Help the needy	Enabling private sector	Inevitably distort	Distorts; inefficient			[47]	
85	Tax	Works for the greater good	Directs transition of resource u	penalises unfairly	Distorts; inefficient		[20]		20,
86	Regulation	Prevents destructive selfishnes	leadership through regulation		Distorts; inhibits innovation		30,		
87	International co-operation								
88									

APPENDIX D: "Arguments" for each Relational Model applied to themes identified through open coding

Text	RM >>>>	Communal sharing	Authority ranking	Equality matching	Market pricing	Coded at pilot item number #:			
Coding		CS	AR	EM	MP	[no.] = only partial fit; [name] = other ref.			
Node ↓	Worldview >>>>	Egalitarian	Hierarchical	"Fatalist"	Individualist	CS	AR	EM	MP
89	Historic climate change is evidence of	past catastrophes that could repeat	what to plan for	[inevitability?]	that variation is natural... and humans [will] adapt	4,3,48	4,48		61,25,54
90									
91									
92	Existing human infrastructure/capital	wrong sort in wrong place to face CC	Build on existing, incrementally or, L/T planned reorganisation	[wouldn't start from here?]	Always starting again	30,44,48 [Blair]		[30]	
93							30,48		
94									
95	Human priorities	Environment > growth	Allocate resources effectively	What do I get in return?	Present health issues, present poverty	57,		[46]	
96	Maslowian analysis			Eco-concern a luxury denying the poor their turn				52,	
97					Lomborg - Aids, malaria, developing country infrastructure				
98	Hypocrisy and cynicism	>>>>>>>	>>>>>>>	You don't do what you're asking me to <<<<<<<<<<<<				15,	
99	..reflexive realism - look at others' act	Fuel tax protests; airport expan	"What kind of society do voters want?"		Realism - we all like our comforts	All feed EM.		[44,46,4	58,
100									[35]
101	Iconic evidence (1)	Glaciers; polar bears	Katrina. 2003 EU heat wave	China	Medieval wine; Thames ice fairs	36,48,30		[40]	
102			Aims to predict; but reactive -	there must be no more Katrina's	Recent cold snaps				
103	Iconic Evidence (2)	Ice cores; hockey stick	Consensus of the eminent	?Computer model sensitivity	Sun spots; Rogue Nobels and economists	36,			
104									
105	Mitigation measures - general	Reduce consumption	Big tech; nuclear	Shared burden (commons)	Market pricing induces...	32,	[5],37		[51]
106	Preferred approaches	Renewables	CCS; geo-engineering	Developing world must act too	...tech innovation	39,	48,[53]	31,	53,
107	Preferred approaches	Trees	Waste reduction, efficiency	>Byrd-Hagel	If necessary, geo-engineering	34,43	31,		
108	Problems			Belated geo-engineering				27,	
109	Problems	Vested tech interests lobby		Corruption		37,			
110									
111	Nature	Cultural theory	Fragile {planet; earth}	Tolerant within limits	Unpredictable	26,			39,
112		Nature > man	pure > polluting	Awesome/to be respected	Man just another animal	61,			52,53
113		Man > nature	Disruptive; could destroy	Steward	Man just another animal	45,15		[J Gray]	39,
114									
115	New Factors	new evidence	It's even worse than we thought	All pointing in same direction	It's chaos - who to believe?	48,3,38	38,	25,[17]	18
116				Justifies determined action			48,		
117			Negative feedback; runaway C		Nature resilient; man resourceful	4,3,48			
118									
119	Offsets	Individual	Everybody doing their bit	Orderly rationing	Fair exchange// but free-rider	35,	43,		
120		Carbon Trading eg ETS	Delusion; ineffective	Orderly rationing	[liable to corruption]		41,43	[40]	40,43
121		Other	Trees	Creates pull for efficiency		43,	43,		43,
122									
123	Religious..	Adherents are	Eco-nuts: GW their new religion	Enslaved to worship scientific order	[Afraid: "Biblical" floods, storms]	59,		19,	
124	..language		Zealots blind to counter evidence		[individual offsets: penance?]				53,
125									
126	Technology		Illusory solutions - denial	Requires co-ordinated planning	[suspicious?]	53,57			[Blair]
127									
128	Time		Running out.	For government to lead	Random; anything can happen	56,[30]	30,		60,
129			Long term view	Balancing; discounting					
130									
131	Tourism		Excess consumption; environmental stress	Integrates; homogenises	Familiarity leads to trust	35,52			52,
132					leisure democratisation			52,	52,
133	Travel logic		Local is better - why go further	[Predict & provide infrastructure]	Necessity of modern life	35,52			

APPENDIX E Coding Matrix of the Four Standpoints

<i>Arguments</i>	Communal Sharing	Authority Ranking	Equality Matching	Market Pricing
Summary Standpoint on Climate Change	We consume so much that we are ruining our planet. We need to cut back to avoid catastrophic climate change.	We do need to act on climate change, but that doesn't mean a revolution: it means governments taking appropriate action	There's no point in the UK doing anything about climate change, when countries like China are growing so fast, so I don't see why I should be asked to pay higher taxes or give up things to stop it.	There has always been climate change. We will use technology to adapt to changes as we have always done.
Foundational Principle	CS1 Equality; Shared Challenge; all in it together	AR1 1.1: primacy of established Institutions 1.2: need for government	EM1 Reciprocity	MP1 Individual freedom, private interests
Approach	CS2 2.1: Can all do our bit 2.2: Mankind is/we are guilty	AR2 Restrictions and regulations, government control	EM2 2.1:What's in it for me? 2.2 I'm doing my bit 2.3:Commons dilemma 2.4: Nimbyism	MP2 Use the market to facilitate individual action, rational economic behaviour
Economics	CS3 Limits Over-consumption	AR3 3.1: Which policy instruments? 3.2:Business as usual 3.3:Ecological modernisation	EM3 3.1: Need for compensation 3.2: Polluter pays principle	MP3 Need to price externalities Commitment to economic growth
Nature	CS4 Nature fragile	<i>Included within Nature and Man</i>	EM4 Uncontrollable; Unpredictable	MP4 Nature 'bigger' = benign, bountiful
Nature & Man	CS5 Natural is good, pure Human limitations	AR5 Man as steward of nature Man's expertise measures nature:	EM5 Man powerless; 'the little man'	MP5 Man adapts nature, Adapts to nature
Knowledge, Wisdom	CS6 Natural wisdom Human lack of understanding	AR6 6.1: Targets, management by numbers 6.2: Sound science. Experts	EM6 6.1:It's pointless, too difficult. No alternatives 6.2:Logic of the Commons D.	MP6 Market rationality; Invisible hand
Other people	CS7 Duty to help others, those in need	AR7 7.1: Others as insiders, duty of care, instruction 7.2: Others outsiders: threat	EM7 7.1: Not fair. Stop bossing me 7.2: Why don't they solve it? 7.3: Blame others	MP7: Laissez-faire: others as rational self-interested agents; can fend for themselves
Outlook	CS8 8.1:Catastrophic unless 8.2: logical to co-operate 8.3:co-operation morally right	AR8 We need to manage the future	EM8 Pessimism, It's all too difficult	MP8: Optimism, opportunity Faith in technology

Appendix G Main sampling frame; availability of titles on Nexis database

Population of articles on Nexis database																			
Including phrases 'climate change' or 'global warming'																			
Main UK national newspapers <i>as and when</i> included on Nexis database																			
	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	
Financial Times	8	14	8	4	11	29	61	267	294	154	194	136	121	145	142	371	252	263	
Times/Sunday Times	0	0	0	6	25	19	88	470	369	171	226	97	84	142	147	295	227	202	
Guardian/Observer	0	0	6	12	15	24	85	272	343	223	254	164	161	197	207	430	446	307	
Independent/loS	0	0	0	0	0	0	8	244	393	181	236	128	140	152	221	437	325	270	
Telegraph/ST	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mail/MoS	0	0	0	0	0	0	0	0	0	0	110	62	32	66	9	86	206	165	
Sun/NoW	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	
Mirror/SM	0	0	0	0	0	0	0	0	0	0	0	0	0	16	19	49	59	60	
Express, Star/SE,SS	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	26	
Total articles	8	14	14	22	51	72	242	1253	1399	729	1020	587	538	718	745	1668	1515	1302	
'Broadsheet'	8	14	14	22	51	72	242	1253	1399	729	910	525	506	636	717	1533	1250	1042	
'Redtop'/'middlebrow'	0	0	0	0	0	0	0	0	0	0	110	62	32	82	28	135	265	260	
'Broadsheet'	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	89%	89%	94%	89%	96%	92%	83%	80%	
'Redtop'/'middlebrow'	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	11%	11%	6%	11%	4%	8%	17%	20%	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009		Total	% of total	No in sample					
										Jan/Aug									
Financial Times	373	606	406	408	569	878	1062	2122	1542	838		11278	15.0%	26	14.4%				
Times/Sunday Times	423	524	471	371	485	957	1534	2391	1762	2030		13516	18.0%	29	16.1%				
Guardian/Observer	523	568	500	495	742	1289	1892	2749	2404	1655		15963	21.2%	41	22.8%				
Independent/loS	520	604	439	429	650	1361	1846	1411	922	559		11476	15.3%	25	13.9%				
Telegraph/ST	121	340	252	198	302	544	891	1612	929	555		5744	7.6%	19	10.6%				
Mail/MoS	169	179	196	107	178	264	731	1462	973	303		5298	7.0%	14	7.8%				
Sun/NoW	91	83	72	59	87	224	482	899	531	771		3308	4.4%	4	2.2%				
Mirror/SM	136	168	161	153	217	308	444	776	514	286		3366	4.5%	5	2.8%				
Express, Star/SE,SS	166	250	189	164	306	485	718	1650	895	431		5280	7.0%	17	9.4%				
Total articles	2522	3322	2686	2384	3536	6310	9600	15072	10472	7428		75229		180					
'Broadsheet'	1960	2642	2068	1901	2748	5029	7225	10285	7559	5637		57977		140					
'Redtop'/'middlebrow'	562	680	618	483	788	1281	2375	4787	2913	1791		17252		40					
'Broadsheet'	78%	80%	77%	80%	78%	80%	75%	68%	72%	76%		77%		78%					
'Redtop'/'middlebrow'	22%	20%	23%	20%	22%	20%	25%	32%	28%	24%		23%		22%					

Appendix H: Coding Matrix populated with references to articles

<i>Items in main sample</i>	Communal Sharing	Authority Ranking	Equality Matching	Market Pricing
Foundational Principle	8, 26, 33, 35, 40, 68, 86, 87, 98, 170	1.1: 1, 11, 12, 15, 24, 26, 27, 30, 42, 106, 114, 169, 171, 174 1.2: 7, 13, 65, 69, 109	22, 32, 39, 43, 54, 68, 95, 98, 99, 136, 148, 149, 150	33, 38, 54, 87, 98, 112, 136, 179
Approach	2.1: 8, 9, 12, 18, 33, 68, 98, 100, 112, 113, 145, 148, 164, 170 2.2: 9, 34, 68, 76, 158	5, 16, 17, 30,34,35, 43, 44,55, 61,67,86,91,97, 98,105,110,135,136,159, 160,165, 166,167,168,177	2.1:54, 68, 78, 136,178 2.2:16, 23, 30, 39 ,65, 112 2.3:16,41,33,67,75,98, 136 2.4: 65, 77, 170	7, 9, 11,12,38,43, 55, 56, 81, 107, 110, 137, 150,157, 162, 165, 168
Economics	9, 26, 32, 34, 39, 41, 48, 55, 65, 68, 76, 86, 88, 92, 97, 98, 104, 112, 113, 126, 143, 164, 170	3.1: 20 items. 3.2: 7, 11, 34, 112, 136 3.3: 31 items	3.1: 26, 33, 41, 67, 150 3.2: 9, 11, 39, 41, 42, 54, 55, 81, 88, 100, 112, 135	1,7,31,43,44,56,64,67,7179,81,85 ,91,97,105,106, 110,121,128,136,137,150152,161, 165, 170,177
Nature	9, 22,40, 42,49, 50, 68, 72,74, 76,92,104, 170	Covered under 'nature & man'	22, 35, 48, 60, 73, 74, 111, 116, 117, 146	3,17, 28, 46, 49, 54, 59, 60, 124, 138, 153,
Nature & Man	22, 26, 30, 34, 42, 49, 50, 53, 68, 73,104, 170	7, 9, 11,14, 53, 55,68,72,111,119, 124, 145, 149, 167	24, 42, 47, 48, 60, 73, 146	5,6,7,9, 17, 21, 43,48, 56, 75, 82 ,85, 90. 97, 102, 111, 119,140, 150, 152, 166, 167,170
Knowledge, Wisdom	22, 26, 30, 40, 49, 53, 68, 84, 92, 97, 98, 99, 111, 170	6.1: 26 items 6.2: 25 items	6.1: 16, 42, 76, 97, 112, 137 6.2: 8, 11, 16, 33, 77, 98, 121	7, 17, 34, 43, 44, 98, 102, 108, 136, 152, 170
Other people	16, 24, 26, 30, 33, 39, 42, 76, 80, 140, 158, 164, 169,	7.1: 33, 40, 77, 97, 112, 145, 169 7.2: 24, 91, 103, 109, 122, 129, 154, 170	7.1: 112, 118, 130, 136, 178 7.2: 41, 97, 98, 138 7.3:26, 42, 76,121, 178	7, 54, 71: See 4.7.7 for explanation of low frequency
Outlook	8.1: 9,34, 68, 104, 112 8.2: 34, 68, 112, 170 8.3:65, 68, 76, 87, 97,170	43, 65, 66, 91, 95, 98, 122, 124, 128, 159, 170, 171, 174, 180	1, 3, 34, 41, 42, 47, 73, 111, 170	12, 17, 34, 48, 65, 79, 98, 108, 111, 112, 124,140, 159, 162

Appendix I: Focus group consent form

**Focus Group held at the Manchester Novotel on 14th December 2009.
Discussion topic : CLIMATE CHANGE
Facilitator: Chris Tennant.**

I consent to participate in the above focus group. I consent to the recording of what I say in the focus group and the subsequent use of this data for social research purposes by Chris Tennant. I understand that any information I provide is confidential, and that no information that could lead to the identification of any individual will be disclosed in any reports on the project, or to any other party. No identifiable personal data will be published. The identifiable data will not be shared with any other organisation.

Apart from receipt of a cash contribution towards expenses, or a course upon completion of the discussion, my participation is voluntary, and I understand that I can choose not to participate in part or all of the project, and that I can withdraw at any stage of the project without being further penalised or disadvantaged in any way.

Signed:

Name: (Caps)

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Appendix J: Supplement to Chapter 5, analysis of five focus groups

J1. Student Group 1

J1.1 Student Group 1, outline

The following table provides an overall impression of the Relational Model arguments used by the different participants:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
Amber	23%	29%	27%	43%	31%	23%
Hilda	34%	27%	17%	43%	33%	25%
Mercy	19%	16%	7%	47%	40%	44%
Keith	24%	26%	34%	48%	34%	19%
* % of participant speech, excluding facilitator						
Highest in column		Highest RM for individual		Both Highest		

The following table provides an overall impression of the Relational Model arguments used in the different sections of the focus group:

	%	% coded	% coded	% coded	% coded	% coded
	Total	AR	CS	EM	MP	no RMs
SG1 A	24%	3%	23%	32%	21%	38%
SG1B	32%	15%	15%	42%	26%	32%
SG1C	32%	49%	23%	46%	45%	14%
SG1RMQs	13%	9%	7%	33%	21%	53%
SG1		22%	18%	40%	30%	31%

J1.2. SG1A

As suggested by the high percentage of ‘uncoded’ content in the first section, the group takes some time to get going. Topics include Hilda (SG1.79) and Mercy (SG1.89) suggesting personal experiences of the weather. Other topics, such as irritation with people leaving the lights on (SG1.186) or difficulties with public transport (SG1.311) might be coded as CS (3, overconsumption) or EM (6, no

alternative to having a car); this is really just an example of the coding being imprecise. Sometimes the Relational Model logic of the argument is very explicit, sometimes less so. As an international group (Singaporean, English, American, Australian) participants also provide extra information on the perspective from their home country or contrasts with other countries, some of which is not always directly relevant to the subject. The group contrasts the commons dilemma (e.g. SG1.107) with the need for everyone to take responsibility for their own impact. This latter point is expressed in an interesting way:

SG1.173

Amber I think it's too difficult for people to kind of understand you know me turning the lights off, would that make a difference? But then if you think about the reverse way if everyone did leave lights on they would see how that would make an impact, make a difference, on climate change, it kind of works backwards.. I guess, as an argument for individual action.
(EM6.2, CS2.1, MP5)

As article #170 in the media analysis on transition towns showed, the CS Standpoint seeks to be an empowering call to individual responsibility within the collective, not a moaning complaint against consumerism. If the collective good is taken as the goal of action, instead of individual utility, MP arguments for empowered individual initiative are still applicable. The MP Standpoint would also see such collectively orientated action as adaptive to the social context.

The prevailing focus of the section is on overconsumption driven by the expectation of convenience:

SG1.220

Mercy I wonder though if part of it is people just expect things to be available on demand like, erm, I'm amazed at the number of busses that run in this city, and yet people still say there's not much, [*Keith agreeing*] like the transport's terrible and. Whereas I see lots of busses and I.. well, and I think, Wow, can't you just take some of them off the road and have less? But they have signs everywhere saying buses every five minutes there's this kind of idea of, like, demand, and I guess people demanding that you have a certain quality of services
(MP1 individual freedom, 6, market rationality of demand, CS 3 over-consumption, EM7 blaming others).

J1.3. SG1B

This focus continues into section B. As international students wanting to discover the world, flying is a convenience and opportunity none are willing to forego. Keith captures the tone:

SG1.418

Keith Yeah, I think it's more, right now, like she said .. like deciding whether you need to physically be in that place, because the thing for me is you know like getting to school, and the flights that I take is .. unless.. in terms of just the environmental effect, this might sound bad but they're necessary for me to be on those flights. So really, if that's the only way for me to get to these places then that's how I have to get there..
(EM6.1, no alternatives, MP1 doing what I want/need to do)

As before, MP1's self-assertion is expressed a little shame-facedly. The EM argument that there is no alternative, or the cost constraints of the poor student are more comfortable arguments and these dominate the section.

Asked where they get their knowledge of climate change from, and whether they are sure it is real, Amber (SG1.557) and Mercy (SG1.576) both think there has been a change in knowledge and attitudes in recent years. For Amber, the science has become more certain; for Mercy in Australia, droughts and bushfires have forced the issue centre stage. Keith (SG1.567) and Hilda (SG1.597) both mention awareness gained through education, but direct experience is clearly the most powerful thing for Hilda and Mercy respectively:

SG1.618

Hilda when I stepped out on the bridge a couple of days [*in November*] ago cos I live in Southwark, walking across I mean, the sun was shining I put my sunglasses on I was in a T-shirt and I thought 'this is climate ch - ' something's something something's changing here. Like [*pheww*] I remember when it used to snow and now its relatively rare, but then again I also remember when it snowed this January. When, well it's supposed to snow, so I can see that there's a massive mix up,
(no RM codes applied to this: possibly EM4, nature unpredictable and chaotic)

SG1.658

Mercy I think when I was younger, there used to be more a story about luck, so there's the concept that drought was about luck, or there's no rain, it's about luck, but now, I think there's more of a I think the idea of climate change has made, erm, some people in the community that I grew up in probably a bit more, erm, not feeling like it was their fault necessarily, that a crop didn't do very well.

(EM5 fatalism gives way to a CS4 diagnosis; CS2.2 sense of own responsibility for climate change).

For the average citizen, the IPCC stressing that individual weather events are not the result of climate change makes no difference (IPCC, 2007, p. 310). People need their personal experience of the 'climate' to accord with the science they are being asked to accept.

J1.4. SG1C

Asked what the Government should be doing about climate change, the students have unsurprising expectations: putting up the price of energy to encourage efficiency (SG1.694, AR3.3, MP2) emissions trading schemes (SG1.710, MP2) or encouragement for voluntary efforts because people do not like to be forced to do things (SG1.724 CS2a, EM7j). As with LG1, Hilda thinks people need a bit of a shock to wake them up (SG1.765). The main topic in the section is government policy in Australia, which accounts for the high proportion of the section coded for AR arguments. However, the students recognise that Australia cannot really do much in a vacuum:

SG1.807

Amber I think it's hard, especially in, in the case of Australia, people agree that something needs to be done, but the government really can only do so much because it is a gl a global problem, if Australia were to do everything it could it still wouldn't have, like necessarily have an impact in reducing [the incidence] of drought. And that's where I think the international agreement, you know, [*indistinct*] an international consensus that we all need to do something for an impact to take place but what I think local governments can do is take steps to reduce the vulnerability of people to the droughts, er, yeah ... instead of necessarily changing the in, the occurrence of droughts.
(CS1 all in it together; 2.1 we can all do our bit, 8.1 need for co-operation; EM 2.3 commons dilemma; MP5 man adapting to changing environment)

But Mercy is pessimistic about the chances of success at Copenhagen: "I think it will be an absolute miracle if anything happens.." (877, EM8). This prospect leaves two options, resignation or blind faith that something will turn up:

SG1.944

- Amber I think it's like any other political agreement, that you'll have those back and forths and you can't really get angry with it cos it's not something that's unique just to the issue of climate change.
- Keith It's certainly something we've seen before and you know you're going to see it again. So, at this point angry is almost, it almost feels that angry is fruitless at this point.
- Hilda Yeah I would agree with that. Anger is kind of fruitless at the moment, but at the same time I kind of feel that someone needs to get angry. But I don't, I can't see myself becoming angry just because we are so used to these negotiations going back and forth and nothing ever coming from them. It's just become a habit that we've just got used to that we don't expect any other way, and no-one sees the point of getting angry because we've got used to it.
(AR 3.2 Business as usual, EM 6.1 pointless, 7.3, blaming others, 8 pessimism, MP1 role of private interests in negotiations, 7 expect self-interested behaviour from others)

Or:

SG1.1024

Amber Hopefully by then we'll have better technology to deal with it, so *(MP5, 8)*

Facilitator To be able to adapt to it?

Amber Yeah, to adapt, and then even reduce carbon dioxide like with carbon sequestration or other technologies that arise in the next 50 years. Um, so I think humanity will find a way to deal with it.
(MP5, 8)

Keith Yes, I guess, I guess from that sense I am confident that this will eventually be something that maybe is, maybe it [only?] becomes a big enough deal for people to [say] take action because of that type of disaster, or we'll find technology to deal with it, because I know that there is a lot of time and money being spent um on that type of research like
(MP5,8)

J1.5. SG1.RMQs

The students' responses to the Relational Model statements contain a predictable mixture of qualified agreement or challenge using the logic of an alternative relational model. Most interesting is the students' wrestling with the CS statement. [As in some of the media articles, ref], willingness to agree to the logic of the statement is tempered by a presumption that we will not act on it. Because we know that humanity will not, or cannot, curb its consumption, somehow the CS diagnosis of overconsumption will not, maybe cannot, turn out to

be true. 5.2.7 mentioned Hilda's 'paradox' or dilemma between environmentally responsible behaviour and cost considerations. The full text of this piece is:

SG1.1103

Hilda For me that sort of paradox makes me feel a little helpless because I don't know which way to go whether I should think focus on the cost or the environment, (*EM 6g, too difficult, 8 pessimism*) I mean, that [at the moment] the situation that we're in it has to be cost, (*MP1 primacy of individual interest*) but at the same time I don't think there needs to be a paradox, I think it can be achieved at the same time, I just think it's a matter of trying to work out how (*AR 3.2 business as usual, 3.3, somehow you can square the circle with 'ecological modernisation'*).

Like the whole debate through this focus group, this piece shows how EM logic appears not just to trump the arguments of the other relational models but to take them over. The students have to fly because there is no alternative: for LG1 and SG1 adapting to there being no alternative means somehow they (*others*) will find new fuels to make it possible. For Hilda, in spite of the paradox the current system will somehow continue unchanged. As with LG1, the anticipated solution is expressed in AR arguments.

J1.6 Does the RM Framework account for all of the arguments in SG1?

Section 5.4.6 described the method used to check whether the Relational model Framework accounted for the different arguments employed in LG!. the same method has been repeated for the five focus groups analysed in this appendix: section 5.5.3 summarises the results of this exercise for the five groups.

To recapitulate the method; to assess whether the RM framework accounts for content where participants are making arguments about the 'rights and wrongs' of climate change, the transcript was analysed into five different categories:

- A. Discussion about climate change with value-based content
- B. Discussion about climate change with exclusively factual content
- C. Discussion not about climate change, with value-based content
- D. Discussion not about climate change, without strongly value-based content

E. Facilitator content.

The table below analyses, by word count, how much of the content in each of the above categories has been coded with one or more RM codes:

	Coded with an RM	Coded with no RM	Total
A category content	8554	1454	10008
B category content	53	212	265
C category content	314	146	460
D category content	0	121	121
Facilitator	547	1665	2212
Total	9468	3598	13066

The section of the table highlighted in yellow requires further investigation. This focus group included an Australian participant, Mercy. Australian bushfires and drought featured prominently in the discussion, and quite often this content saw Nancy recounting recent events in her home country. This material challenged the classification system adopted - perhaps it should have been classified under 'B' above. Over half of the content covered by the yellow section above was actually coded with a 'maybe RM' code.

This review of the content supports the conclusion that the RM framework does satisfactorily account for the climate change arguments in SG1.

J2. Manchester Group 2

J2.1. Manchester Group 2, outline

The following table provides an overall impression of the Relational Model arguments used by the different participants:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
Bill	8%	20%	6%	57%	22%	14%
Jim	26%	12%	5%	76%	22%	22%
Jayne	19%	27%	36%	30%	22%	25%
Laura	18%	6%	38%	29%	30%	29%
Piers	29%	10%	26%	62%	11%	22%
* % of participant speech, excluding facilitator						
Highest in column:		Highest RM for individual			Both Highest	

The following table provides an overall impression of the Relational Model arguments used in the different sections of the meeting:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
MG2A	29%	17%	38%	37%	17%	26%
MG2B	26%	12%	10%	60%	10%	26%
MG2C	30%	9%	18%	49%	28%	32%
MG2RMQs	15%	15%	15%	48%	17%	35%
MG2		13%	21%	48%	18%	29%

J2.2 MG2A

Asked for the first 3 things that come to mind when someone mentions climate change, most of the participants spell out exactly where they are coming from:

Laura (MG2.28) I wrote down, melting polar region, recycling and children.

Jayne (32) Um, first image was blue planet set in the cosmos, sort of, sort of looking down. Second one was fires in various places round various kind of continents. And third one was hurricanes.

Piers (38) Yeah, um, first was floods, second was politicians' awareness, um, and the third was space travel.

Bill (43) Er, polar ice caps, er kind of unnecessary advertising, and Kyoto.

Jim (47) Well, I put 3 countries down. Put China, India and America... -...Cos I think they're the 3 that aren't bothering.

Laura goes on to express many CS arguments driven by having children (119) and a general concern for other people. Firsthand experience of 'communal sharing' following an accident about a year ago has made a lasting impression on her (932,

940). Jayne also presages the CS perspective she adopts; recalling above (presumably) the famous Harrison Schmitt photograph of the blue planet, she goes on to refer often to the television programmes and public lectures she has seen and heard that describe the fragility of nature. Jayne too is affected by direct experience; she has a son and granddaughter in Australia and is well aware of floods and bushfires there (106).

Piers's early mention of politicians hints at EM frustration with those in power. He references space travel because he is particularly angered at the pointless waste of fuel getting the space shuttle off the ground: this too seems to be driven by the direct experience of watching a shuttle launch (133). He synthesises the ideas of politicians and waste later:

MG2.308

Piers Now why do we have to have the politicians flying all over the world to these meetings, using the fuel on the jet look at Air Force One to start with. I mean, you know, people are saying don't take more than 3 holidays a year, and yet that gentleman's flying about every other week all over the world.

Bill's idea of 'unnecessary' advertising hints at future EM moans about the behaviour of others, but his answer to how the issue affects him personally is more telling:

MG2.75

Bill Erm, I mean personally, I think, I don't know if it's just because I'm a younger, of a younger generation, I feel fairly, not indifferent but, like, I think there's probably enough kind of fossil fuels and things like that to see out my lifetime so, and maybe it's because I don't have children that I don't really see that far ahead, but, [looking] I understand it's an issue and it's something that needs to be addressed, but I don't feel particularly strongly about it either way.

This relative indifference is an express statement that Bill is not engaging in any 'Relational' thinking about something that is irrelevant. He himself acknowledges this by saying 'maybe it's because I don't have children'. The comment about there being enough fossil fuels for his life time is an MP5 argument: but it is also an example of the way that MP argumentation is typically quite asocial anyway. A model that champions arguments like 'I'm alright Jack' (914) and 'Let others take care of themselves' demands a system of non-interference, almost of non-relating, more than prescribing ways of relating. Chapter 7 explores this issue further.

Jim, who speaks most in the meeting, also gives a very clear introduction to his EM perspective by anticipating Commons Dilemma arguments as well as blaming others by hitting out at China, America and India as his 3 supposedly separate 'ideas'. Yet both Jim and Piers, for all their EM readiness to have a go at others, are very clear they think climate change is a problem, but it is one that won't affect them in their lifetime (Jim 57; Piers 78). They favour EM arguments, but because they recognise it is a problem, they do not disagree with Jayne and Laura's emphasis on CS arguments. Likewise, although Jayne does bridle at some of Jim's more excessive complaints (240), she is also thoroughly disillusioned with politicians (627, 860). Laura too can express the EM need for transparency in taxes (970) and EM cynicism about airline offsets (978) or the Copenhagen summit (1624).

Laura elegantly captures the dilemmas of modern living:

MG2.199

Laura: It is interesting that you mention the industrial revolution, since we have become um a, you know, a world of gadgets and machines, and and the need for fossil fuels to to power those, or alternative fuel. Then you know we have actually, um, in the last say 250 years you know the amount of damage that we seem to have done is just phenomenal. You know, the, the whole, we have, we have literally just started to trash our planet completely. (*CS2b,4,5: nb 'we', not 'they', have trashed the planet.*) However, having said that, um, if there hadn't been the advances in technology I wouldn't be sat here now, because I wouldn't have made it through, um, having my both my girls, you know I would have had, I would have actually probably died having those children, but um, and medical intervention, you know, helped me. So I'm so very grateful for that, (*MP2, 5, rational to take advantage of technological progress; EM6g, no alternative*) however, I have also got friends now who are going completely the other end and they, you know, the tellies are being ditched, um, the kids aren't allowed to have their gameboys and whatever, and they have literally taken themselves out to remote highlands and set up home there. (*Cs3, 5*)

The ambivalence between feeling the CS arguments and giving up to EM despair weaves through the whole of the first section. On the one hand, individual action "isn't going to make much difference in the grand scheme of things" (Bill 273). On the other, accumulating individual actions can add up to something: individual drops in the ocean can make "a puddle...a pond... a lake... a sea" (Piers 293). But here Piers's expression of CS logic is really just a justification for further complaints about politicians jetting around the world (295) or Digby Cameron

going on a bike with his “security guys following him in a car” (381). Once again, Laura expresses the problem best:

MG2.370

Laura: I, I come from a, a particularly, um, wasteful, I would say, career. You know, the aviation, you know, it, especially when you’ve worked in first class or club, and you’ve flown around the world and it is, you know it’s extravagant and it’s not necessary, but you know, those who have the money will p- will always pay for it, there’ll always be, there’s always going to be a demand, so no amount of arguing from you know Joe Bloggs it’s just not going to work they’ll always pay for it
(CS3, overconsumption; MP3, 7 others will behave like rational economic agents).

References to ‘unnecessary’ consumption have also been coded as ‘maybe AR’. The AR Standpoint accommodates the CS economic diagnosis of overconsumption in moralising sermons on waste. In economic terms, this relies on efficiency to eliminate waste (AR3.3); in relation to other people, it becomes a patrician admonishment on the sins of wastefulness (AR7.1; Boycott (2007) reports on David Attenborough giving this sermon). As with other overlapping Relational Model arguments, this will be discussed further in chapter 7.

J2.3. MG2B

Section B opens with a comprehensive statement of the EM Standpoint from Bill:

MG2.414

Bill In so far as I don’t think like on a even as kind of a society in Britain that doing little things will make that much of a difference on a grand scale. It should have had to come from even taking Britain out of the equation I think we’re quite good generally certainly in so far as what our government’s done, and so far as trying to combat climate change or the effects of it that countries like India, China or America for example, erm, don’t seem to fall in line and just kind of do what they want [with, with..] their industrial output and things like that, so, [I mean] that’s kind of making me more cynical about it than anything else.
(EM2.2 ‘we’re quite good’, 6 logic of the commons dilemma, 7.3 blaming others, 8 pessimistic outlook).

This sets the tone for the section which is dominated by EM arguments as the table indicates. After a brief interchange between Piers and Jayne discussing how

long it will be before global warming has a noticeable impact (Piers says 5 generations, Jayne 2030), Jim returns the debate to EM themes:

MG2.477

Jim I think the oil companies have got a responsibility and what they're doing is, a friend of mine came up with something that would save using oil, and they tested it, proved that it worked, and everything and it's been shelved. It's not been produced. And this is what the oil companies are doing, no matter which one it is, if they get a technology that will stop the use of their produce, they're shelving it. It disappears off the face the earth.
(EM7.3 blaming others; MP 1 role of private interest, 6 market rationality, 7 others pursuing their own interest).

This conspiracy theory was noted in LG1A. The conviction that dark forces control the world in their own interest while the average citizen is powerless to make a difference is the core of the EM Standpoint. It is similar to Cultural Theory's 'high grid/low group' fatalist, but it is not passive. Though disempowered, the EM Standpoint's vocal and cynical complaints about self-interested (MP) behaviour obstruct any revolution based on CS arguments or any reforms based on AR arguments. So Jim goes on:

MG2.580

Jim And the do-gooders say, oh yeah, we can't do that, because of this, but the likes of the people sat here, we couldn't say, well we want it to happen, because you don't get your voice heard.
(EM7.1 It's not fair: stop bossing me around, 7.3 blaming others, 8 general pessimism)

The EM Standpoint expects everyone else to follow EM logic: people will only change direction when they have to (when "someone smacks you in the face" 535), when an issue becomes personally relevant:

MG2.581

Piers Well it was like you said then you know [it's all them] do-gooders it's it's it's like the other, other things in life. If it, if, if, it happens to you then it's like it's like human rights isn't it really. You know, Mrs Smiths's a, Mrs Smiths's a um do-gooder and she says well he can't go to prison because that affects his human rights. What about the human rights of the person that that man's done damage to..
(EM1 reciprocal justice; 7.3 blaming others)

Jim Yeah!

Piers ... Now, if that would have been Mrs Smith's family that he would have been Mrs Smith's family that he'd done damage to or her or her property, would she be saying then, um, no he's got human rights this bloke (*hinting at CS1, equality*) [using voice of person in troublesome quandary] um, we can't do anything, we can't, no, but she wants, wants something to happen (*EM 1 reciprocal justice, hinting at AR7j denial of rights to those who transgress*). But it's like you said, if anything happens, erm, to somebody close, or somebody sees like this [the?] tsumani, if you're there when it happens then yeah, it, it, it would trigger something in somebody's mind I'm sure it would, I'm sure it would
(*EM2.1: 'what's in it for me?' is answered by the personal relevance*)

The EM Standpoint is trapped in its cynicism about human nature's (531) cynicism. As before, participants expect that only a shock will shift attitudes: we cannot solve it ourselves, something 'other' will have to make us. Jim illustrates this by remembering the Aberfan disaster (685), suggesting that the risks posed by spoil tips were well known but nobody did anything until after the shock of the disaster. This understanding of human nature combines with EM's presumption that those in power conspire against the average citizen. The group's discussion over what sort of shock might wake people up reflects on recent floods. Jim has his own reasons for believing these are not enough:

MG2.728

Jim Yeah, but it doesn't affect London. If it affects London, then they're going to do something. If London gets flooded, if the water comes over the top of the barrier, and London gets flooded, they're going to do something. Until then, oh we're very sorry, we'll send you 10 million pounds or we'll send you 20 million pounds, we'll help you clean up, but they won't physically do anything. They won't help to raise the wall height of a river, because it doesn't affect London. If it affects London then all of a sudden you'll see such a big difference in the country.

The implicit tension between the CS arguments and EM arguments persists beneath the surface, but both find common ground in attacking the selfishness of the MP Standpoint:

MG2.661

Laura And its, it all become-, it all comes down to money. Where, whatever level you are on, it always comes down to money, doesn't it? You've got the expenses, it comes down to money.
(*MP3 economic self-interest; EM2.1 what's in it for me*)

Jayne You can't eat money, you can't breathe money....

Laura, Piers No

Jayne But at what point do people realise that you can have as much money as you want, but if you can't breathe ..
(CS3 rejection of (over)consumerism: EM7.3 blaming others)

In the end the CS position seems to be overwhelmed, so much so that Jayne is pushed into a detached position observing the different Relational Models in action:

MG2.855

Jayne It's the same thing [*others speaking at same time*] it is about the willpower of of belief systems of of um, of fundamentally what you believe in, and then we go back to money again....

Jim It all comes down to money..

Jayne ... That's all, that's all about money, but, it's the same with, with the global warming. What is it about, why is everybody into short short-termism, it's like the the politicians are into short-termism, ...

Laura and knee-jerk reactions
(EM6.1 *it's just too difficult*, 6.2 *short-termist logic of the commons dilemma*, 7.3 *blaming others*, 8 *pessimistic outlook*; MP7 *expecting others to pursue rational self-interest*)

J2.4. MG2C

The flow of EM arguments continues, only occasionally punctuated by CS principles:

MG2.928

Piers I think it's because we're all cynical. I think that, I think, I think it's been made that way that we're a cynical nation, I mean, my sort of faith in human nature or the last few years when you see the things that do happen, it's, it's almost gone which is very sad really.
(EM7.3 *despairing of others*; 8 *pessimistic outlook*)

Laura It is. I mean, I have to say mine's been restored this year. It really has, and I'm, I'm not a do-gooder at all, but I do have a conscience, you know, I do feel that my actions will impact somebody else, and I have always felt like that so, you know, that's that's just the way I feel I you know I can actually contribute now. But definitely my faith in human nature has been restored over the last 12 months.

(CS 1 all in it together, 2.1 we can all do our bit, 7 concern to help others)

Towards the end of the section MP arguments surface after the facilitator prompts the participants to discuss their own consumption, such as flying. Here the roles are reversed: Jim states that he doesn't fly any more ('because I think it's a big thing the aviation fuel'; 1270), while Jayne explains her own flying in this way:

MG2.1290

Jayne I probably do one big trip a year with having [a] son over in Australia. And I, I wish I could be as good as you are, but I just, I do a deal in my head, you know, I want to see my son, and the grandchild, so I'm going, and the plane's going anyway [Lorraine agreeing], so I, you rationalise it to yourself.
(MP1 exercising self-interest; EM6.1 no alternative)

Overall, though, the EM arguments dominate. The constant distrust of politicians and big business prevents the resolution through AR arguments that some of the other groups reach.

J2.5. MG2 RMQs

The EM tone continues through the responses to the statements of the 4 Relational Model principles, and reaches a crescendo in a welter of carping criticism of the politicians going to Copenhagen. AR arguments appear briefly with a call for leadership (1442) leading to the possibility of countries like Britain taking a lead but this is really only raised just to reject it:

MG2.1465

Jim I agree that this country should be, we need to show an example (*AR7.1 stewardship for others as insiders*), but as I say at the end of the day we will get to the situation where, unless other countries take it up (*AR7.2 others become outsiders*) and show that they are doing a major reduction in what they're doing, that, the people in this country will just go back, and say, well, it's not mak-, not making any real effects on the global warming because of all these other countries, so we're, why should we do it and not enjoy ourselves as much as we were doing before we stopped doing the particular things
(EM 1 reciprocity, 2.1 what's in it for me?, 6.2 commons dilemma logic, 7.3 blaming others, possibly moving to MP1 'why shouldn't we enjoy ourselves)

Piers I think [we should stop] wasting money. Like I said before, the money's spent on things that, um, to me should be shouldn't be spent on. It should be spent

on health service, (*'charity begins at home' is close to both EM2.1 and MP1 arguments*) but also, erm, looking at global warming definitely, but I don't, I don't think that other countries are going, they may do eventually, I mean now China have got sort of all this recession now haven't they, and they they're struggling, supposedly, you never know they might look at it and think well yeah, [?we'll do something about it and see what happens] but I don't think they will.
(EM 6.2 logic of the commons dilemma, 7.3 blaming others, 8 pessimistic outlook).

J3.6 Does the RM Framework account for all of the arguments in SG1?

As in 5.4.5 and J1.6, a check has been carried out to assess whether the RM Framework adequately accounts for the arguments used in this focus group. The table below indicates that under 7% of the content categorised as 'value' based was not coded with an RM code.

	Coded with an RM	Coded with no RM	Total
A category content	10408	727	11135
B category content	183	683	866
C category content	696	1049	1745
D category content	174	319	493
Facilitator	58	1435	1493
Total	11519	4213	15732

The material in the 'yellow' cell which was not coded with an RM code does not include significant arguments not captured by the RM Framework. Participants in this group did tend to ramble and some of the more general remarks have been missed in the RM coding process.

J3. London Group 2

J3.1. London Group 2, outline

Of the groups recruited externally by SAROS, LG2 was in some senses the least successful. Only 4 participants showed up, and one of these, Solomon, made erratic contributions while the dominant voice, Tim, was somewhat repetitious. The other externally recruited groups achieved a dynamic and interactive development of the ideas that was less evident in LG2. Nevertheless, each participant still made interesting contributions, and the group as a whole developed an overall, often complaining, tone. The following table provides an

overall impression of the Relational Model arguments used by the different participants:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
Emma	24%	17%	35%	79%	20%	13%
Mary	18%	18%	56%	60%	20%	7%
Solomon	19%	17%	46%	35%	15%	18%
Tim	39%	28%	19%	73%	15%	20%
* % of participant speech, excluding facilitator						
Highest in column:		Highest RM for individual			Both Highest	

The following table provides an overall impression of the Relational Model arguments used in the different sections of the focus group:

	%	% coded	% coded	% coded	% coded	% coded
	Total	AR	CS	EM	MP	no RMs
LG2A	41%	9%	24%	58%	6%	27%
LG2B	28%	26%	31%	68%	23%	23%
LG2RMQs	22%	28%	32%	49%	7%	31%
LG2C	9%	19%	41%	18%	30%	53%
LG2		19%	29%	55%	13%	29%

At 56% LG2 has by some distance the highest proportion of content coded with EM arguments (the range of the other 5 groups is 31% to 48%). In direct contrast to MG2 both of the women in this group used EM arguments in over half of their contributions.

J3.2. LG2A

The participants express almost the full range of EM arguments in this section:

- EM1, *Reciprocity*: “Tax the car but put that money into subsid subsidising transport or something like that.” (Tim 263).
- EM2.1 *‘What’s in it for me?’*: “I don’t want to be conned by the politicians on the basis of using this as a general excuse for higher taxation and taxation of this that and the other” (Tim 78)
- EM2.2 *‘I’m doing my bit’*: “And I think as much as you try and do your part, like you know we recycle, and, you know” (Mary 100)

- EM2.3 *Commons Dilemma*: “but the problem is that people are not united because you’ve got some countries that want to do it but not others I mean China doesn’t do it very much. And then I mean, even just on a local thing, you know you’ll have people with, some houses will turn their heating down and others won’t care. So it’s very hard, you know, if you’re doing it to subsidise people who don’t care, and it’s the same globally” (Emma 338)
- EM2.4 *Nimby’s* is a quite specific topic which is not mentioned by the group.
- EM3.1 *‘We’re hard done by, and so must be compensated’*. This precise argument is made in Section B (597): in Section A the first part is voiced by Solomon’s references to the hard time ‘genuine people’ suffer while trying their best (121, 139) while Tim’s demands for fair, reciprocated taxation express the demand for compensation (83, 239, 260).
- EM3.2 *Polluter pays principle*, “i say that may be fair, that may be fair if there’s an issue that, say, cars, planes and what have you are contributing drastically. that may be fair to tax it to reduce it” (Tim 242)
- EM4 *Unpredictable nature*: “I mean you know they say the world’s getting warmer and then last year we had a very cold spell which was much colder than it had been the year before, so it’s just sort of it just contradicts. And then you have your dry summer and then the very wet summer” (Emma 159)
- EM5 *People at the mercy of unpredictable nature*: “the weather is like really erratic, and I think that’s sort of worrying problem cos there’s no predictability. You know you can’t like people that get their houses flooded, you know every year now and you know they can’t plan for that because they don’t know when it’s going to come, you know, they don’t know when it’s when the wet, bad weather’s coming cos it’s not seasonal” (Mary 182).
- EM6.1 *All too difficult*: “Um, and I think all the recycling and things I think we get a lot of mixed messages and, you know, we’re told what we should and shouldn’t do. And then, a couple of months late in the paper they tell you that it you know, perhaps you shouldn’t have done that” (Emma 90)
- EM6.2 *Logic of the Commons Dilemma*: “It’s been going on for such a long time, and some countries and some people just dig their heels in and won’t, you know, won’t budge, but then I think on a local level it’s a real hard thing to police, because you can’t just you know go round making people recycle or making people do certain things that will help their area” (Mary 370).
- EM7.1 *‘Stop bossing me around’*: “I think we get told too much [as it is] what we should and shouldn’t do” (Emma 290).
- EM7.2 *‘Why don’t they solve it?’*: “I do think we should be looking at it a bit more deeper. Scientists should be out there. Um [pause] not an individual but quite a few of them. In different parts of the area” (Solomon LG2.222)
- EM7.3 *Otherisation, blaming others*: “I think what I hears, was, um, the coloured bottles, they get taken to China. Why they spending so much money um? Sending it over there when we can do something over here” (Solomon LG2.119) or “the taxes should be on people that have like one or more, more than one car, or you know, people that take you know Ryanair flights to go away for the weekend, do you see what I mean, like the taxes on things like that should be higher things that are unnecessary.” (Mary 252). It is worth noting that both of these complaints also rely on CS rejection of other Standpoints. Solomon rejects the authorities’ attempts to organise recycling

and argues that our community can do better here; Mary rejects the free market by attacking overconsumption.

EM8 *Outlook*: the discussion does not really consolidate into an overall outlook until later in the meeting, when, for example, both Emma and Tim emphasise that they have lost all faith in government (749ff).

J3.3. LG2B

As indicated in the table in 5.C.1, the dominance of EM arguments continues into Section B, although the other Relational Models find a little bit more space. Participants develop the EM ‘blaming of others’ (EM7l above) that attacks overconsumption (CS3) with an extended complaint about cars being too large (484ff). This comfortably gives way to demands for regulation (AR2) to address the issue (503-569), until the deep distrust of government undermines this (564ff).

The facilitator then asks whether participants are happy to see the price of energy go up: first with the possibility of these funds being used to help other countries. Tim (593) and Emma (595) immediately say ‘No’. Tim talks about pensioners in this country frightened to heat their homes, so the facilitator then asks how they would feel if the money went to help people insulate their homes and reduce their energy consumption. There is some reluctant agreement, then reservations, until Emma captures the response:

LG2.648

Emma: I think however much people want to help the whole world, um, it comes down to what happens in your own home, and if you’re bills are so high just so that you can help other countries, I don’t think people want to do that. (*EM2.1 what’s in it for me*) It’s how it affects you personally, as much as you want to do the right thing. (*AR7.1 others as insiders, CS 7 helping the needy, 8.3 moral imperative; EM2.1*) I don’t think people are prepared to pay, you know, I suppose we feel, why is it a personal thing that you’ve got to subsidise the rest of the world. The government that don’t seem to be doing it, (*EM7.3 blaming others*) it always comes down to individuals to have to pay for things. (*EM 2.1, 6.2 logic of the commons dilemma, 7.1 it’s not fair, stop telling me what to do*).

In other groups good manners constrain the assertion of MP arguments (5.2.7, J1.3). Here Emma’s switching between pronouns (you, people (ie they), we)

suggests an awkwardness in asserting EM defensive selfishness. It is more comfortable expressing EM arguments as a complaint against others. Asked about the COP15 meeting in Copenhagen, participants voice their distrust of politicians and return to the need for taxes to be transparent. Section B ends as follows:

LG2.784

Emma You have to know what the money's going to

Solomon [*talking over*] Exactly, you know

Emma not just into a general pot that
(EM 2.1 '*what's in it for me?*'; 7.3 *blaming others*)

Solomon It's it's hard-earned money, I mean, we've been working for I mean. There's people out there that have been [?] earning thousands and thousands, and er, you know some people can't afford it, you see. So you have to, if you're going to be paying that sort of, particular, you know, the money you're going to be paying, making sure it's going in the right direction, you see. Er, for the right purpose. You know, not buying this, not buying that, you know, not for they how they paying rent for their houses and things like that
[*laughter*]
(EM2.1; 7.2 *envy, it's not fair, 7.3; MP7 expecting others to follow rational self interest*).

J3.4. LG2RMQs

It is a feature of the groups' 'RMQ' sections that participants often express agreement but then reject the extreme expression of the position. The CS statement's use of the word catastrophic is often rejected, e.g. in LG1 (5.A.4) and also by Tim (883) and Troy in MG1.1667. In this group, the dominant EM arguments become too much for Mary when they are distilled down into two sentences:

LG2.928

Facilitator Third one was:

"There's no point in the UK doing anything about climate change when countries like China are growing so fast. So I don't see why I should be asked to pay higher taxes or to give things up to stop it."

Mary I don't agree with that.

Facilitator You don't agree with that?

Mary No because I think it that's a really pig-headed view, because why should, just because somebody else isn't doing something doesn't mean that you shouldn't and it's kind of that thinking that everything makes a difference, do you know,

and it's like the lady said, you know, a lot of the time you feel that it's not making a difference because it costs so much to recycle, or, you know and all of these different things we're told to do, but I, you know, won't stop doing them because surely it makes a difference somewhere, well that's what you'd like to think, anyway. [laughs]
(EM2.3 commons dilemma; CS2.1 we can all do our bit, 8.3 moral imperative)

Facilitator How do you feel about that one Emma.

Emma Well, [pause] I sort of agree with it, but I know that it's not right, but it's true I mean I think we have a major power like China, who is actually doing nothing. And I do think, not why should we, but we have to educate them in order for them to do it too.
(AR7.1 duty to tell others, as 'insiders', what to do; CS 8.3 moral imperative - 'it's not right'; EM 6.2 logic of the commons dilemma)

Mary But then I think that's; I kind of think it's unfair because it's not, it's the Chinese government that are refusing to do anything it's not the people of China, and that's why

Emma No no no, but *they* need educating

Mary Mm, no definitely, but it's kind of you know we say we don't have any faith in government and I'm sure that they feel the same and I'm sure that there's lots of the people that live in China that would really like to do something but, there aren't government resources to do so. It's, you know, I think it go[es], it's not diminishing responsibility but I think it's like you do have to put a lot of faith in the government and hope that they do the right thing.
(AR1.2, need for government; CS1, all in it together; EM6.1 all too difficult, 7.2, 'why don't they solve it', 8 pessimistic outlook).

EM's dead-end seems unpalatable, but any alternative outlook seems to require blind faith.

J3.5. LG2C

This section provides a short coda to the discussion. The EM frustration with confusing official advice leads into disbelief over the suggestion that pets are bad for the planet (1061ff) and that we should eat less meat. The topic of overconsumption leads Mary to declare that there is far too much choice (1095ff): "I don't think humans are actually programmed to have this much choice" (1175), a proposition that Emma (1185) and Tim (1187) both agree with. Yet the tone is less a CS rejection of the MP consumerist society than an EM complaint at how difficult, even bewildering, the modern world is to live in. Solomon embodies the

bewilderment with his incredulous reaction (1169) to Mary's offered example of too much choice, 'luxury dog food' (1157).

J2.6 Does the RM framework account for all of the arguments in LG2?

As for the preceding groups an alternative analysis of the content has been applied to gauge whether the RM framework does account for the arguments used in LG2. The analysis below suggests that it does, with only a limited amount of relevant content not coded as an RM argument (yellow box in table):

	Coded with an RM	Coded with no RM	Total
A category content	7353	570	7923
B category content	118	388	506
C category content	67	85	152
D category content	80	173	253
Facilitator	890	2037	2927
Total	8508	3253	11761

LG2's tendency to EM arguments went alongside quite a bit of moaning that things 'aren't the same as the used to be'. This felt quite value based, but when the comments were about the weather or too much choice over foodstuffs in the shops it could prove hard to justify attributing one of the RM codes to some passages.

J4. `Student Group 2

J4.1. Student Group 2, outline

The following table provides an overall impression of the Relational Model arguments used by the four students in the group:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
Careen	20%	33%	30%	50%	38%	16%
Digby	29%	28%	19%	35%	51%	25%
Hanif	14%	23%	17%	47%	22%	24%
Millicent	37%	21%	60%	29%	21%	21%
* % of participant speech, excluding facilitator						
Highest in column:		Highest RM for individual		Both Highest		

The following table provides an overall impression of the Relational Model arguments used in the different sections of the meeting:

	%	% coded	% coded	% coded	% coded	% coded
	Total	AR	CS	EM	MP	no RMs
SG2A	20%	13%	42%	19%	5%	38%
SG2B	38%	23%	29%	51%	41%	24%
SG2C	35%	32%	31%	27%	35%	25%
SG2RMQs	7%	16%	35%	17%	19%	33%
SG2		24%	33%	34%	30%	28%

Compared to the groups reviewed above, SG2 presents an unusual profile: Millicent’s content dominated by CS arguments, as noted in 5.2.7, and Digby is the first significant contributor with over 50% content coded for MP arguments (the only previous one was the relatively quiet Suzy in LG1). Digby and Millicent are American; Careen comes from Austria and Hanif from London’s East End.

J4.2. SG2A

The excerpt in 5.2.5 gives a clear idea of Millicent’s approach. She takes a quintessentially CS egalitarian perspective, often linking climate change to “social justice” (36, 199, 584). Both she and Digby sometimes talk about the debate itself, e.g. whether climate change is the same as global warming (82), and the history of the ozone hole (112), so that quite a high proportion of this section is actually uncoded for RM arguments. The other two participants make more significant contributions to later sections.

J4.3. SG2B

Following Millicient's strong assertion that the world needs to cut consumption, ("the number 1 thing that needs to happen in my opinion for sure, is cutting back" 284), Section B opens with the facilitator asking the participants if they are conscious of climate change when making their own personal consumer choices (291).

Careen immediately questions whether individual behaviour can make a difference because "I think still like industries and all that is still the main issue that cause climate change" (302). For the others the issue seems central to their identity:

SG2.307

Hanif Erm, I think the decisions in my life that directly relate to climate change have less to do with climate change and more to do with being a student, so being quite, you know, living on quite a meagre budget, yeah, taking public transport and walking is usually cheaper. I'm happy that it co-incides with the ideals of climate change but it's not it's not been the driving factor for me. *(MP1, individual choice, 6 market rationality; possibly EM6.1 'no alternative' but Hanif is not expressing disempowerment here)*

SG2.331

Millicient Yeah, I think it's my job as a global citizen to do the most I can in my lifestyle to be more climate, or environmentally sensitive in every way, um, so like everyone else I do the most I can, um, or I strive for that *(CS 1 'global citizen', 3 overconsumption, 8.3 moral imperative)*. But, that being said, I think it's a problem that um, a lot of companies are selling all their, all these products under a green image, cos it seems to me that a throwaway society you know, where where this mad level of consumption is actually what's dragging climate change in the first place *(CS 3; MP 1 private interests, 3 pursuit of growth, 6 market rationality, possibly EM 7.3 blaming others but this is not really the focus or tone)*

SG2.350

Digby That was actually part of the other point that I was going to make that it was about waste, and I completely agree we, [it's?] there's a social thing that that encourages people to be wasteful um, and I think that's about more than climate change because I don't like I just don't like the idea of being wasteful and buying things I don't need and , like when you say, oh it's cheaper to just throw it away and buy a new one, I hate, saying that because that's you're

you're still being wasteful and when there's so mu-, when there are pe- so many people in the world that are going without so many things, for us to then be so wasteful with what we have regardless of how that affects climate change.

(CS critique of MP expresses CS arguments but also implies MP

arguments: CS 1, so many people going without, 3, overconsumption, 8.3 moral imperative; MP 1, individual freedom 3 cheaper to buy a new one, 5 adapting to the environment that encourages throw-away behaviour)

After reflection on various examples of their own consumption and the throwaway society the facilitator asks participants about flying. Although the EM7g argument that there are no alternatives to high emissions travel does surface, these younger (presumably relatively affluent) participants do not seem to have experienced the world as constraining in the same way that the non-student groups have. Flying opens up opportunities: you choose to take them, or you choose not to fly because you choose to be environmentally responsible. So participants are happy to assert their own interests: Digby (430) recognises that the constraint of having to fly is a direct result of his personal choice (MP1) to study abroad. For Careen (466) it would simply be illogical not to take advantage of the most convenient solutions on offer (MP5). For Hanif it's not relevant ("I'm not sort of a globetrotter" 439), while Millicent just feels guilty (CS2b) "yuh every time I fly I do feel crappy about it. I think a lot of people think of it as like their big exception, oh I can't avoid this" (495). But Millicent is simply less candid than Digby in dealing with the consequences of pursuing her own dreams "Um, I can't think of a reward that would prevent me from going to Africa if I had the opportunity to" (514).

The students do express EM arguments (the proportion in Section B is over 50% of content coded for EM) but these are often different from the disempowered arguments of other groups. Millicent (561) launches into an attack (EM7l) on people who did not participate in an offset scheme for a conference she organised, and this leads on to a lengthy discussion of the merits of offsetting (EM3f, polluter pays). These EM arguments are woven into an overall dialogue which focuses on the need for market-based approaches (MP2; Careen 630, Digby 703) to put up the cost of energy to pull through technological innovation. For all the CS arguments about overconsumption, the students have a fundamental

confidence that technology will save the day (“because they will invent new types of jet engine” Digby 519). The physical world is not a constraint:

SG2.769

Digby The other thing is creating green infrastructure, even investing in you know ways of coming up with green technologies and making um things like you know the things they are investing in [you know] making solar panels cheaper and and easier to to use and install, and things like that. Those technologies can be invented but there still needs to be a price incentive for the energy companies and people that are using them to switch from fossil fuels to renewable energy.
(AR 3.1 which policy instruments, 3.3 ecological modernisation; EM 7.2 why don't they solve it?; MP 2 market solutions, 3 'need' for economic growth, 5 adapting nature)

Millicient Yeah, and there needs to be a lot more subsidy in the innovation side of things, like solar panels should be able to be the size of this cup and do what they do instead of the size of this table, you know.
(as previous, plus MP4 nature as cornucopian)

Facilitator There is only so much energy you get from a patch of sunlight though.

Millicient Yeah but I think that with tech, I don't know, it seems like there's been a lot of investment in non-sustainable energies (*EM 7.3 blaming others*) and would that investment have gone into sustainable energies I've no doubt we [would] be able to attack geo-thermal for instance in a really economically productive way
(AR 3.1, MP2, 4, 5)

J4.4. SG2C

Section C continues in the same vein. Digby is convinced that it is an economic problem not a social one (805) despite both he (714) and Careen (730) believing that consumers just will not tolerate higher prices for energy without immediate reward. Despite these reservations both (Careen 853, Digby 859) assume that innovators are going to make “loads of money”. Only after the facilitator asks if the purpose of the new technology is to “maintain the same levels of consumption” (885) does Millicient return to emphasising the CS3 economic diagnosis. For Careen this contradiction is absurd: “It's just like now like going back to a level of like hunters and gatherers would be an impossible thought” (904).

Faced with this Millicient has to extol the virtues of the “teeny little contributions” that social movements get off the ground (CS2.1, 922). These are not a drop in the ocean:

SG2.927

Millicent “Oh I think it’s the ocean! Um, I think it creates the waves that will change people, like for me, I think a lot during the day what is the right moral decision what is the right environmental decision. So if those are powerful enough to convince people to give up a lot of comforts then that could reduce consumption.”

(CS 2.1, 3, 8.3, AR 7.1 telling others)

The typical EM response to this (EM7.1) is to reject environmentalist bossing, but Hanif, the only participant who seems to have really experienced the monetary constraints of the world, has a different response:

SG2.937

Hanif Um, in terms of that, you have I think I think social movements are definitely sort of less less important to the.. Myself personally, um, I I know it sounds terrible, I like the fact that someone else is doing it. I don’t think I would do it myself but I would feel worse if if there was nothing about it and if if we just accepted so I think, I think it sounds there’s a sort of a mechanism of at least just making people think about it a little bit, even even if it doesn’t do anything. I mean personally I do think they’re not that useful like directly in what they do, *(EM 2.1 what’s in it for me?, 6.2 logic of the commons dilemma, 6.1 it’s pointless to do anything)*. but I feel better that someone’s doing something rather than not and we haven’t just accepted it. I feel like it’s it’s not that far gone yet. Maybe there is sort of hope. *(MP8 it will turn out alright)* But then someone comes along and tells me it’s just cyclical, and you can’t do anything about it anyway which really confuses me so

(EM6g all too difficult, maybe EM4 nature uncontrollable)

At the very start of the meeting Hanif stated how disengaged he was from the subject (29). Unlike other group participants whose EM arguments seem fuelled with frustration and resentment he seems to be a passive observer who can understand the different arguments without really feeling them, so that his outlook has a little bit of MP optimism and a little bit of EM pessimism.

The section finishes with participants considering how consumption might be reduced, leading to suggestions of regulation (AR2) and market incentives (MP2). This leads on to a discussion about the upcoming COP15 meeting and the role of the developed world helping the developing world (AR7h).

J4.5. SG2RMQs

Unusually, the Relational Model statements generally produce some clear cut answers rather than spark divergent discussion. The table below summarises the responses to each RM statement:

	AR	CS	EM	MP
Carola	Y	Y	X	X
David	=	Y	X	Y
Hassan	X	(Y)	Y	Y
Meredy	X	Y	X	X
Y = agrees; X = disagrees; = means balanced response. (Implicit)				

The committed Millicent and Digby both assert their positions. The detached Hanif can agree with the logic of three of the RM Standpoints: rather surprisingly he follows the flow of the others' comments at 1389 to agree that there should be a revolution away from the consumerist lifestyle. The more pragmatic Careen dislikes the 'hypocritical' EM statement (1333), thinks that technological innovation will not be enough (1292) and that we will inevitably need government action (1403).

J4.6 Does the RM framework account for all of the arguments in SG1?

As for the preceding groups an alternative analysis of the content has been applied

Note frequently more detached observer... esp Hassan who simply isn't engaged with it. Perfectly able to talk about it but just not engaged. It's not what his daily life is about. Esp note 446

J4..6 Does the RM framework account for all of the arguments in SG2?

As for the preceding groups an alternative analysis of the content has been applied to gauge whether the RM framework does account for the arguments used in SG2. The analysis below suggests that it does, with only a limited amount of relevant content not coded as an RM argument (yellow box in table)

	Coded with an RM	Coded with no RM	Total
A category content	10573	807	11380
B category content	109	682	791
C category content	213	410	623
D category content	16	393	409
Facilitator	399	1407	1806
Total	11310	3699	15009

Reviewing the content in the yellow cell, the items reflect the specific qualities of the participants: Careen, an Austrian, talked incredibly fast and it was sometimes hard to decide exactly what she was getting at. Hanif was quite detached but this meant he sometimes mused rather open-mindedly, again creating content that was difficult to code. Millicent, the global citizen, tended to gush and some of her content did not appear to justify coding.

J5. Manchester Group 1

J5.1. Manchester Group 1, outline

The following table provides an overall impression of the Relational Model arguments used by the participants:

	% Total*	% coded AR	% coded CS	% coded EM	% coded MP	% coded no RMs
Clare	8%	13%	65%	36%	10%	15%
Derek	5%	35%	25%	50%	11%	26%
James	45%	25%	45%	35%	34%	25%
Miles	28%	30%	10%	66%	58%	18%
Troy	14%	25%	15%	51%	61%	16%
* % of participant speech, excluding facilitator						
Highest in column:		Highest RM for individual			Both Highest	

The following table provides an overall impression of the Relational Model arguments used in the different sections of the meeting:

	%	% coded	% coded	% coded	% coded	% coded
	Total*	AR	CS	EM	MP	no RMs
MG1A	27%	14%	36%	28%	24%	32%
MG1B	28%	26%	25%	36%	46%	25%
MG1C	28%	26%	19%	59%	38%	31%
MG1RMQs	17%	25%	34%	40%	34%	31%
MG1		23%	28%	41%	36%	29%

This was a dynamic focus group. Even though two participants were much more vocal than the other three, all made interesting contributions.

J5.2. MG1A

The meeting starts with some fairly familiar arguments: the importance of one's own children in making climate change a relevant issue (Clare MG1. 62; James 71). Miles includes 'sceptical' as one of his initial 'three ideas' (42) with him (48), Derek (55) and Troy (88) all expressing some doubts about the whole phenomenon. Miles (127) and Derek (55) and Clare (138) are all affected by the welter of conflicting views, and both Miles (282) and James (297) take the view that researchers will find what you pay them to find. Both Derek (57) and Troy (89), a geography teacher, have sympathy with the view that climate change is a natural process (MP4). Of course this can end in different ways:

MG1.225

Troy ...If we look at climate fluctuations way back beyond the start of the graph in 1800 when the industrial revolution was kicking off, then we've got massive fluctuations and warm periods and and so on. [*agreement*]. Nature will invariably check, somehow, whether I don't know, it's a massive volcanic eruption which will block [blot?] out the sun for that will the temperatures back down again
(MP 4 nature benign)

Miles It's like, we live on a planet, when, if science history is anything to go by it goes through stages and cycles of, of destroying itself as such, if the dinosaur theory is anything to go by, then at some point it's going to self-destruct and start again.
(EM 4 nature uncontrollable, 8 pessimistic outlook)

Troy's logic in hoping for volcanic salvation is hard to code as an optimistic outlook (MP8). Miles's argument is similar to the non-relational 'nihilist' (1.3.6) and echoes a point made by James: "Whether we survive, as creatures on it, is another point, but the planet will survive" (196).

Given this scepticism and detachment, it is surprising that each of these three participants nevertheless thinks we should do something about it:

MG1.92

Troy but at the same time, if there are little things that you can do, that will improve your state of, standard of living anyway, things like I've gone out and bought a bike for the first time in twenty odd years so I'm not using my car, er, as often.
(CS2.1 all doing our bit; EM 2.2 I'm doing my bit!; MP 1 free choice, MP5 adapting to the situation)

MG1.130

Miles So there's that many conflicting arguments you don't know where to sit, but clearly there must be some, some things we can do to improve it even if it is something natural, cos if it's even if it's something natural the fact is it's causing changes to to the planet so there's gotta to be things in which we can help or reduce the, er, the input that we have on it, so
(Maybe CS2.1, but really this is an assertion of agency: the rational individual should at least be doing something to improve the situation, so maybe MP5)

MG1.297

James Well they're all working for someone aren't they, [*agreement*], whether the university or, and even if that university's getting funding for various studies [*agreement*] (*MP 6 market forces, 7 others as rational economic agents*). I think that, I think maybe the more difficult thing going back to a sort of more local level, personal level, is how how, what we're willing to give up or how we're going to, how we're willing to change our behaviour
(CS 2.1 we can all do our bit, 3 need to cut back)

The facilitator challenges why, with their doubts, they still want to change their behaviour (310). James adheres to the CS view that it's probably the right thing to do and there probably is an issue with overconsumption (313, 427). Clare's reply is unusual:

MG1.330

Clare It's probably a survival thing as well isn't it because you're in your mind you're saving the planet by recycling and not using as much water, and it's that sort of you know, it's, it's everybody telling you that you should save this and because of that and [*all talking over now*]
(*AR 7.1 telling others what to do; CS2.1 we can all do our bit; reference to survival may be EM but that is not the tone*).

Later (630) she describes herself as a sponge soaking up everything she is told, but also refers to her maternal instincts in explaining why she believes in CS arguments. Miles and Troy take a thoroughly different view:

MG1.337

Troy I think it's the telling for me, I've, there's a person I work with who tells you've got to do this you've got to do that and [*sod?*] off. (*AR 7h telling others what to do*) [*agreement*] cos that's the kind of person I am, but if they were to try a different form of persuasion, I mean I do all the you know recycling and I take the bike instead of car and so on, but there's particular reasons for me doing those things, and it's not necessarily because I'm super-green and I'm going to save the planet [*Clare agreeing throughout*], but you know [*like?*] I said switching the lights off that makes economic sense to me I mean [*agreement*] you can't leave the tap running when you're brushing your teeth, again: cash saving!. [*laughter*]
(*EM2.1 What's in it for me?, 2.2 I'm doing my bit 7.1 stop bossing me; MP1 free choice, 6 market logic*)

Miles Er, that's it!. I'll do things that are green purely if they benefit me. And it, that sounds really bad, but, phrew, like you say, turning the lights off and, and I used to cycle to work when I lived, when I worked in Sale I'd cycle to work purely because it kept me fit and I didn't have to pay for petrol, driving. Same with the turning the lights off, it. If, it inevitably benefits me as well, so, you know, in that selfish sort of respect being green helps me more than it does the planet, and it sound, it sound's really bad but you know, I recycle purely because there are recycle bins there so it's easy to, but if it meant having to separate all my own recycling and then take it to a separate bin I wouldn't bother.
EM2.1 'what's in it for me?'; MP1 free choice: as with other groups self-assertion is expressed a little shame-facedly).

J5.3. MG1B

Both Miles and Troy repeat their dislike of being told what to do and the fact that they recycle or turn the lights off out of self-interest (469ff). Miles adds an interesting spin:

MG1.481

Miles I don't like being told what to do, I don't like these, these, sort of orders through the media, you know, I don't like being told by Bob Geldof to give money to charity I don't like being told by climate change people that I need

to recycle, for, if, it's my choice to recycle. If it really, if there was really that much convincing argument for it I believe there would be more stringent control on how people recycle, think there would be a legal obligation to do such things, there would be a limit on how far people can drive there would be a limit on on things like that, and if if the arguments were conclusive enough, then..

(AR 1.2 need for government, 2 regulation, 6.2 reliance on sound science; EM 7.1 stop bossing me, 7.2 why don't they solve it, MP 1 individual freedom, 6 market rationality naturally doing the right thing)

This is a fascinating extension of the optimistic confidence in nature that can be a feature of the MP Standpoint (MP4): human society is part of that benign nature, so that when push comes to shove if there is a real need to do something, we'll adapt and do something (MP5). There is also a confidence that our science is good enough to know if there is a problem (MP8). Logically, as we're not doing something, there can be no need. As in other groups, Miles assumes that *if* there is a problem, the solution will be based on AR logic, sound science telling us what to do. Being told what to do, when (*if*) you know 'they' are right, is fine.

As a result, James can get Miles to agree that he would have no problem with regulation if the science was certain (496). This leads to a discussion of whether participants really would be happy with regulations that increased their fuel bills, and then an extended debate on the motivations underlying pro-environmental behaviour. James emphasises the role of socialisation, saying that littering used to be socially acceptable (citing a scene from *Mad Men*, 677) but is no longer. For him not wasting things is a moral imperative (CS8.3) that you instil in your kids (597); Miles agrees that he too was brought up not to litter (699) but he is still clear that he doesn't waste things purely out of selfish economic considerations (741).

Miles's MP Standpoint also encourages him to take a punchy view of technology, decrying Nimby's who block subsidised windfarms ("Are you stupid? Your electricity will be cheaper, what are you doing?" 859) and embracing nuclear power (886).

J5.4. MG1C

Asked what they think will happen in Copenhagen the participants have very low expectations. Miles is forceful again:

MG1.972

Miles Rather than coming up with a pipe dream they should say right these are the small changes that we'll make now and then we'll meet again in 12 months and see how that goes. (*AR3.2, business as usual, gradualism*) No point in saying right we'll ban all car- , the world will be Carbon-neutral by so-and-so, if it's, it's not going to happen is it cos people..(*AR 2 regulation, 6.1 targets; MP 1,7 people want to do what they want to do*) Countries are still growing, populations are still growing, so there's there's always going to be an increase in Carbon emissions.
(*EM 6.1 all too difficult, 7.3 blaming others, 8 pessimistic outlook*)

Returning to the question of whether participants would be willing to see energy costs rise, James makes the EM Standpoint's argument that this will only work if there are alternatives:

MG1.1083

James But then also, the follow up question to that I mean that's fine not even arguing the toss about them putting the price of petrol up (*MP2*) but there's got to be an alternative as well hasn't there. So if they're saying use your car less, then it's kind of like, and we're going to help you do that by offering you good bus links good train links trams etc. there there, what's the alternative? (*AR 3.2 business as usual, people still need to travel as much; EM 1 reciprocity, 2.1 what's in it for me?, 3.1 need for compensation, 6.1 all too difficult, no alternatives*)

James has endorsed the CS view that there is overconsumption, but the logical response, consume less, travel less, is as usual trumped by the EM logic that if 'they' make it more expensive to drive 'they' need to provide alternative travel technologies. Like the other groups, participants also worry that they could not be sure that taxes on petrol were being spent on improving public transport (MG1.1150): intriguingly James rejects this being formulated in explicitly 'EM' terms:

MG1.1217

Facilitator So, if you're going to pay more you want something back. But, you were saying that you didn't trust politicians, so isn't there

James I don't think it's the case you want something back, you want an alternative.

Just as people find it embarrassing to express the self-assertion of the MP Standpoint too boorishly, participants are reluctant to sound pathetic or peevish in asking for EM's 'something back in return'.

This section concludes with an extended discussion about food shopping. Participants just have a gut feeling that supermarkets selling vegetables flown from Africa at cheaper prices than those grown down the road is 'illogical' (1365, 1395) but they are reluctant to call it immoral. Shopping at small retailers or the market is pleurably communal (1435) but as Troy points out it can be challenging "you go in and .. it's what do I actually do?!" (1444). The alternatives do not feel viable when you are so used to the status quo.

J5.5. MG1RMOs

Once again the group shows considerable insight in discussing how society can respond to the risks of climate change. James says governments are by their very nature reactive not proactive (MG1.1508), an idea Miles illustrates with swine flu:

MG1.1522

Miles there's no-one going to say well right pigs might get flu, so [*laughs*] lets er give everyone a vaccine just in case, until someone actually dies of swine flu, (*superficially, this continues the themes of EM 6.1, it's too difficult, 7.3 blaming others; but underlying this is the continuing discussion of scientific certainty. Without empirical, backward looking sound science to instruct you (AR6.2) you cannot act preventatively based on the logic or mathematical models.*)

The group show less insight, following the same path as other groups, when discussing technology. Troy says "The technology is out there, somewhere" (1547)

while James subscribes to the conspiracy theory that the technology is there but it has been suppressed by commercial interests (1565). Miles, James and Derek all agree with the MP statement: then, not perceiving the contradiction recognised by LG1, Miles and James, along with Clare, agree with the CS statement. Troy and Derek take the line that we do consume too much but reject the assumption that this will lead to catastrophic climate change.

Faced with the EM statement the group is much sharper, parsing it into separate moral and logical questions. Logically there is no point individuals cutting back when others do not, but morally you must do your bit (Clare 1687, James 1695, Derek 1723). For Troy the dilemma feels more awkward:

MG1.1709

Troy I think that you shou.... Not there's an obligation on us to [...] but you've got to; yeah, it's logical, it's something that, is it like think local act global, you're doing a bit you're doing your bit for whatever reasons, and you've made your own choice to do that and you're not being browbeaten by somebody, and equally you're not saying to other people, well I do this you should be as well, you should be cos I am, and it will save the planet.
(CS 2.1 doing your bit, 8d co-operation logical, 8.3 co-operation morally right; EM 1 I do this you should too in return, EM 7.1 being browbeaten/AR7.1 telling others; MP1 making your own choice)

This determination to maintain one's own agency continues in response to the AR statement. James says: "I'm not waiting to hear what the the erm result of Copenhagen is to decide what I'm going to do." (1773).

J5.6 Does the RM framework account for all of the arguments in MG1?

As for the preceding groups an alternative analysis of the content has been applied to gauge whether the RM framework does account for the arguments used in MG1. The analysis below suggests that it does, with only a limited amount of relevant content not coded as an RM argument (yellow box in table):

	Coded with an RM	Coded with no RM	Total
A category content	10377	953	11330
B category content	473	353	826
C category content	746	659	1405
D category content	28	604	632
Facilitator	388	2154	2542
Total	12012	4723	16735

The participants in MG2 had particularly strong opinions: Chapter 5's review frequently uses them as the best exemplars of RM arguments. Of the 'A' category content not coded with an RM, over two thirds was coded 'RM maybe' and a review of the material does not reveal important arguments that the RM framework was failing to capture.

Appendix K: Copy of Internet survey

Thank you for participating in this survey, the results of which are being used for academic research. The rules of such research require that participants consent to the use of their views and opinions and that each participant has their rights explained to them.

Research Consent

PURPOSE OF RESEARCH

You are invited to participate in a survey of people's views on climate change. The study forms part of a doctoral project being undertaken at the Institute of Social Psychology at the LSE. As a participant you will be asked for your views and to make some choices about how you think society should respond, or not, to the issue.

PROCEDURES

The study is expected to take approximately 10 minutes to complete. If you choose to participate in this survey, please select continue at the bottom of this page and you will be presented with the survey questions.

POTENTIAL RISKS AND BENEFITS

There are no risks associated with participating in this research. Other than any benefits arranged by the organization that recruited you to participate, you are unlikely to gain direct benefit from participating in this research. However, it is hoped that you may find the survey interesting.

PARTICIPANTS' RIGHTS

You should not feel obliged to agree to participate.

If you first agree to participate and then you change your mind, you are free to withdraw your consent and discontinue your participation at any time during the survey simply by exiting the website.

Your identity will be kept as confidential as possible as required by law. The results of this research survey may be presented at social science conferences or published in social science journals. However, your identity will not be disclosed, as you will be identified only by a unique participant number.

This study has been approved by the London School of Economics Institutional Review Board.

You can print a copy of the consent form by clicking [here](#).

CONTACT INFORMATION

Should you have any questions or concerns relating to the survey you can contact any of the following:

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If you want to know more about your rights, you may contact the head of the Departmental Ethics Committee at the Institute of Social Psychology:

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I HAVE READ AND UNDERSTAND THE ABOVE INFORMATION, AND GIVE MY CONSENT TO PARTICIPATE IN THE STUDY.

The survey has two parts, followed by a few questions about you. There are 7 pages in all. You have to complete each page before moving on to the next one. There is a chance at the end to comment on the survey as a whole or any particular question if you wish. To participate in the prize draw you need to provide your email address at the end so that you can be contacted if you win.

Part 1

How much do you agree or disagree with the following statements?

	disagree very strongly	disagree strongly	tend to disagree	neither agree nor disagree	tend to agree	agree strongly	agree very strongly
1. We can go a long way to meeting the challenge of climate change by cutting waste and improving efficiency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2. The threat to humanity from global warming is probably exaggerated by climate change scientists.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3. There are limits; we cannot go on improving everyone's lifestyle for ever.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4. Over the last 5 years quite a number of people I know have taken real steps to reduce their impact on the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5. I really don't know who to believe about global warming; so many of the experts seem to contradict each other.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	disagree very	disagree strongly	tend to disagree	neither agree	tend to agree	agree strongly	agree very

	strongly			nor disagree			strongly
6. Science and technology will solve our environmental problems with little need to change our way of life.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7. It's not fair for us to leave future generations with a worse environment than we have now.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8. By 2050, climate change is unlikely to have catastrophic effects on us in Britain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9. The threats posed by climate change are unpredictable and there's not a lot we can do about it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10. By some means the world's population growth must be reduced.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11. There are endless opportunities for each of us to make a difference - we just need to make it easier for everyone.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 1

Page 2 of 7

How much do you agree or disagree with the following statements?

	disagree very strongly	disagree strongly	tend to disagree	neither agree nor disagree	tend to agree	agree strongly	agree very strongly
12. People worry too much about humanity's impact on the	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

environment.							
13. I'm fed up with being lectured by all sorts of public figures about what I should do to combat climate change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14. It is now an established scientific fact that climate change is largely man-made.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15. Over the next 5 years I expect quite a number of people I know to take more steps to reduce their impact on the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
16. The government should be providing tax breaks and subsidies to businesses that develop green technologies.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	disagree very strongly	disagree strongly	tend to disagree	neither agree nor disagree	tend to agree	agree strongly	agree very strongly
17. Economic growth is essential to give us the means to solve the world's environmental problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
18. We need to set emissions targets based on sound science and gradually reduce our carbon emissions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
19. I don't expect very many people round the world to do much about global warming,	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

so I'm reluctant to change my lifestyle when that won't achieve much.							
20. As the climate changes we will adapt accordingly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
21. Fuel is expensive enough and I do not want to see the government putting more 'green' taxes on it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22. In reality, people will only do something about climate change when they start to experience it directly.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

How much do you agree or disagree with the following statements?

	disagree very strongly	disagree strongly	tend to disagree	neither agree nor disagree	tend to agree	agree strongly	agree very strongly
23. When fighting climate change international institutions like the UN will only seek gradual change to the status quo: this will not be enough.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24. Dealing with Global Warming is something for governments not individuals.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
25. We need substantial	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

changes in how we travel, what we eat and how we build our homes if we are going to deal with climate change.							
26. I don't trust the government to come up with good or fair solutions to climate change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
27. We're all human beings together and the rich are going to have to help the poor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	disagree very strongly	disagree strongly	tend to disagree	neither agree nor disagree	tend to agree	agree strongly	agree very strongly
28. We need to empower people to find their own energy-efficient solutions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
29. We need the international institutions like the UN to bring about the co-operation needed to address climate change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
30. Over the last 5 years I have taken real steps to reduce my impact on the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
31. By 2050, climate change will have catastrophic impacts in some countries.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
32. We will only get people to change their behaviour with strict regulations on consumption .	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

33. I'm much more likely to do something that may help the environment, like turning down the heating, if it saves me money.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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Part 1

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How much do you agree or disagree with the following statements?

	disagree very strongly	disagree strongly	tend to disagree	neither agree nor disagree	tend to agree	agree strongly	agree very strongly
34. By 2050, the impact of climate change on other countries will have started to have serious consequences for Britain.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
35. When it's clearer what the impacts of climate change are, future generations will be better placed than us to address the problems of climate change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
36. Politicians and scientists have an important role to play in establishing policies that can address climate change.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
37. I do try to do things like recycling to help the environment because it is the right thing to do.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
38. Each country	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

has got to look after its own citizens first when faced with global environmental challenges.							
	disagree very strongly	disagree strongly	tend to disagree	neither agree nor disagree	tend to agree	agree strongly	agree very strongly
39. We need higher energy prices to encourage innovation and efficiency.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
40. Over the next 5 years I myself will take more steps to reduce my impact on the environment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
41. Unless the world consumes less and accepts lower economic growth, we will go on making the world's environmental problems worse.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Part 2

When tackling social issues we often have to choose between conflicting approaches or to prioritise alternative responses. The next part takes some pairs from the statements above and asks you to choose which of the two statements is closest to your own opinion.

Even if you agree broadly, or generally disagree, with both statements, please nevertheless choose the one you agree with most or disagree with least.

Which of these two statements is closest to your own opinion?

- 1 We need the international institutions like the UN to bring about the co-operation needed to address climate change.
- International institutions like the UN will only seek gradual change to the status quo: this will not be enough.

- 2 Dealing with Global Warming is something for governments not individuals.

- I don't trust the government to come up with good or fair solutions to climate change.

- 3
- We will only get people to change their behaviour with strict regulations on consumption.
 - We need to empower people to find their own energy-efficient solutions.

- 4
- We need substantial changes in how we travel, what we eat and how we build our homes if we are going to deal with climate change.
 - We can go a long way to meeting the challenge of climate change by cutting waste and improving efficiency.

- 5
- I do try to do things like recycling to help the environment because it is the right thing to do.
 - I'm much more likely to do something that may help the environment, like turning down the heating, if it saves me money.

- 6
- It's not fair for us to leave future generations with a worse environment than we have now.
 - When it's clearer what the impacts of climate change are, future generations will be better placed than us to address the problems of climate change.

- 7
- I'm fed up with being lectured by all sorts of public figures about what I should do to combat climate change.
 - Politicians and scientists have an important role to play in establishing policies that can address climate change

- 8
- Each country has got to look after its own citizens first when faced with global environmental challenges
 - We're all human beings together and the rich are going to have to help the poor.

- 9
- I don't expect very many people round the world to do much about global warming, so I'm reluctant to change my lifestyle when that won't achieve much
 - There are endless opportunities for each of us to make a difference - we just need to make it easier for everyone.

- 10 We need higher energy prices to encourage innovation and efficiency.
- We need to set emissions targets based on sound science and gradually reduce our carbon emissions.

- 11 Economic growth is essential to give us the means to solve the world's environmental problems.
- Unless the world consumes less and accepts lower economic growth, we will go on making the world's environmental problems worse.

- 12 As the climate changes we will adapt accordingly.
- The threats posed by climate change are unpredictable and there's not a lot we can do about it.

Part 2

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Imagine that, in the future, climate change has started to have significant impacts across the world, creating a shortage of key materials, energy and foodstuffs. In this situation, which of the following approaches in this country would work best (again choose the one closest to your opinion, even if you agree with more than one or generally disagree with all of them):

- We all agree to rationing of key materials, energy and foodstuffs.
- We allow market forces to price scarce resources, so that prices can rise and people will consume less.
- We should rely on the government to make the appropriate regulations to control the situation?

Part 2

Page 7 of 7

Imagine that, in the future, climate change has started to have significant impacts across the world, forcing many people to migrate from the hardest hit areas to less badly affected countries, including Britain. In this situation, which of the following approaches in this country would work best (choose one):

- All the countries that have not been badly affected, including ourselves, should receive their fair share of the migrants.
- We should allow in anyone who can make a living and contribute to the

economy.

- We should rely on the government to make the appropriate regulations and/or take appropriate security measures to manage the situation?

Finally, some questions about you: these allow us to compare the responses of people coming from different backgrounds:

A: Are you:

- 25 or under?
- 26-35?
- 36-45?
- 46-55?
- 56-65?
- 66 or over?

B: Are you:

- Male
- Female

C: At what stage did you complete your formal education?:

- Not applicable, am currently in education
- Secondary school up to age 16/GCSE or equivalent, or earlier
- Secondary school over 16/GCSE or equivalent
- College or University but for less than 3 years
- Completed degree at College or University
- Masters or higher degree

D: Approximately what is your household income?:

- Less than £20,000
- Between £20,000 and £40,000
- Between £40,000 and £60,000
- Between £60,000 and £80,000

- Over £80,000

E: Would you describe the place where you live as

- a big city?
- the suburbs or outskirts of a big city?
- a small city or town?
- a country village or, a farm or home in the country?

You have now completed the survey. Details of the prize draw follow on the next page.

Prize Draw

Please provide your email address so that you can be contacted if you win a prize in the draw. You will need to click the 'finish' button at the end to send the email address.

For 150 respondents there will be a draw of 3 prizes of £100 each. The number of prizes will be increased if more than 170 responses are received. You will only be contacted if you win a prize in the draw and your email address will not be used for any other purpose. It will be deleted from our records as soon as administration of the draw has been completed.

Should you have any questions about this survey or the draw contact c.j.tennant@lse.ac.uk.

Many thanks for completing the survey. If you have any comments about the survey, particularly if you found some questions unclear or ambiguous, please add them here (however, please avoid using the browser back-button to review the survey as this will delete your answers).



Appendix L: Survey Statements coded for Relational Model arguments

Numbers refer to the survey Statements as set out in Chapter 6.

<i>Survey statements</i> (a)-ve: statement rejects this RM argument (b) []: statement only partially fits RM argument	Communal Sharing	Authority Ranking	Equality Matching	Market Pricing
Foundational Principle	CS7, CS27	AR10, AR24, AR36	EM33	MP11, MP20
Approach	[-ve AR24] CS23 [MP11] [Misc14]	AR18, AR32	EM9, EM21, EM33, EM38 [Misc22]	[MP16]
Economics	[AR10] CS3, CS41	AR1	EM19, EM33	MP16, MP17, MP39
Nature	CS3, CS7		EM9	[MP6]
Nature & Man	[CS23]	AR18	EM9	MP6, MP20, MP35
Knowledge, Wisdom	[-veMisc12]	AR18, AR36 [-ve EM26] [-ve misc2]	EM26 [Misc5]	MP11, MP39
Other people	CS7, CS27	[AR29]	EM13, EM21	MP28, MP35
Outlook	CS3, CS7, CS27, CS37 [EM9]	AR10; AR18	EM9	MP6

Appendix M: review of responses to the 41 Statements

M1: Level of agreement with Authority Ranking statements

The survey included seven 'AR' statements:

- 1: We can go a long way to meeting the challenge of climate change by cutting waste and improving efficiency
- 10: By some means the world's population growth must be reduced
- 18: We need to set emissions targets based on sound science and gradually reduce our carbon emissions
- 24: Dealing with Global Warming is something for governments not individuals
- 29: We need the international institutions like the UN to bring about the co-operation needed to address climate change
- 32: We will only get people to change their behaviour with strict regulations on consumption
- 36: Politicians and scientists have an important role to play in establishing policies that can address climate change.

Mean scores and standard deviations for these statements are shown below:

Descriptive Statistics				
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
AR 1: waste efficiency	5.32	1.081	13%	1%
AR 10: reduce world population	5.19	1.252	19%	1%
AR 18: targets based on sound science	5.04	.991	7%	1%
AR 24: governments not individuals	3.44	1.353	2%	8%
AR 29: need for UN to create co-operation	5.02	1.127	11%	1%
AR 32: strict regulation on consumption	4.41	1.289	6%	3%
AR 36: politicians and scientists key role	5.27	1.043	13%	1%
Average	4.81		10%	2%

Table M-7-1: Authority Ranking Statements: Descriptive Statistics

Clearly AR24 is something of an anomaly: the average mean for the other 6 is 5.04, indicative of broad general agreement. Although AR24 contrasts the role of government and individuals respondents appear to emphasise only one half of the contrast. The correlations between answers to AR24 and other Statements clearly suggest respondents focus on the 'individuals' part of the question. AR24

correlates very strongly with EM19 (rejecting individual action: Pearson's coefficient +0.474, $p < 0.01$), while correlating negatively with Statements MP11 and MP28 which both advocate the importance of empowering individual action (-0.281, -0.214, $p < 0.01$). The low agreement level suggests people reject the idea that climate change is not a matter for individuals while not actually expressing a view on the role of government at all. In subsequent analyses AR24 has not been included in the creation of an AR composite score.

Although AR10 generally appears to be similar to the other AR variables, it in fact correlates much more weakly than the others do with each other. The high proportion expressing extreme agreement also suggests the argument that population will need to be reduced stands separate from the mainstream arguments about climate change. Its strongest correlation (0.238, $p < 0.01$) is with CS Statement 3 which asserts the limits to human progress, suggesting that both seem to capture a Malthusian pessimism absent from the other AR responses. In subsequent analyses AR10 has also been excluded in the creation of an AR composite score.

The remaining 5 items (1, 18, 29, 32, 36) have been combined to create a AR Composite scale which shows a Cronbach's Alpha of 0.748. Introductory text books on statistics for the social sciences often suggest 0.7 as a target level for Cronbach's Alpha (Bohrnstedt & Knoke, 1994, p. 268) although others offer 0.8 as the benchmark (Maxim, 1999, p. 244). In a review, Cortina (1993) corroborates the view that the scales with Alpha scores over 0.7 are typically considered reliable, He criticises the implied over-simplification of this formulaic threshold, but most of the criticism is more pertinent to scales generated with larger numbers of items. His key criticism of the use of alpha is over-interpretation: 'internal consistency is a necessary but not sufficient condition for homogeneity' (p100). Although Fiske's original theory attributes homogeneity and unidimensionality to the Relational Models, the objective of this survey is restricted to exploring whether the Models form a coherent Standpoint; interpreting coherence as at least internally consistent if not necessarily homogeneous, for the purposes of this survey the alpha is an adequate measure.

M2: Level of agreement with Communal Sharing statements

The survey included seven ‘CS’ statements:

- 3: There are limits: we cannot go on improving everyone’s lifestyle for ever
- 7: It’s not fair for us to leave future generations with a worse environment than we have now
- 23: When fighting climate change international institutions like the UN will only seek gradual change to the status quo: this will not be enough
- 25: We need substantial changes in how we travel, what we eat and how we build our homes if we are going to deal with climate change
- 27: We’re all human beings together and the rich are going to have to help the poor
- 37: I do try to do things like recycling to help the environment because it is the right thing to do
- 41: Unless the world consumes less and accepts lower economic growth, we will go on making the world’s environmental problems worse.

Mean scores and standard deviations for these statements are shown below:

Communal Sharing: Descriptive Statistics				
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree’t
CS 3: there are limits	4.62	1.411	9%	3%
CS 7: not fair to leave to fut generations	5.45	1.244	24%	1%
CS 23: UN/AR gradualism not enough	4.71	1.071	6%	1%
CS 25: major change in consumption	4.97	1.260	11%	2%
CS 27: all human, rich must help poor	5.13	1.200	16%	0%
CS 37: helping enviro right thing to do	5.86	1.070	35%	0%
CS 41: accept lower economic growth	4.81	1.276	11%	1%
Average	5.08		16%	1%

Table M-7-2: Communal Sharing Statements: Descriptive Statistics

The broad pattern is similar to the AR statements. The high level of agreement appears to be driven by Statements 7 and 37, which essentially state moral imperatives that respondents are keen to agree with⁷⁵.

⁷⁵ These responses will reflect a degree of social desirability bias (Alreck & Settle, 1985, Ch4), although much of the methodological literature concentrates on the bias operating with responses to an interviewer, when concern for appearances might be stronger (Fowler, 2008, Ch6).

Statement 3's pessimism has already been mentioned: it has the weakest correlations amongst the CS statements. The other CS statements encompass an assertion of personal efficacy - there are things 'I' or we can (or should) do about it. CS3 effectively denies this efficacy: its strongest correlation is with EM9 (which says there is nothing we can do about climate change: +0.261, $p < 0.01$). The statement is excluded from the creation of the CS composite score.

The remaining six items have been combined to form a CS Composite scale, which shows a Cronbach's Alpha of 0.766.

M3: Level of agreement with Equality Matching statements

There survey included seven 'EM' statements:

- 9: The threats posed by climate change are unpredictable and there's not a lot we can do about it
- 13: I'm fed up with being lectured by all sorts of public figures about what I should do to combat climate change
- 19: I don't expect very many people round the world to do much about global warming, so I'm reluctant to change my lifestyle when that won't achieve much
- 21: Fuel is expensive enough and I do not want to see the government putting more 'green' taxes on it
- 26: I don't trust the government to come up with good or fair solutions to climate change
- 33: I'm much more likely to do something that may help the environment, like turning down the heating, if it saves me money
- 38: Each country has got to look after its own citizens first when faced with global environmental challenges.

Mean scores and standard deviations for these statements are shown below:

Equality Matching: Descriptive Statistics				
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
EM 9: threats unpredictable uncontrollable	3.83	1.334	3%	4%
EM 13: fed up with lectures	4.04	1.648	8%	7%
EM 19: other's won't, so I won't	3.31	1.454	2%	12%
EM 21: fuel expensive, no more taxes	4.83	1.699	21%	5%
EM 26: don't trust govt to solve CC	4.95	1.229	14%	0%
EM 33: more likely to act if saves me money	5.25	1.136	15%	1%
EM 38: look after own citizens first	4.39	1.395	7%	3%
Average	4.37		10%	5%

Table M-7-3: Equality Matching Statements: Descriptive Statistics

The pattern with these statements is somewhat different from the previous groups. The first three questions appear to include a denial of personal efficacy which respondents are less willing to endorse. Similarly, Statement 38, although generating marginally more agreement than disagreement, is less willingly endorsed. Probably this is because it contradicts the moral imperatives (e.g. CS Statement 27) that social acceptability demands strong agreement to.

Statement 21, rejecting fuel taxes, correlates strongly with most of the other EM statements but it shows an unusual profile:

EM 21: fuel expensive: no more taxes

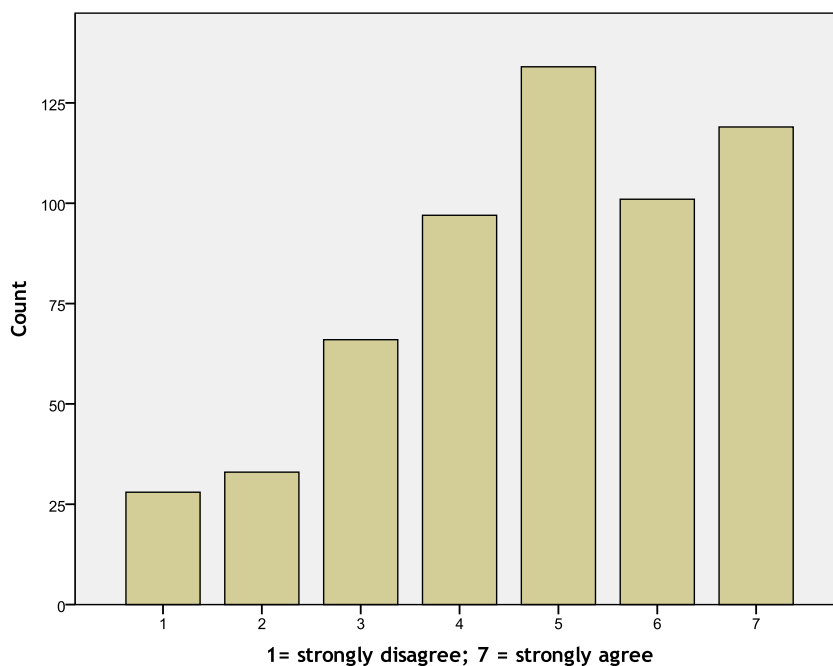


Figure M-1: Level of agreement with Statement 21

Other Statements typically have more clearly normal distributions: both Statement 21 and Statement 39 (We need higher energy prices to encourage innovation and efficiency) appear to provoke extreme reactions - agreement and disagreement respectively - in some respondents. The two are strongly (negatively) correlated (-0.611 , $p < 0.01$) and appear to be capturing something additional to the core position of the other EM questions. Statement 21 is also unusual in that the place of residence demographic is significant in people's choices: The 104 'big City' residents are only 40% as likely as others to agree very strongly with this statement ($p < 0.01$), while the 83 'Village/country' residents are 1.8 times more likely to agree very strongly with the statement ($p < 0.05$). This is in line with mainstream coverage of the fuel protests in 2000 which perceived resistance to petrol taxes as driven by rural concerns (e.g. Treneman, 2000): typically users of the countryside need to drive so that they themselves can traverse the open spaces whether for enjoyment or out of necessity, while urban dwellers want fewer *other* drivers on the road to reduce congestion (Christie & Jarvis, 1999).

Statements 26 and 33 have the highest level of respondent agreement: they say more than a generalised rejection of climate change science and policies, and unsurprisingly correlate less strongly with the other five Statements. However, almost the lowest correlation between all 7 Statements is in fact between these two (0.100 , $p < 0.05$). Of the two EM33 seems closer to the core of the EM Standpoint; by contrast, the phrasing of Statement 26 is probably ill-judged, and it is noticeable that only two people strongly disagreed with it. It appears likely that respondents can both think the government will be necessary in addressing climate change while at the same time not trusting the government to come up with the solutions: the Statement correlates modestly (0.170 , $p < 0.01$) with the CS Composite score. Generally, however, the Statement is only weakly correlated with most of the other individual Statements, suggesting that different respondents have construed the Statement differently. For this reason it has been excluded from the creation of an EM Composite scale.

The remaining six items combine to create an EM Composite scale with a Cronbach's Alpha of 0.758. Some further comments on the EM scale are provided in the endnotes⁶.

M4: Level of agreement with Market Pricing statements

The survey included eight 'MP' statements:

- 6: Science and technology will solve our environmental problems with little need to change our way of life
- 11: There are endless opportunities for each of us to make a difference - we just need to make it easier for everyone
- 16: (MP/AR) The government should be providing tax breaks and subsidies to businesses that develop green technologies
- 17: Economic growth is essential to give us the means to solve the world's environmental problems
- 20: As the climate changes we will adapt accordingly
- 28: We need to empower people to find their own energy-efficient solutions
- 35: When it's clearer what the impacts of climate change are, future generations will be better placed than us to address the problems of climate change
- 39: We need higher energy prices to encourage innovation and efficiency.

One of these (16) could more correctly be described as representing both the AR and MP Standpoints. Another, MP6, was derived from the variable 'sciesolv' used in the British Social Attitudes 2000 survey (Christie & Jarvis, 2001), as were Statements 2 and 12 (6.4.8 below). MP6 produced a different response pattern to the other questions but it does capture the technological optimism identified in Chapters 4 and 5 as part of the MP Standpoint (e.g. 4.7.8 'Science will save the planet' in #112) and so it has been classified within the MP Statement set.

Mean scores and standard deviations for these statements are shown below:

Market Pricing: Descriptive Statistics				
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
MP 6: science will solve	2.98	1.238	1%	12%
MP 11: empowering everyone to make a diff	5.11	1.075	10%	1%
MP/AR 16: govt incentivise technology	5.13	1.208	15%	1%
MP 17: econ growth essential for enviro	4.34	1.150	2%	3%
MP 20: as climate changes we'll adapt	4.42	1.159	3%	2%
MP 28: empower others to save energy	4.97	1.018	9%	1%
MP 35: fut generations better placed to address CC	4.24	1.170	2%	3%
MP 39: higher prices to encourage innov efficiency	3.06	1.454	1%	20%
Average	4.28		5%	4%

Table M-7-4: Market Pricing Statements: Descriptive Statistics

The MP Statements present a more heterogeneous pattern than the previous three groups. Appendix N shows a correlation matrix for the eight MP Statements, revealing two distinct groups (6, 20, 35 in the first; 11, 16, 28 in the second), and two Statements (17, 39) less closely correlated than the others.

Although MP6 provoked the highest level of disagreement out of all the RM Statements, while on average respondents tended to agree with MP20 and 35, these three Statements all positively correlate (*average co-efficient is 0.342, all $p < 0.01$*); likewise Statements 11, 16, and 28 (*average co-efficient 0.396, all $p < 0.01$*). These two groups, when combined as composites, are negatively correlated ($-0.257, p < 0.01$). The first group expresses a *laissez-faire* philosophy: we should ignore climate change because we can deal with it as and when we have to. The second group expresses MP's confidence in individual efficacy in a different way: it takes the challenge seriously but emphasises the importance of *empowering* individuals to deliver solutions.

Statement 17, endorsing the primacy of economic growth, correlates more weakly with the '*Laissez-faire*' group, but does not correlate negatively with the '*Empower*' group. Statement 39 belongs naturally in the 'Empower' group, but it correlates more weakly than the others. It demonstrates a similar pattern to EM Statement 21 but in reverse: a number of people reject higher prices vehemently and this aspect of the Statement seems to set it apart from others. Both Statements 17 and 39 have been excluded from the composites described below.

Two composites have been formed from the remaining six Statements. Built upon only three Statements each, these do not have particularly strong Cronbach's Alphas (Cortina, 1993). The MP3 Laissez-faire scale has an Alpha of 0.608; the MP3 Empower score has an Alpha of 0.659. The positions should therefore be treated more as a loose approach than a coherent Standpoint, but for the sake of convenience they will be referred to as Standpoints.

In the focus groups there were clear issues surrounding the social acceptability of asserting arguments premised on the individualistic MP Standpoint: given this, the nuances of the wording are likely to strike people in different ways. Yet the emergence of two divergent groups 'within' the expected MP Standpoint cannot be ignored. Logically, the MP Standpoint should prompt different responses according to how serious the respondent thinks AGW actually is. The 'Laissez-faire' responses are a natural expression of confident, assertive individualism if one thinks AGW does not pose a risk. The 'Empower' response is a logical expression of the MP Standpoint's belief in individual efficacy if one thinks AGW does pose a risk. This adaptive way of responding would fit well with the logic of the MP Standpoint. However, according to Cultural Theory, the individualist worldview should determine whether respondents think AGW is a risk. These results offer two alternative, and contradictory, conclusions:

- The MP Laissez-faire and MP Empower groups cannot be part of the same Standpoint
- The MP Standpoint is not a strong determinant in respondents' risk perception of AGW. Rather, the Standpoint provides different responses to different contexts, one in which AGW is perceived to be a risk, one where it is not.

Section 6.7 covers this issue in greater depth.

M5: Level of agreement with other Statements: Miscellaneous

There were five 'miscellaneous' Statements in the survey:

- 2: The threat to humanity from global warming is probably exaggerated by climate change scientists (adapted from variable exagenv in BSA 2000, see 6.4.7 above)
- 5: I really don't know who to believe about global warming; so many of the experts seem to contradict each other
- 12: People worry too much about humanity's impact on the environment (adapted from variable harmvirw in BSA 2000)
- 14: It is now an established scientific fact that climate change is largely man-made
- 22: In reality, people will only do something about climate change when they start to experience it directly.

Mean scores and standard deviations for these statements are shown below:

Miscellaneous Statements: Descriptive Statistics				
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
Misc 2: threat exaggerated	3.87	1.544	3%	9%
Misc 5: don't know who to believe	4.19	1.434	5%	5%
Misc 12: people worry too much	3.13	1.426	2%	15%
Misc 14: fact CC manmade	4.43	1.502	8%	5%
Misc 22 people only act when selves affected	5.31	1.027	13%	0%

Table M-7-5: Miscellaneous Statements: Descriptive Statistics

Appendix O includes a correlation table for these five variables together with the Composites EM6 and MP3 Laissez-faire. These show predictable relationships, with Statements 2, 5 and 12 all strongly correlated with each other and the two Composite Scale scores (all correlations > 0.500, p <0.01). Statement 14 correlates negatively with 2, 5, 12 and the two composite scales (all correlations <-0.400, p<0.01).

Only the final statement, 22, does not correlate with the others, but it does have a weaker correlation of 0.147 (<0.01) with the EM6 Composite: effectively this Statement expresses the expectation that others will follow the arguments of EM, but it does not express an EM argument directly.

M6: Level of agreement with other Statements: Impacts

Three variables tested whether respondents thought CC would have a serious impact in the midterm. These were:

- 8: (Impact) By 2050, climate change is unlikely to have catastrophic effects on us in Britain
- 31: (Impact) By 2050, climate change will have catastrophic impacts in some countries
- 34: (Impact) By 2050, the impact of climate change on other countries will have started to have serious consequences for Britain.

Mean scores and standard deviations for these statements are shown below:

Impact Statements: Descriptive Statistics				
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
Impact 8: 2050 unlikely CC affect UK	3.83	1.317	3%	5%
Impact 31: 2050 CC catastrophic some countries	4.83	1.351	13%	1%
Impact 34: 2050 CC other countries knock on to UK	4.49	1.205	5%	1%
Averages N/A: polarity of 8 reverse of 31, 34				

Table M-7-6: Impact Statements: Descriptive Statistics

Although rather tentative, the responses to 8 and 31 reflect the IPCC view (IPCC, 2007, Ch11) and the responses to 34 reflect the view that indirect impacts such as commodity shortages and migration are more of an issue for the UK.

M7: Level of agreement with other Statements: Action

Four statements seek to tap respondents' willingness to reduce their impact on the environment:

- 40: (Action) Over the last 5 years quite a number of people I know have taken real steps to reduce their impact on the environment.
- 15: (Action) Over the next 5 years I expect quite a number of people I know to take more steps to reduce their impact on the environment.
- 30: (Action) Over the last 5 years I have taken real steps to reduce my impact on the environment
- 40: (Action) Over the next 5 years I myself will take more steps to reduce my impact on the environment.

Mean scores and standard deviations for these statements are shown below:

Actions Statements: Descriptive Statistics				
	Mean	Std. Deviation	Extreme Agreement	Extreme Disagree't
Actions 4: Last 5 yrs others reduced	4.49	1.201	3%	1%
Actions 15: nxt 5 years others will reduce	4.47	1.078	3%	1%
Actions 30: last 5 years I reduced	4.89	1.183	8%	1%
Action 40: nxt 5 years I'll reduce	5.00	1.126	11%	1%
Average	4.71		6%	1%

Table M-7-7: Actions Statements: Descriptive Statistics

Respondents may well be exhibiting a self-serving bias in judging others' efforts to reduce their impact lower than their own, as well as aspiring to reduce their own impact more in the future than in the past. Looking at the difference between respondents own aspiration to reduce their impact (40) and their expectations that others will (15), those with higher scores on the CS6 Composite scale show a greater difference, perhaps justifying the holier than thou image environmentalists can be accused of ($B=0.426$, $R^2 = 0.103$, $at <0.01$).

M8: Relational Model scale scores

This section looks at the composite scale scores for the different Relational Models. Section 6.4.4 stresses that these are treated as a composite summation of levels of agreement with statements expressing the different Models rather than measurements of an actual latent factor.

Section 6.2.3 identified that the two samples appeared to be drawn from subtly different populations. Nevertheless, the table below shows that the RM Scales sustain their Reliability in both the Saros and Maximiles samples. Furthermore, this is largely true of the Snowball pilot sample (note that one Statement, MP/AR16, was missing from the pilot set):

RM Scales: Cronbach's Alpha by Sample				
	Merged	Saros	Maximiles	Snowball pilot
AR 5 Composite (1,18,29,32,36)	0.748	0.689	0.764	0.703
CS6 Composite (7,23,25,27,37,41)	0.766	0.748	0.772	0.690
EM6 Composite (9,13,19,21,33,38)	0.758	0.760	0.751	0.671
MP3 Laissez faire composite (6,20,35)	0.608	0.572	0.614	0.552
MP3 Empower composite (11,16,28)	0.659	0.648	0.655	N/A
MP2 Empower composite (11,28)	0.560	0.575	0.542	0.626
Sample size	578	149	429	101

Table M-7-8: Relational Model scales: Cronbach's Alpha by sample

The scale scores correlate strongly:

RM scales: Correlations					
Pearson co-efficients	AR5_score	CS6_score	EM6_score	MP Empower score	MP Laissez faire score
AR5_score	1	.756	-.431	.668	-.336
CS6_score	.756	1	-.453	.635	-.415
EM6_score	-.431	-.453	1	-.341	.621
MP_Empower_sc	.668	.635	-.341	1	-.257
MP_Laissez_faire	-.336	-.415	.621	-.257	1
	<i>p < 0.01</i>				

Table M-7-9: Correlations between Relational Model Scales

These show the same two distinct groups identified throughout Chapter 6: AR, CS and MP Empower all engage with AGW, treating it as a problem the respondent wants to address or at least to be addressed. EM6 and MP Laissez-faire form the other group.

Appendix N: Survey respondent demographics

Question	Saros		Maximiles		Merged	
56 Age						
25 or under?	3	2%	5	1%	8	1%
26-35?	31	21%	71	17%	102	18%
36-45?	39	26%	130	30%	169	29%
46-55?	44	30%	119	28%	163	28%
56-65?	32	21%	75	17%	107	19%
66 or over?	0	0%	29	7%	29	5%
	149	100%	429	100%	578	100%
57 Gender						
Male	57	38%	257	60%	314	54%
Female	92	62%	172	40%	264	46%
	149	100%	429	100%	578	100%
58 Highest level education						
Not applicable, am currently in education	2	1%	6	1%	8	1%
Secondary school up to age 16/GCSE or equivalent	16	11%	51	12%	67	12%
Secondary school over 16/GCSE or equivalent	17	11%	58	14%	75	13%
College or University but for less than 3 years	39	26%	93	22%	132	23%
Completed degree at College or University	51	34%	158	37%	209	36%
Masters or higher degree	24	16%	63	15%	87	15%
	149	100%	429	100%	578	100%
59 Household Income						
Less than £20,000	35	23%	78	18%	113	20%
Between £20,000 and £40,000	51	34%	181	42%	232	40%
Between £40,000 and £60,000	38	26%	83	19%	121	21%
Between £60,000 and £80,000	16	11%	51	12%	67	12%
Over £80,000	9	6%	36	8%	45	8%
	149	100%	429	100%	578	100%
60 Residence						
a big city	41	28%	63	15%	104	18%
the suburbs or outskirts of a big city	48	32%	117	27%	165	29%
a small city or town,	44	30%	182	42%	226	39%
a country village, or farm or home in country	16	11%	67	16%	83	14%
	149	100%	429	100%	578	100%

Appendix O: Correlation table: 8 Market Pricing Statements

		Correlations							
		MP6	MP11	MP/AR16	MP17	MP20	MP28	MP35	MP39
MP 6: science will solve	Pearson Correlation	1	<i>-.265</i>	<i>-.249</i>	<i>.211</i>	<i>.357</i>	<i>-.159</i>	<i>.278</i>	<i>-.079</i>
MP11: empowering everyone to make a diff	Pearson Correlation	<i>-.265</i>	1	<i>.360</i>	<i>.002</i>	<i>-.176</i>	<i>.389</i>	<i>-.053</i>	<i>.043</i>
MP/AR 16: govt incentivise technology	Pearson Correlation	<i>-.249</i>	<i>.360</i>	1	<i>.062</i>	<i>-.149</i>	<i>.437</i>	<i>-.141</i>	<i>.196</i>
MP 17: econ growth essential for enviro	Pearson Correlation	<i>.211</i>	<i>.002</i>	<i>.062</i>	1	<i>.189</i>	<i>.054</i>	<u><i>.116</i></u>	<i>-.055</i>
MP 20: as climate changes we'll adapt	Pearson Correlation	<i>.357</i>	<i>-.176</i>	<i>-.149</i>	<i>.189</i>	1	<i>-.060</i>	<i>.393</i>	<i>-.203</i>
MP 28: empower others to save energy	Pearson Correlation	<i>-.159</i>	<i>.389</i>	<i>.437</i>	<i>.054</i>	<i>-.060</i>	1	<i>-.051</i>	<u><i>.122</i></u>
MP 35: fut generations better placed to address	Pearson Correlation	<i>.278</i>	<i>-.053</i>	<i>-.141</i>	<u><i>.116</i></u>	<i>.393</i>	<i>-.051</i>	1	<i>-.190</i>
MP 39: higher prices to encourage innov	Pearson Correlation	<i>-.079</i>	<i>.043</i>	<i>.196</i>	<i>-.055</i>	<i>-.203</i>	<u><i>.122</i></u>	<i>-.190</i>	1
		<i>Bold italic p<0.001</i>			<u><i>Underlined p< 0.01</i></u>				

Appendix P: Correlation table for Miscellaneous Statements

		Correlations						
		Misc 2	Misc 5	Misc 12	Misc 14	Misc 22	EM6	MP3LF
Misc 2: threat exaggerated	Pearson Correlation	1	.567	.649	-.604	-.007	.688	.580
Misc 5: don't know who to believe	Pearson Correlation	.567	1	.393	-.418	.060	.602	.406
Misc 12: people worry too much	Pearson Correlation	.649	.393	1	-.527	-.076	.621	.524
Misc 14: fact CC manmade	Pearson Correlation	-.604	-.418	-.527	1	.021	-.543	-.419
Misc 22 people only act when selves affected	Pearson Correlation	-.007	.060	-.076	.021	1	.147	.003
EM6_score	Pearson Correlation	.688	.602	.621	-.543	.147	1	.621
MP_Laissez_faire_score	Pearson Correlation	.580	.406	.524	-.419	.003	.621	1

Bold Italic: p<0.01

Appendix Q: Exploratory factor analysis

The table below presents the results of the exploratory factor analysis using the 29 'Relational Model' Statements. Loadings are presented from an oblique (Oblimin) rotation. Loadings <0.25 have not been presented for ease of interpretation.

Analysis: Maximum likelihood, 5 factors. Rotation: direct oblimin (oblique)					
Pattern Matrixa					
	Factor				
	1	2	3	4	5
AR 1: waste efficiency					.422
AR 10: reduce world population					
AR 18: targets based on sound science	.649				
AR 24: governments not individuals					-.667
AR 29: ned for UN to create co-operation	.841				
AR 32: strcit regulation on consumption	.343		.272		
AR 36: politicians and scientists key role	.638				
CS 3: there are limits				-.431	
CS 7: not fair to leave to fut generations	.339				.352
CS 23: UN/AR gradualism not enough	.482			-.308	
CS 25: major change in consumption	.379				
CS 27: all human, rich must help poor	.464				
CS 37: helping enviro right thing to do	.338				.472
CS 41: accept lower economic growth				-.494	
EM 9: threats unpredictable uncontrollable		.488			-.292
EM 13: fed up with lectures		.251	-.346		-.348
EM 19: other's won't, so I won't		.311			-.572
EM 21: fuel expensive, no more taxes		.346	-.590		
EM 26: don't trust govt to solve CC			-.423		
EM 33: more likely to act if saves me money		.407			
EM 38: look after own citizens first		.567			
MP 6: science will solve		.364			-.454
MP 11: empowering everyone to make a diff	.273				.495
MP/AR 16: govt incentivise technology	.571				
MP 17: econ growth essential for enviro		.424		.344	
MP 20: as climate changes we'll adapt		.496			
MP 28: empower others to save energy	.474				
MP 35: fut generations better placed to address CC		.436			
MP 39: higher prices to encourage innov efficiency			.813		

Interpretation:

1. Factor 1 captures a level of commitment 'Mainstream' view of climate change and the potential solutions to it (that it is/isn't a real threat, and it is/isn't something that society will have to prioritise).
2. Factor 2 captures the response that we should/shouldn't 'Reject and ignore the issue', and that society shouldn't/should place obligations on the individual.
3. Factor 3 endorses/rejects the use of higher prices and regulation to tackle climate change.
4. Factor 4 endorses/rejects the need for economic growth.

Appendix Q: Exploratory Factor Analysis (cont'd):

5. Factor 5 captures a moral commitment/refusal for individuals to play their part

Factors 3, 4 and 5 have fairly predictable correlations (in the table below) with the 'Mainstream' view in factor 1. These correlations are also repeated with the ScepticsBelievers scale: in other words these factors sit comfortably with a bipolar account in which respondents either do, or don't, engage with climate change as both real and important for society to tackle. Factor scores for 1 and 2 correlate predictably with the ScepticsBelievers scale (Factor 1, +0.650, Factor 2 -0.519, both $p < 0.01$) but *not* strongly with each other and it is this that suggests engagement with climate change is more complex than the simple bi-polar account.

Factor Correlation Matrix					
Factor	1	2	3	4	5
1	1.000	-.038	.233	-.289	.450
2	-.038	1.000	-.236	.003	-.201
3	.233	-.236	1.000	.068	.197
4	-.289	.003	.068	1.000	-.033
5	.450	-.201	.197	-.033	1.000

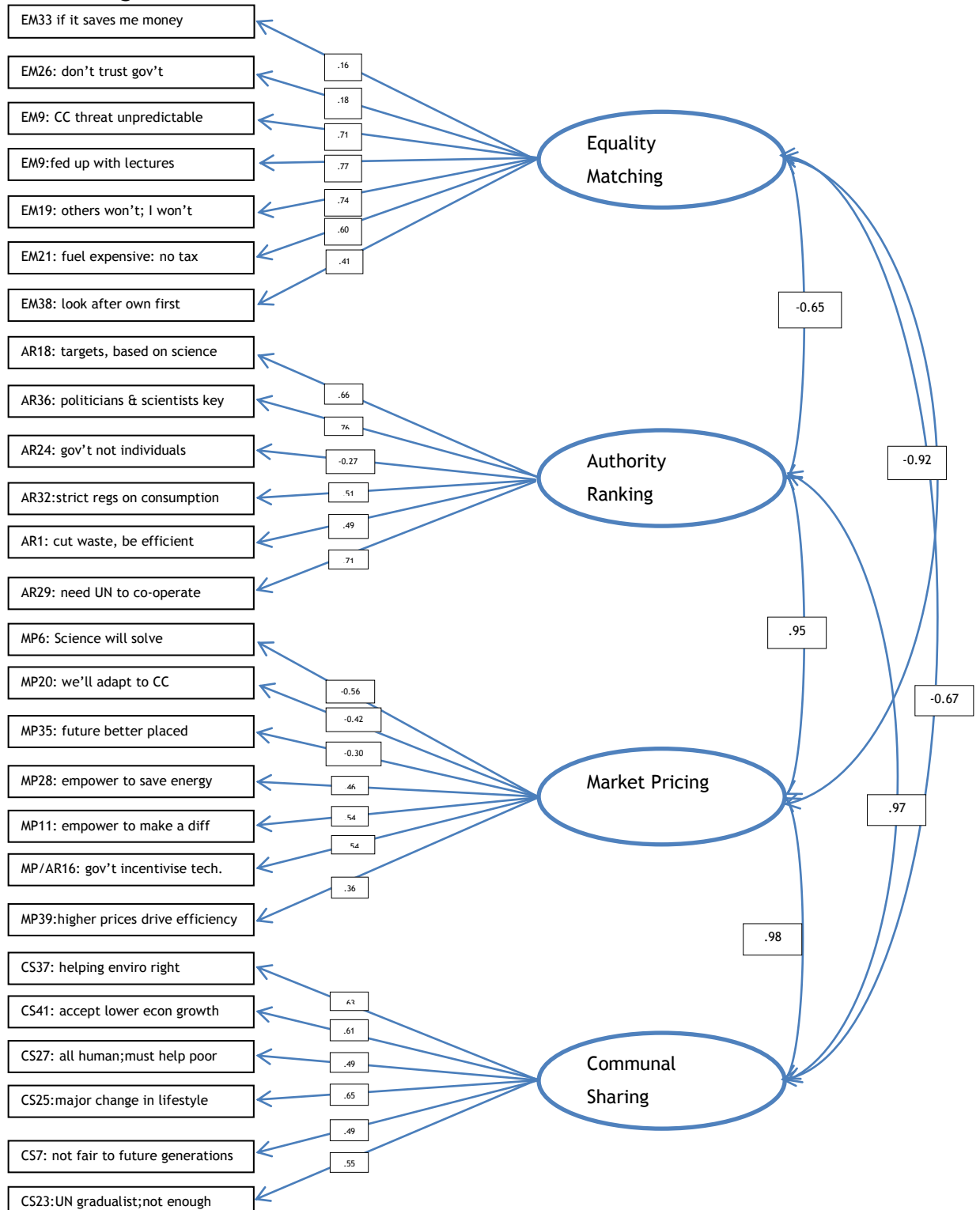
Shown below are the data for the amount of the variance explained by the model:

Total Variance Explained							
Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings (a)
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
	1	7.691	26.520	26.520	7.154	24.669	24.669
2	2.876	9.918	36.438	2.244	7.737	32.406	2.613
3	1.753	6.043	42.481	1.248	4.303	36.710	2.573
4	1.542	5.317	47.798	.950	3.275	39.985	1.567
5	1.199	4.135	51.933	.576	1.985	41.969	4.480
6	1.023	3.529	55.462				

(a): When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Appendix R: Confirmatory factor analysis

Path diagram with 4 Relational Model Variables and 26 Indicator Variables



The latent variables are identified by fixing their variances at 1.

Loadings are presented in standardised form.

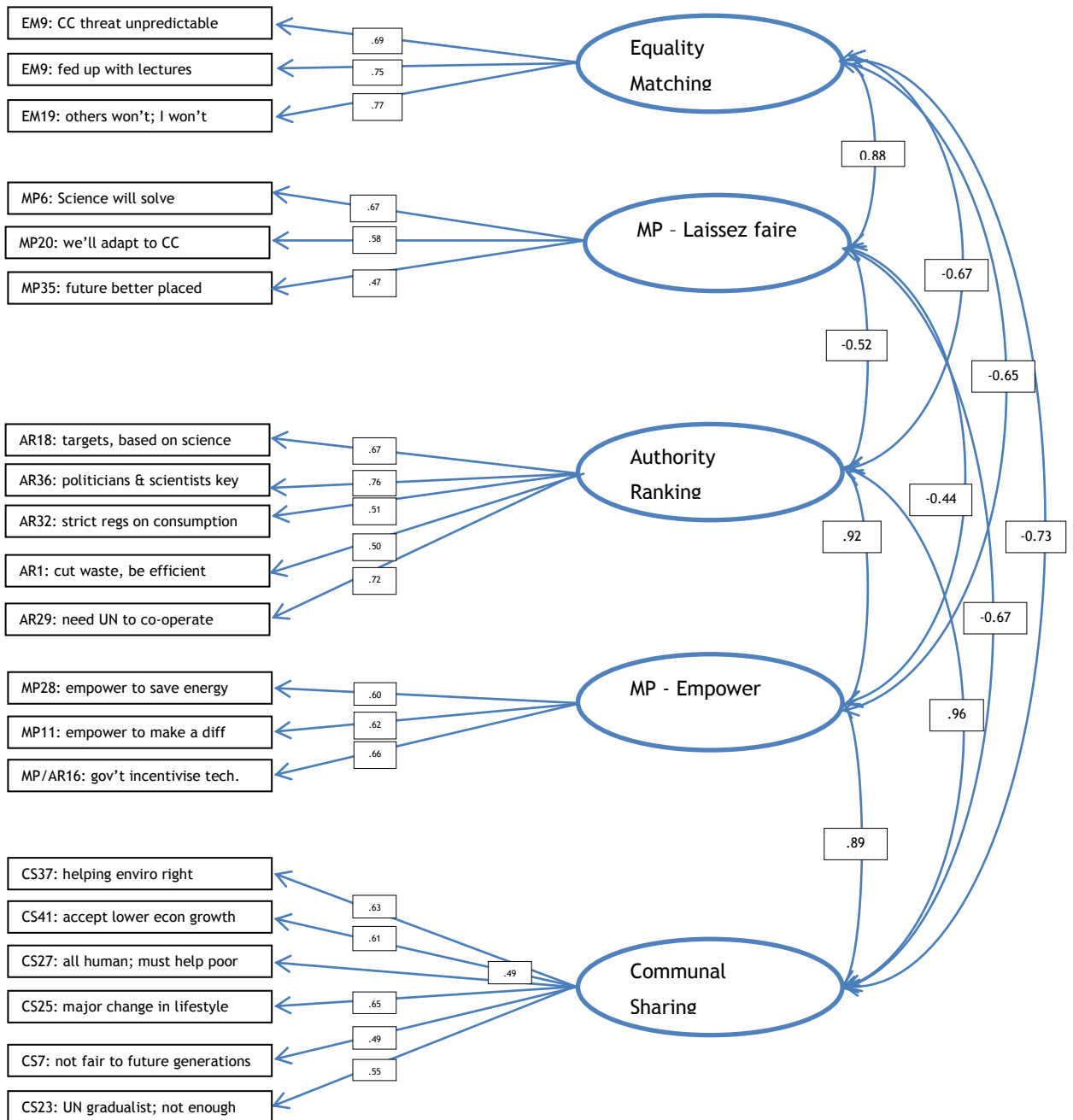
Diagram reproduced from Amos output.

Caution is required in interpreting this model due to the high levels of correlation between the latent variables.

All error terms omitted from diagram.

Appendix R cont'd:: Confirmatory Factor Analysis

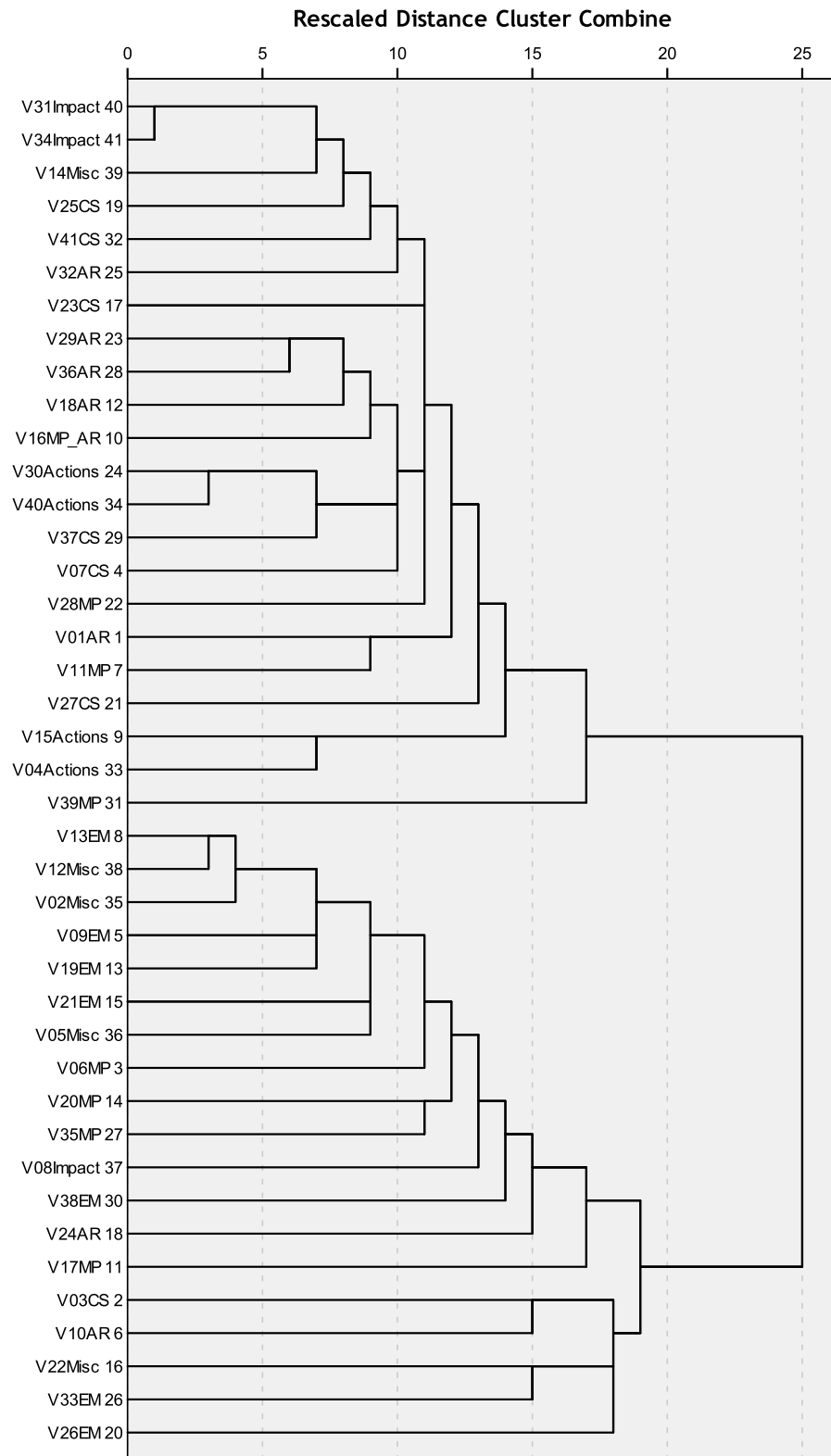
Path diagram with 5 Relational Model Variables and 20 Indicator Variables



The latent variables are identified by fixing their variances at 1.
 Loadings are presented in standardised form.
 Diagram reproduced from Amos output.
 All error terms omitted from diagram.

Appendix S: Cluster analysis of responses to 41 statements

Dendrogram using Average Linkage (Between Groups)



Analysis uses Pearson's coefficient.

Appendix T: Detailed analysis of dichotomised Relational Model statements

For each dichotomy the following analysis has been performed

- Crosstabulations against level of scepticism/belief in AGW
- Logistic regressions of the choices made against Relational Model scales and demographic variables.

The analysis also provides:

The text of the two Statements: respondents had to prefer one over the other.

- A note of the correlations between responses to the two Statements when they were posed individually - respondents are likely to find closely correlated Statements harder to choose between
- A crosstabulation of the Dichotomised arguments against level of scepticism/belief in AGW
- A note of the Chi² measure of association within the table, if significant ($p < 0.05$). A Chi² squared score over 10 is likely to be significant; the highest Chi² squared score amongst the 12 questions was 200. High scores suggest that level of belief in AGW significantly influences respondent's choice of Statement.
- A discussion of the crosstabulation
- A logistic regression, assessing the relationship between the choice of Statement and respondent scores on the Relational Model scales (and ScepticsBelievers scale) and the demographic variables.
- Whenever one of the Statements within the dichotomy was included within the original calculation of an RM scale, this scale has been recalculated omitting that one variable for the relevant regression to avoid circularity
- Where the dependent variables have been found significant ($p < 0.05$), odds ratio's have been calculated. These calculate the odds that a respondent towards the top of the scale chooses one of the Statements as compared to someone towards the bottom of the scale. 'Towards' the top and bottom has been defined as the range that is nearest to including the middle 90% of the sample. Typically the range of the whole sample is from 1 (equivalent to disagree very strongly with that Standpoint) or c1.5 to 7 (agree very strongly) on any scale, ie a range of 5.5 to 6. The range of the central 90% is typically a range 2.7 to 3.5 wide. A note at the bottom of the first regression table illustrates what this means.
- The Nagelkerke pseudo R² statistic is provided to give an indication of the level of the model's explanatory power.

Question 42: AR vs CS

29: (AR) We need the international institutions like the UN to bring about the co-operation needed to address climate change (*Mean response to AR29 on its own was 5.02*)

23: (CS) When fighting climate change international institutions like the UN will only seek gradual change to the status quo: this will not be enough (*Mean response 4.71*)

Correlation between the original two statements +0.419, $p < 0.01$.

AR29 vs CS23 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
AR29 vs CS23	Chose AR29	Count	37	118	144	39	338
		% within AR29 vs CS23	10.9%	34.9%	42.6%	11.5%	100.0%
		% within xtrscepticsbelievers_4cat	58.7%	55.9%	59.0%	65.0%	58.5%
	Chose CS23	Count	26	93	100	21	240
		% within AR29 vs CS23	10.8%	38.8%	41.7%	8.8%	100.0%
		% within xtrscepticsbelievers_4cat	41.3%	44.1%	41.0%	35.0%	41.5%
Total		Count	63	211	244	60	578
		% within AR29 vs CS23	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq **NOT** significant.

Responses to these two statements individually are strongly correlated. Both also correlate to the ScepticsBelievers scale (AR29: 0.493, $p < 0.001$; CS23: 0.432 $p < 0.01$) suggesting that the nuance in the statements is overridden by a relatively simple interpretation that responds to the fact that both statements take AGW as a given. When the two are dichotomised with each other, this simple driver for the responses - belief or not in AGW - is no longer relevant.

Question 42: AR vs CS

Q42: AR29 vs CS23: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	AR29	CS23
AR4_score_ex29	-.114	.180	.398	.528	.893		
CS5_score_ex23	.397	.176	5.115	.024	1.488		3.3
EM6_score	.443	.145	9.389	.002	1.557		4.1
MP_Empower_score	-.415	.148	7.890	.005	.660	3.5	
MP_Laissez_faire_score	-.131	.137	.910	.340	.877		
AGW_sceptbelief_score3	.130	.154	.712	.399	1.139		
Gender (female=1)	-.374	.185	4.083	.043	.688	1.5	
age_6cat	.058	.082	.506	.477	1.060		
income_5cat	-.213	.083	6.496	.011	.808	2.3	
Big_City	-.076	.242	.099	.753	.927		
v058xxeduc_5cat	.118	.080	2.144	.143	1.125		
Source (Saros=1)	.599	.210	8.162	.004	1.821		1.8
Constant	-1.790	1.352	1.754	.185	.167		
Pseudo Rsq: 0.084		Bold p<0.05		Bold Italic p<0.01			

The odds ratios can be interpreted as follows. For the Communal Sharing scale, a respondent towards the top of the scale is 2.9x more likely than a person at the bottom of the scale to have chosen CS23 over AR29 (controlling for all the other variables). The range of the adjusted CS scale, excluding responses to CS23, is 1.6 to 7. To remove the extreme responses from consideration the odds ratio is taken of those lying either end of the 'core' of the responses. The range from 3.4 to 6.4 holds 90.3% of the respondents. The odds ratio is calculated for a respondent at the top of this range compared to a respondent at the bottom.

For the demographic variables, the odds ratio is calculated to compare the top category to the bottom. Thus a respondent with household income over £80,000 is 2.3x more likely (after controlling for other variables) to have chosen AR29 than a person reporting household income under £20,000. For Gender, women (after controlling for other variables) are 1.5x more likely than men to have chosen AR29, while Saros respondents (controlling for other variables) are 1.8x more likely than Maximiles respondents to have chosen CS23.

What is noticeable in this regression is the linkage between the EM and CS models. When belief or scepticism about AGW is not salient, both EM and CS sometimes capture a distrust of the established authorities. In this dichotomy both the EM and CS Standpoints are associated with rejecting AR29 and preferring the CS23 Statement that criticises the AR position.

Question 43: AR vs EM

24: (AR) Dealing with Global Warming is something for governments not individuals (Mean response 3.44).

26: (EM) I don't trust the government to come up with good or fair solutions to climate change (Mean response 4.95).

Correlation between the original two statements +0.087, $p < 0.05$.

AR24 vs EM26 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
AR24 vs EM26	Chose AR24	Count	20	64	78	12	174
		% within AR24 vs EM26	11.5%	36.8%	44.8%	6.9%	100.0%
		% within xtrscepticsbelievers_4cat	31.7%	30.3%	32.0%	20.0%	30.1%
	Chose EM26	Count	43	147	166	48	404
		% within AR24 vs EM26	10.6%	36.4%	41.1%	11.9%	100.0%
		% within xtrscepticsbelievers_4cat	68.3%	69.7%	68.0%	80.0%	69.9%
Total		Count	63	211	244	60	578
		% within AR24 vs EM26	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq **NOT** significant.

Section 6.4.4 identified that AR24 was something of an anomaly within the collection of AR statements. It correlates negatively with the AR scale made up from 5 other statements (-0.166, $p < 0.001$). The AR scale score correlates strongly and positively with the ScepticsBelievers scale score (0.652, $p < 0.01$), while agreement with AR24 correlated *negatively* with the ScepticsBelievers scale score (-0.284, $p < 0.01$): believers in AGW also believe in the relevance of their own actions and reject the 'not individuals' part of this statement. Indeed, responses to AR24 correlate positively with the EM scale score (0.326, $p < 0.01$): respondents scoring high on the EM score, despite their dislike of government taxes or regulations, are pleased to avoid any responsibility to do something about AGW (which they may well not believe in) themselves.

Question 43: AR vs EM

Although level of belief in AGW has no influence over the choice in Q43, the relational models do show interesting relationships:

Q43: AR24 vs EM26: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	AR24	EM26
AR5_score	-.627	.213	8.683	.003	.534	6.6	
CS6_score	.662	.207	10.215	.001	1.938		5.9
EM6_score	.137	.155	.788	.375	1.147		
MP_Empower_score	.156	.159	.960	.327	1.169		
MP_Laissez_faire_score	-.271	.148	3.363	.067	.762		
AGW_sceptbelief_score3	-.078	.165	.223	.637	.925		
Gender (female=1)	.419	.197	4.519	.034	1.520		1.5
age_6cat	.028	.087	.105	.745	1.029		
income_5cat	-.014	.086	.024	.876	.987		
Big_City	.351	.267	1.727	.189	1.421		
v058xxxeduc_5cat	-.142	.087	2.687	.101	.868		
Source (Saros=1)	.006	.226	.001	.978	1.006		
Constant	.781	1.424	.301	.583	2.184		
Pseudo Rsq 0.077	Bold p<0.05		Bold Italic p<0.01				

In spite of the negative correlation between AR24 and the AR5 scale, when it comes to the choice in Q43 high AR5 scorers are considerably more likely to choose AR24 over EM26, the latter Statement showing explicit distrust of government. As with Q42, this reveals a link between the EM and CS Standpoints. Generally speaking the CS and AR Standpoints unite in their determination to tackle AGW (the scales correlate +0.756, $p < 0.01$): but high CS scorers are more likely to express their desire for radical change by stating their distrust of government in picking EM26 over AR24.

Question 44: AR vs MP

32: (AR) We will only get people to change their behaviour with strict regulations on consumption (*Mean response 4.41*)

28: (MP) We need to empower people to find their own energy-efficient solutions (*Mean response 4.97*).

Correlation between the original two statements +0.213, $p < 0.01$.

AR32 vs MP28 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
AR32 vs MP28	Chose AR32	Count	13	66	91	29	199
		% within AR32 vs MP28	6.5%	33.2%	45.7%	14.6%	100.0%
		% within xtrscepticsbelievers_4cat	20.6%	31.3%	37.3%	48.3%	34.4%
	Chose MP28	Count	50	145	153	31	379
		% within AR32 vs MP28	13.2%	38.3%	40.4%	8.2%	100.0%
		% within xtrscepticsbelievers_4cat	79.4%	68.7%	62.7%	51.7%	65.6%
Total		Count	63	211	244	60	578
		% within AR32 vs MP28	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq significant: 12.3, $p < 0.01$.

Unlike the first two dichotomies, the contrast here is between AR32, a statement which implies a strong commitment to AGW as a serious problem, and MP28, a statement which allows a bland assent without much commitment regarding AGW at all.

Question 44: AR vs MP

The role of belief in AGW dominates the choice made in Q44:

Q44: AR32 vs MP28: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	AR32	MP28
AR4_score_ex32	.174	.188	.852	.356	1.190		
CS6_score	.018	.190	.009	.926	1.018		
EM6_score	-.032	.146	.049	.825	.968		
MP_Emp_score_ex28	.225	.137	2.681	.102	1.252		
MP_Laissez_faire_score	-.031	.137	.051	.821	.969		
AGW_sceptbelief_score3	-.559	.161	12.080	.001	.572	7.1	
Gender (female=1)	-.174	.188	.860	.354	.840		
age_6cat	-.069	.084	.672	.412	.933		
income_5cat	-.051	.083	.372	.542	.950		
Big_City	.014	.246	.003	.955	1.014		
v058xxxeduc_5cat	-.136	.084	2.644	.104	.873		
Source (Saros=1)	.130	.216	.366	.545	1.139		
Constant	2.143	1.381	2.408	.121	8.527		
Pseudo Rsq 0.071	Bold p<0.05		Bold Italic p<0.01				

Taken on its own the Equality Matching Standpoint closely associates with choosing MP28, but within the complete model high belief in AGW makes respondents much more likely to choose AR32' strict regulation. The different Relational Models do not add anything to this simple determinant.

Given the strength of influence of belief in AGW, it is surprising that the cross-tabulation is not more polarised. Respondents at both ends of the spectrum are able to embrace both statements.

Question 45: CS vs AR

25: (CS) We need substantial changes in how we travel, what we eat and how we build our homes if we are going to deal with climate change (*Mean response 4.97*)

1: (AR) We can go a long way to meeting the challenge of climate change by cutting waste and improving efficiency (*Mean response 5.32*)

Correlation between the original two statements +0.305, $p < 0.01$.

CS25 vs AR1 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
CS25 vs AR1	Chose CS25	Count	9	76	129	42	256
		% within CS25 vs AR1	3.5%	29.7%	50.4%	16.4%	100.0%
		% within xtrscepticsbelievers_4cat	14.3%	36.0%	52.9%	70.0%	44.3%
	Chose AR1	Count	54	135	115	18	322
		% within CS25 vs AR1	16.8%	41.9%	35.7%	5.6%	100.0%
		% within xtrscepticsbelievers_4cat	85.7%	64.0%	47.1%	30.0%	55.7%
Total		Count	63	211	244	60	578
		% within CS25 vs AR1	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq significant: 57.8 $p < 0.01$.

This dichotomy follows a similar pattern to Question 44: although both statements appear to engage with the issue of climate change, CS25 takes it seriously and implies a significant impact on the respondents themselves, whereas AR1 enables a bland assent that tends to evade any personal responsibility. As a consequence, preference for CS25 increases the more seriously a respondent takes AGW.

Question 45: CS vs AR

Despite the similarities to Q44, belief in AGW is not the determining factor within the regression. Rather, the core AR position prefers the more radical CS25 over the bland AR1:

Q45: CS25 vs AR1: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	CS25	AR1
AR4_score_ex1	-.756	.190	15.852	.000	.470	14.1	
CS5_score_ex25	.037	.192	.036	.849	1.037		
EM6_score	.193	.152	1.616	.204	1.213		
MP_Empower_score	.528	.161	10.813	.001	1.696		4.9
MP_Laissez_faire_score	.198	.144	1.889	.169	1.219		
AGW_sceptbelief_score3	-.278	.162	2.938	.086	.758		
Gender (female =1)	-.116	.193	.363	.547	.890		
age_6cat	.199	.088	5.147	.023	1.220		2.7
income_5cat	.063	.086	.537	.464	1.065		
Big_City	.211	.253	.696	.404	1.235		
v058xxxeduc_5cat	-.207	.086	5.755	.016	.813	2.3	
Source (Saros = 1)	-.001	.222	.000	.995	.999		
Constant	.641	1.431	.201	.654	1.898		
Pseudo Rsq 0.224	Bold p<0.05		Bold Italic p<0.01				

AR1's prescription of a 'Business as usual' focus on efficiency and waste is much closer to the MP Empower Standpoint: higher scores on the MP Empower scale, as well as older people, are more likely to choose AR1 over the stricter CS25. On the other side, those seriously concerned about AGW, captured here by the mainstream AR Standpoint, together with the more highly educated, take the view that a more efficient 'Business as Usual' really won't be enough.

Yet in spite of these strong associations, the crosstabulation shows that different respondents at each end of the scepticsbelievers scale can embrace both positions.

Question 46: CS vs EM

37: (CS) I do try to do things like recycling to help the environment because it is the right thing to do (*Mean response 5.86*)

33: (EM) I'm much more likely to do something that may help the environment, like turning down the heating, if it saves me money (*Mean response 5.25*)

Correlation between the original two statements +0.195, $p < 0.01$.

CS37 vs EM33 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
CS37 vs EM33	Chose CS37	Count	23	134	182	48	387
		% within CS37 vs EM33	5.9%	34.6%	47.0%	12.4%	100.0%
		% within xtrscepticsbelievers_4cat	36.5%	63.5%	74.6%	80.0%	67.0%
	Chose EM33	Count	40	77	62	12	191
		% within CS37 vs EM33	20.9%	40.3%	32.5%	6.3%	100.0%
		% within xtrscepticsbelievers_4cat	63.5%	36.5%	25.4%	20.0%	33.0%
Total		Count	63	211	244	60	578
		% within CS37 vs EM33	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq significant: 38.6 $p < 0.01$

Although both statements imply engagement with AGW, they do clearly provide contrasting positions, both of which are relatively easy to assent to (hence the high mean responses to the original questions). CS37 makes a much stronger commitment to tackling AGW so it is unsurprising that increasing belief in AGW results in greater preference for CS37, and greater scepticism results in greater preference for EM33.

Question 46: CS vs EM

However, as with Q45 it is not simple belief in AGW that determines the choice made here. The Relational Model really matters, with high EM scorers more likely to reject CS37's moral commitment and to prefer the self-centred EM33. Further, despite EM's close correlation with MP Laissez-faire (+0.621, $p < 0.01$), the latter Model expresses a distinct position which also contributes to the choice made.

Q46: CS37 vs EM33: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	CS37	EM 33
AR5_score	.055	.207	.071	.790	1.057		
CS5_score_ex37	-.351	.189	3.441	.064	.704		
EM5_score_ex33	.431	.147	8.654	.003	1.539		4.7
MP_Empower_score	-.048	.159	.090	.764	.953		
MP_Laissez_faire_score	.370	.153	5.854	.016	1.448		3.0
AGW_sceptbelief_score3	.111	.166	.447	.504	1.118		
Gender (female=1)	-.321	.200	2.581	.108	.726		
age_6cat	-.054	.089	.361	.548	.948		
income_5cat	-.051	.088	.332	.565	.950		
Big_City	-.291	.272	1.142	.285	.748		
v058xxxeduc_5cat	.081	.086	.876	.349	1.084		
Source (Saros=1)	.189	.230	.672	.413	1.207		
Constant	-2.591	1.435	3.259	.071	.075		
Pseudo Rsq 0.158	Bold $p < 0.05$		<i>Bold Italic $p < 0.01$</i>				

Perhaps because the Relational Models play such a role, different respondents at each end of the scepticsbelievers scale are seen to embrace both positions.

Question 47: CS vs MP

7: (CS) It's not fair for us to leave future generations with a worse environment than we have now (*Mean response 5.45*)

35: (MP) When it's clearer what the impacts of climate change are, future generations will be better placed than us to address the problems of climate change (*Mean response 4.24*)

Correlation between the original two statements -0.151, $p < 0.01$.

CS7 vs MP35 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
CS7 vs MP35	Chose CS7	Count	10	103	210	59	382
		% within CS7 vs MP35	2.6%	27.0%	55.0%	15.4%	100.0%
		% within xtrscepticsbelievers_4cat	15.9%	48.8%	86.1%	98.3%	66.1%
	Chose MP35	Count	53	108	34	1	196
		% within CS7 vs MP35	27.0%	55.1%	17.3%	0.5%	100.0%
		% within xtrscepticsbelievers_4cat	84.1%	51.2%	13.9%	1.7%	33.9%
Total		Count	63	211	244	60	578
		% within CS7 vs MP35	10.9%	36.5%	42.2%	10.4%	100.0%
		% within xtrscepticsbelievers_4cat	100.0%	100.0%	100.0%	100.0%	100.0%

Chi Sq Significant: 170.3 $p < 0.01$

The previous pairs (42 to 46) were positively correlated. For Q47, the original questions were negatively correlated. As a result, this dichotomy prompts starker divisions than in the previous 5, and the level of scepticism or belief in AGW has a decisive effect upon the choice of statement.

Question 47: CS vs MP

As suggested by the crosstabulation, higher belief in AGW strongly predicts preference for CS7. However, MP35 was one of the 3 items making up the MP Laissez-faire scale: even after excluding it and using a 2 item scale of MP6 and MP20, this adjusted scale adds something beyond pure scepticism to make it very likely that high MP Laissez-faire scorers will choose MP35:

Q47: CS7 v MP35: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	CS7	MP35
AR5_score	-.101	.259	.153	.696	.904		
CS5_score_ex7	-.167	.234	.513	.474	.846		
EM6_score	.341	.194	3.083	.079	1.406		
MP_Empower_score	-.352	.195	3.276	.070	.703		
MP_Laissez_score_ex35	.641	.168	14.523	.000	1.899		13.0
AGW_sceptbelief_score3	-.909	.209	18.899	.000	.403	24.1	
Gender (female=1)	.298	.241	1.537	.215	1.347		
age_6cat	.053	.107	.250	.617	1.055		
income_5cat	-.172	.105	2.703	.100	.842		
Big_City	-.100	.325	.095	.758	.905		
v058xxxeduc_5cat	-.066	.101	.424	.515	.936		
Source (Saros=1)	.082	.279	.087	.768	1.086		
Constant	2.493	1.696	2.160	.142	12.093		
Pseudo Rsq 0.479	Bold p<0.05		Bold Italic p<0.01				

In this dichotomy we have two positions that do tend to polarise respondents, and few of those at the extremes of the scepticsbelievers scale are willing to entertain the contrasting position. This is particularly marked for believers in AGW who really do not favour MP35.

Question 48: EM vs AR

13: (EM) I'm fed up with being lectured by all sorts of public figures about what I should do to combat climate change (*Mean response 4.04*)

36: (AR) Politicians and scientists have an important role to play in establishing policies that can address climate change. (*Mean response 5.27*)

Correlation between the original two statements -0.414, $p < 0.01$.

EM13 vs AR36 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
EM13 vs AR36	Chose EM13	Count	58	118	35	1	212
		% within EM13 vs AR36	27.4%	55.7%	16.5%	0.5%	100.0%
		% within xtrscepticsbelievers_4cat	92.1%	55.9%	14.3%	1.7%	36.7%
	Chose AR36	Count	5	93	209	59	366
		% within EM13 vs AR36	1.4%	25.4%	57.1%	16.1%	100.0%
		% within xtrscepticsbelievers_4cat	7.9%	44.1%	85.7%	98.3%	63.3%
Total		Count	63	211	244	60	578
		% within EM13 vs AR36	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq significant: 200.9 $p < 0.01$

With only 21 respondents disagreeing with the original AR36 against 218 disagreeing with EM13, a stronger preference for AR36 than the (less than) 2:1 actually shown might have been expected. However, the 242 who originally agreed with EM13 suck to their guns, 76% of them preferring EM13, creating the most powerful polarity of any of the dichotomies. EM13 clearly encapsulates the EM/MP Laissez-faire Standpoint of ignoring, or wanting to ignore, AGW: AR36 is easy to assent to as a truism, but contrasted with EM13 it represents a commitment to the mainstream consensus that sceptics are forced to reject.

Q48: EM vs AR

Much like Q47, level of belief in AGW has the strongest influence. But the EM Standpoint's antipathy to authority adds something extra, with high EM scorers 45x more likely to choose EM13 even after controlling for their probable scepticism about AGW:

Q48: EM13 v AR36: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	EM 13	AR36
AR4_score_ex36	.247	.257	.928	.335	1.281		
CS6_score	.053	.255	.044	.834	1.055		
EM5_score_ex13	-1.121	.208	29.145	.000	.326	45.2	
MP_Empower_score	.451	.211	4.576	.032	1.570		3.9
MP_Laissez_faire_score	.194	.198	.964	.326	1.214		
AGW_sceptbelief_score3	1.361	.217	39.330	.000	3.900		117.1
Gender (female=1)	-.565	.257	4.840	.028	.568	1.8	
age_6cat	-.084	.115	.534	.465	.919		
income_5cat	.111	.108	1.046	.306	1.117		
Big_City	-.347	.327	1.126	.289	.707		
v058xxxeduc_5cat	.001	.107	.000	.991	1.001		
Source (Saros=1)	-.290	.292	.990	.320	.748		
Constant	-4.180	1.761	5.635	.018	.015		
Pseudo Rsq 0.566	Bold p<0.05		Bold Italic p<0.01				

The close relationship between MP Empower and the Mainstream AR Standpoint is shown in this regression. The AR Standpoint's influence on the choice is subsumed by belief in AGW: but MP Empower's confidence in established, authoritative expertise and human ingenuity still has something to add to the choice.

An intriguing twist is provided by the role of gender. Women are more likely than men to believe in AGW ($t = -2.6, p < 0.05$), and to have lower EM scale scores ($t = 2.3, p < 0.05$), but here they seem to express some rejection of (maybe patronising) expertise. Controlling for the other variables, they are 1.8x more likely than men to endorse the view that 'I'm fed up with being lectured by all sorts of public figures about what I should do to combat climate change'.

Question 49: EM vs CS

38: (EM) Each country has got to look after its own citizens first when faced with global environmental challenges (*Mean response 4.39*).

27: (CS) We're all human beings together and the rich are going to have to help the poor (*Mean response 5.13*).

Correlation between the original two statements -0.164, $p < 0.01$.

EM38 vs CS27 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
EM38 vs CS27	Chose EM38	Count	42	101	72	10	225
		% within EM38 vs CS27	18.7%	44.9%	32.0%	4.4%	100.0%
		% within xtrscepticsbelievers_4cat	66.7%	47.9%	29.5%	16.7%	38.9%
	Chose CS27	Count	21	110	172	50	353
		% within EM38 vs CS27	5.9%	31.2%	48.7%	14.2%	100.0%
		% within xtrscepticsbelievers_4cat	33.3%	52.1%	70.5%	83.3%	61.1%
Total		Count	63	211	244	60	578
		% within EM38 vs CS27	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq significant: 49.0 $p < 0.01$

As with some of the other pairs, although both statements are relatively easy to agree with (only 175 respondents - 30% - expressed some level of disagreement with one or other of them), the negative correlation between responses to the original question is emphasised in the polarisation of respondents when the two are dichotomised.

Question 49: EM vs CS

This dichotomy reverses Q46, but both pose a similar (though quite distinct) dilemma for respondents. The choice is between moral commitment towards the environment and/or others, versus a more self-centred approach.

Q49: EM38 v CS27: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	EM 38	CS27
AR5_score	.324	.220	2.180	.140	1.383		
CS5_score_ex27	.178	.196	.829	.363	1.195		
EM5_score_ex38	-.500	.154	10.522	.001	.607	5.5	
MP_Empower_score	.184	.163	1.280	.258	1.202		
MP_Laissez_faire_score	-.380	.152	6.216	.013	.684	3.1	
AGW_sceptbelief_score3	-.055	.170	.105	.746	.946		
Gender (female=1)	-.128	.200	.406	.524	.880		
age_6cat	.169	.091	3.425	.064	1.184		
income_5cat	-.097	.088	1.205	.272	.908		
Big_City	-.403	.263	2.347	.126	.669		
v058xxxeduc_5cat	.211	.086	6.048	.014	1.235		2.3
Source (Saros=1)	-.197	.231	.732	.392	.821		
Constant	.094	1.459	.004	.948	1.099		
Pseudo Rsq 0.246	Bold p<0.05		Bold Italic p<0.01				

As with Q46, although level of belief in AGW is closely associated with the choice (per the crosstabulation), the real driver seems to be the Relational Models. In Q46, high EM scorers were 4.7x more likely than low scorers to make the EM choice, similar to the 5.5x for Q49. In both, the MP Laissez-faire score captures something more than the EM score alone: in Q46 high MP Laissez-faire scorers are 3x more likely to prefer the EM Statement, in Q49 they are 3.1x more likely than low scorers.

The EM and MP Laissez-faire scores capture the Relational Model impact - positive CS scores typically suggest low EM scores and so do not have an independent influence. Higher education, typically associated with higher CS scores (t = -3, p<0.01, non-graduates versus graduates) here clearly encourages preference for the CS27 Statement.

In spite of these strong associations, different respondents at each end of the scepticsbelievers scale do embrace both positions. A feature of CS27 is that it is not expressed as tied to the issue of climate change, which may make it easier for sceptics to agree with the statement because it makes no commitment to acknowledging AGW. However, this also implies that those with the CS Standpoint are very unlikely to take the EM view, and vice versa, based on the contrast in the logic of the Relational Models, not the level of belief in climate change.

Question 50: EM vs MP

19: (EM) I don't expect very many people round the world to do much about global warming, so I'm reluctant to change my lifestyle when that won't achieve much (*Mean response 3.31*)

11: (MP) There are endless opportunities for each of us to make a difference - we just need to make it easier for everyone (*Mean response 5.11*).

Correlation between the original two statements -0.403, $p < 0.01$.

EM19 vs MP11 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
EM19 vs MP11	Chose EM19	Count	34	73	21	3	131
		% within EM19 vs MP11	26.0%	55.7%	16.0%	2.3%	100.0%
		% within xtrscepticsbelievers_4cat	54.0%	34.6%	8.6%	5.0%	22.7%
	Chose MP11	Count	29	138	223	57	447
		% within EM19 vs MP11	6.5%	30.9%	49.9%	12.8%	100.0%
		% within xtrscepticsbelievers_4cat	46.0%	65.4%	91.4%	95.0%	77.3%
Total		Count	63	211	244	60	578
		% within EM19 vs MP11	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq significant: 90.6 $p < 0.01$.

EM19 was one of only 5 RM statements to elicit more disagreement than agreement: dichotomised with a relatively bland statement which does not even mention climate change it is not surprising that most respondents preferred MP11.

Question 50: EM vs MP

Like Q49, although belief in AGW is closely associated with the choice in Q50, in the regression model it is the Relational Models that appear to drive the choice, on clearly partisan lines:

Q50: EM19 v MP11: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	EM19	MP11
AR5_score	.213	.276	.596	.440	1.237		
CS6_score	.709	.260	7.436	.006	2.033		6.6
EM5_score_ex19	-.660	.200	10.822	.001	.517	9.4	
MP_Emp_score_ex11	.388	.170	5.236	.022	1.474		3.9
MP_Laissez_faire_score	-.567	.211	7.241	.007	.567	5.5	
AGW_sceptbelief_score3	.105	.215	.240	.624	1.111		
Gender (female=1)	.736	.259	8.082	.004	2.088		2.1
age_6cat	-.004	.113	.001	.970	.996		
income_5cat	-.043	.110	.151	.697	.958		
Big_City	-.263	.343	.587	.444	.769		
v058xxxeduc_5cat	-.218	.110	3.943	.047	.804	2.4	
Source (Saros=1)	-.085	.301	.080	.777	.918		
Constant	.466	1.768	.069	.792	1.594		
Pseudo Rsq 0.396	Bold p<0.05		Bold Italic p<0.01				

Thus high CS and MP Empower scores favour MP11, which though bland does seek to do something about climate change: high EM and MP Laissez-faire scores favour the 'do-nothing' EM19.

The demographic variables have an interesting impact: in contrast to Q48 where women (controlling for the other variables) preferred the EM Statement to an AR alternative, here women, typically more concerned about AGW than men, go still further than the substantial impact of 4 RM scores so that even controlling for these they are 2.1x more likely than men to have picked MP11 (only 29% of those choosing EM19 were women).

Instead it is the role of education to 'go against type' once other variables are controlled for. The most educated are 2.4x more likely than the least to have chosen EM19. It may be that more highly educated people are prepared to be tough minded about this choice: rather than following moral instincts they reason that it really is unlikely that others will act on climate change, and - though many

don't wish to admit it - it is logical not to want to make pointless self-sacrificing gestures and it is more honest to say so.

Perhaps because of this impact of education, a few of those respondents inclined towards action on AGW do seem to reject the simplicity of MP11's 'we just need to make it easier' in favour of EM19 as a tough-minded pragmatic position.

Question 51 MP vs AR

39: (MP) We need higher energy prices to encourage innovation and efficiency (Mean response 3.03).

18: (AR) We need to set emissions targets based on sound science and gradually reduce our carbon emissions (Mean response 5.04)

Correlation between the original two statements +0.207, $p < 0.01$.

MP39 vs AR18 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
MP39 vs AR18	Chose MP39	Count	2	21	31	19	73
		% within MP39 vs AR18	2.7%	28.8%	42.5%	26.0%	100.0%
		% within xtrscepticsbelievers_4cat	3.2%	10.0%	12.7%	31.7%	12.6%
	Chose AR18	Count	61	190	213	41	505
		% within MP39 vs AR18	12.1%	37.6%	42.2%	8.1%	100.0%
		% within xtrscepticsbelievers_4cat	96.8%	90.0%	87.3%	68.3%	87.4%
Total		Count	63	211	244	60	578
		% within MP39 vs AR18	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq significant: 26.2 $p < 0.01$.

Like EM21, Argument MP39 provokes strong hostility to the idea of higher prices/taxes. 290 respondents both reject MP39 and agree with EM21's complaint about the price of fuel. AR 18 provides a relatively vague alternative that is greatly preferred to MP39. It is a little surprising that as many as 32% of the 73 who did chose MP39 are actually on the sceptical side with respect to AGW.

Question 51 MP vs AR

Again, belief in AGW is secondary to the EM Standpoint's loathing of price increases:

Q51: MP39 v AR18: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	MP39	AR18
AR4_score_ex18	.238	.279	.728	.394	1.269		
CS6_score	-.189	.287	.433	.510	.828		
EM6_score	.540	.219	6.090	.014	1.716		5.5
MP_Empower_score	.285	.224	1.620	.203	1.330		
MP_Laissez_faire_score	-.161	.203	.630	.427	.851		
AGW_sceptbelief_score3	-.384	.237	2.613	.106	.681		
Gender (female=1)	.653	.287	5.182	.023	1.920		1.9
age_6cat	-.052	.124	.177	.674	.949		
income_5cat	-.036	.121	.089	.765	.965		
Big_City	-.247	.344	.518	.472	.781		
v058xxeduc_5cat	-.198	.128	2.380	.123	.821		
Source (Saras=1)	-.030	.313	.009	.924	.971		
Constant	1.257	2.061	.372	.542	3.513		
Pseudo Rsq 0.133	Bold p<0.05		Bold Italic p<0.01				

As with Q43, women, typically stronger believers in climate change than men, are nevertheless more likely than men to chose AR18, the 'softer' option. However, the numbers (26 women out of 73 chosing MP39) are relatively small due to the overall unpopularity of MP39.

Question 52: MP vs CS

17: (MP) Economic growth is essential to give us the means to solve the world's environmental problems (*Mean response 4.34*).

41: (CS) Unless the world consumes less and accepts lower economic growth, we will go on making the world's environmental problems worse (*Mean response 4.81*).

Correlation between the original two statements -0.188, $p < 0.01$.

MP17 vs CS41 * xtrscepticsbelievers_4cat Crosstabulation							
			xtrscepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
MP17 vs CS41	Chose MP17	Count	41	90	74	8	213
		% within MP17 vs CS41	19.2%	42.3%	34.7%	3.8%	100.0%
		% within xtrscepticsbelievers_4cat	65.1%	42.7%	30.3%	13.3%	36.9%
	Chose CS41	Count	22	121	170	52	365
		% within MP17 vs CS41	6.0%	33.2%	46.6%	14.2%	100.0%
		% within xtrscepticsbelievers_4cat	34.9%	57.3%	69.7%	86.7%	63.1%
Total		Count	63	211	244	60	578
		% within MP17 vs CS41	10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq 43.4 $p < 0.01$

Q52 encapsulates the Commons Dilemma. The original statements were negatively correlated and answers divide on partisan lines according to belief in AGW. However, this effect is not as great as might be expected - probably because the dichotomy does sum up the dilemma. The respondent's heart may prefer CS41, but the head may choose MP17.

Question 52: MP vs CS

For this reason strength of commitment to the CS Standpoint, as well as level of belief in AGW, appear to be the strongest influences over the choice made in this dichotomy. Controlling for their influence the other Relational Models are insignificant:

Q52: MP17 v CS41: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	MP17	CS41
AR5_score	-.248	.210	1.401	.237	.780		
CS5_score_ex41	.594	.198	9.022	.003	1.810		5.3
EM6_score	.041	.156	.068	.795	1.041		
MP_Empower_score	.119	.161	.543	.461	1.126		
MP_Laissez_faire_score	-.226	.150	2.274	.132	.798		
AGW_sceptbelief_score3	.329	.164	4.040	.044	1.390		3.2
Gender (female=1)	.279	.195	2.043	.153	1.322		
age_6cat	.094	.087	1.146	.284	1.098		
income_5cat	-.197	.086	5.226	.022	.822	2.2	
Big_City	-.321	.257	1.553	.213	.726		
v058xxxeduc_5cat	-.073	.085	.738	.390	.930		
Source (Saros=1)	.233	.228	1.046	.307	1.262		
Constant	-2.330	1.434	2.638	.104	.097		
Pseudo Rsq 0.183	Bold p<0.05		Bold Italic p<0.01				

In the realm of economics level of household income makes a significant difference, with the better off more committed to a business as usual belief in the necessity of economic growth.

Deciding between these two arguments is hard: the discussion in Chapter 1 indicated that each position has strong advocates. So it is not surprising that there are some respondents with strong views who can prefer the less naturally consistent choice in this dichotomy. 23 (20%) of the 115 respondents with the strongest CS scores (excl CS41) preferred MP17 in this dichotomy.

Question 53 MP vs EM

20: (MP) As the climate changes we will adapt accordingly (*Mean response 4.42*)

9: (EM) The threats posed by climate change are unpredictable and there's not a lot we can do about it (*Mean response 3.83*)

Correlation between the original two statements +0.400, $p < 0.01$.

MP20 vs EM9 * xtrsepticsbelievers_4cat Crosstabulation							
			xtrsepticsbelievers_4cat				Total
			Sceptic	sceptic to unsure	unsure to believer	Believer	
MP20 vs EM9	Chose MP20	Count	43	155	183	39	420
		% within MP20 vs EM9	10.2%	36.9%	43.6%	9.3%	100.0%
		% within xtrsepticsbelievers_4cat	68.3%	73.5%	75.0%	65.0%	72.7%
	Chose EM9	Count	20	56	61	21	158
		% within MP20 vs EM9	12.7%	35.4%	38.6%	13.3%	100.0%
		% within xtrsepticsbelievers_4cat	31.7%	26.5%	25.0%	35.0%	27.3%
Total	Count		63	211	244	60	578
	% within MP20 vs EM9		10.9%	36.5%	42.2%	10.4%	100.0%

Chi Sq **NOT** significant.

With hindsight the similarity between these two statements is apparent, and it is not surprising that the crosstabulation shows little pattern to respondents' preference between them. Since both are strongly, and negatively, correlated with the ScepticsBelievers scale (MP20 -0.492, EM9 -0.585, both $p < 0.01$) variations in the scale do not impact the choice between them.

Question 53 MP vs EM

The nuance that makes MP20 more optimistic than the resigned EM9 probably explains the greater level of agreement to MP20 both on its own and when dichotomised: this optimistic/pessimistic contrast does pick out a significant difference between the EM Standpoint and the MP Empower Standpoint:

Q53: MP20 v EM9: variables in the equation						Odds high/low	
	B	S.E.	Wald	Sig.	Exp(B)	MP20	EM9
AR5_score	-.087	.214	.165	.684	.917		
CS6_score	.336	.210	2.571	.109	1.399		
EM5_score_ex9	.491	.152	10.453	.001	1.635		5.3
MP_Empower_score	-.557	.166	11.284	.001	.573	7.0	
MP_Laissez_score_ex20	-.140	.131	1.143	.285	.869		
AGW_sceptbelief_score3	.345	.170	4.130	.042	1.411		3.3
Gender (female=1)	-.398	.208	3.686	.055	.671		
age_6cat	.066	.092	.516	.472	1.068		
income_5cat	-.144	.094	2.346	.126	.866		
Big_City	.107	.267	.161	.688	1.113		
v058xxeduc_5cat	.036	.089	.170	.680	1.037		
Source (Saros=1)	1.033	.225	21.071	.000	2.810		2.8
Constant	-2.811	1.490	3.558	.059	.060		
Pseudo Rsq 0.113	Bold p<0.05		Bold Italic p<0.01				

On its own the ScepticsBelievers scale has no impact (as the crosstabulation indicates). Yet once the dimension of optimism/pessimism is controlled for, greater belief in AGW does encourage a preference for EM9: this probably reflects the fact that even when the despair of EM9 is set aside, the Statement does suggest that AGW is more serious than MP20 implies.

Caution needs to be used in interpreting this regression. There is a significant difference between the choices made by the two samples. The only other dichotomy where this was the case (Q42) also had an element of pessimism. There, Saros respondents preferred the Statement that doubted the efficacy of the UN and international efforts to combat climate change: here too Saros respondents prefer the more pessimistic EM9.

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Endnotes

^A Kahan and his colleagues describe ‘Group’ and ‘Grid’ as heuristics operating independently, whereas in CT they only operate in combination. They continue to treat Group and Grid as two continuous dimensions: thus they do not operate as discrete decision tools in the manner that Gigerenzer (2008) conceptualises heuristics. Kahan et al are more successful than mainstream CT researchers in producing survey evidence linking Group and Grid explanatory variables to risk perceptions, including in respect of climate change (Kahan et al., 2007). However, they have not sought to produce a comprehensive theory of social cognition in the way that RMT and CT do: nor could their formulation of Group and Grid yield the taxonomy of relationships that both CT and RMT offer. What Kahan et al’s work does do is to lend support to CT’s central idea that worldviews underpin interpretations of social phenomena.

^B People are reluctant to express the diagnosis of over-population as the cause of Global Warming. It smacks of post-colonial criticism of developing world licentiousness. Stern’s diagnosis of ‘market failure’ is more palatable. Yet over-population as an issue does get voiced, e.g. by John Major in the media sample (Appendix F #30). The UN is clear that curbing population growth is key (World Commission on Environment and Development. & Brundtland, 1987, pp. 55-57). Overpopulation itself seems to be a market failure: population responds to economic stress in the opposite way to one possible market-based prediction - that poverty would prevent people having children they could not afford to look after. In reality poorer people have more children (Wilson & Daly, 1997). Market-based accounts would have to claim that children represent economic assets (field-workers, dotage-carers) to the impoverished instead of liabilities.

Over-population is also the diagnosis of revolutionaries when they move from rejecting the prevailing world order to imposing, as potential authorities, a new one (Ehrlich, 1971; Hardin, 1999).

^C As will be seen throughout the thesis, ‘hierarchical’ and ‘individualist’ ideas frequently combine to form a ‘mainstream approach’. CT’s account of the policy bias describes libertarian as ‘market utilitarian’, contractarian as ‘administrative utilitarian’ and egalitarian as ‘anthropocentric and nature centric’ (Thompson & Rayner, 1998, p. 309). This seems less convincing than Fiske’s analysis which emphasises policy reliance on the status of the policy-maker (Fiske, 1992): by contrast the individualist emphasises the importance of enforceable contract, relying upon the hierarchical system to enforce it.

^D As was the case with ‘policy bias’ in note C above, Cultural Theory’s account of ‘Distribution’ is inconsistent with Fiske’s: for Fiske, ‘priority’ is a feature of his ‘AR’ model which is closest to the Hierarchical worldview, while proportionality is a feature of his ‘MP’ model which is closest to the Individualist. As discussed frequently in this thesis, the interactions of the different ‘models’ or ‘worldviews’ have become so culturally embedded that disentangling them is always going to be imperfect.

^E Time perspective: Thompson and Rayner’s concept of ‘compressed’ time needs explaining. Rayner studied millenarian sects and emphasises how egalitarians, despite sharing the long view of history that characterises the fellow high-Group Hierarchists nevertheless prioritises the present *moment* as decisive within the long run of history (Rayner, 1982; Thompson & Rayner, 1998, p. 309) This is certainly true of much climate change rhetoric today.

^F ‘Risk Management’ has been added to Thompson and Rayner’s matrix because it is so important to environmental policy discussions. The myth of nature determines where the burden of proof lies: how certain you need to be before doing anything about a risk. This in turn feeds into levels of scepticism regarding the scientific evidence supporting climate change. Many committed believers in scientific progress are the most ready to dismiss

scientific evidence that global warming is a serious risk. For example Matt Ridley, the author of many books on genetics and one-time science editor of *The Economist*, wrote many pieces attacking environmentalism in general and global warming science in particular (Ridley, 1995, 1996, 2010).

^G Section M3 of Appendix M explains the generation of an EM scale for survey respondents. The EM Statements 19 and 33 have been included in the creation of the scale despite the issues noted below:

- Participant views in the focus groups presaged the relatively high level of disagreement with Statement EM19. People do not like denying their own agency: as Jason says in MG2 “I’m not waiting to hear what the the erm result of Copenhagen is to decide what I’m going to do” (MG1.1773).
- The reliability of the scale could be improved by omitting Statement 33 (raising the Alpha to 0.780). This statement provokes a high level of agreement - perhaps it is a truism that anyone would be more likely to do something that helps the environment if it saves them money: the Statement correlates positively with Statement CS37 (‘I do try to do things like recycling to help the environment because it is the right thing to do’: 0.195, $p < 0.01$). Clearly some of those agreeing with both Statements EM33 and CS37 are likely to disagree with other EM statements (e.g. Statement 37 negatively correlates with Statement EM13; -0.366, $p < 0.01$). However, Statement 33 does capture the idea of reciprocity which is central to the EM Standpoint and it has been retained in the Composite.