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ABSTRACT *This article generates a theoretical framework for analysing the politics of climate change on the basis of Michel Foucault's concept of governmentality. Foucault does not limit the exercise of power to sovereignty, but introduces discipline, biopower, liberal and advanced liberal government as alternative configurations of state and power. The article argues that the ways in which climate change is rendered a governable entity are best understood before the background of a shift from biopower to advanced liberal government. It will be argued that climate change was first rendered governable by biopower, which justified global management of spaceship Earth in the name of the survival of life on Earth. Since the mid-1990s, climate change has been captured by advanced liberal government, which articulates climate change as an economic issue that requires market-based solutions to facilitate cost-effective technological solutions. A governmentality analysis asks which visibilities, fields of knowledge, practices and identities this 'global climate regime' is actually producing, rather than assuming that what it does or is supposed to do is known. In that way, the ways in which programme failure has already been built into the very formation of the Framework Convention on Climate Change and the Kyoto Protocol can be identified.*

KEY WORDS: Governmentality, neoliberalism, climate change, constructivism, power

Introduction

Social constructivist and discourse analytical perspectives on climate change have highlighted the extent to which climate change is the social product of discursive struggles rather than a naturally given problem (for a review of this literature see Oels, 2003). This literature has drawn attention to the limitations in the discourses and practices that produce climate change for addressing the issue in an effective and just way. It has criticized, for example, the constitution of climate change in terms of cost-benefit analysis that obscures moral issues of equity and responsibility (Lutes, 1998), it has drawn attention to the emphasis on globalism that

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disempowers local solutions (Roe, 1998) and it has problematized the trust in global eco-managerialism based on techno-science (Luke, 1999a, 1999b). This paper attempts to relate the articulations of climate change and shifts therein to the changing modes of governance by drawing on Michel Foucault's concept of governmentality. The idea is that the production of climate change is facilitated by a specific governmentality that renders it governable. Moreover, a shift in governmentality will be reflected in the production of a different kind of climate change. It is hoped that the reader will be persuaded that shifts in the discourses and practices of climate change should be understood in terms of a shift of governmentality from biopower to advanced liberal government in Western industrialized countries.

The first part of the paper departs from a traditional definition of power as sovereign power and introduces Foucault's notion of productive power based on decentralized webs of power/knowledge. It presents governmentality as an analytical framework and briefly introduces a range of governmentalities that are based on exercises of power beyond sovereignty. In the second part, the literature on environmental discourses is surveyed in a quest for indications of a shift in environmental governmentalities. Drawing on Luke's concept of green governmentality and Hajer's notion of ecological modernization, it will be argued that there is evidence for a shift from biopower to advanced liberal government in environmental policy making in the mid-1980s. The third section turns towards the issue of climate change and develops first thoughts that may guide an empirical analysis of governmentalities involved in climate change. It will be concluded that an awareness of the underlying shifts in governmentalities is essential for devising strategies of overcoming limitations in the discourses and practices that render climate change governable.

Governmentality as Analytical Concept for the Transformation of Government

From Repressive Power to Productive Power

The theoretical perspective on power introduced in this paper departs significantly from traditional theories of political science (such as those of Dahl (1968), Bachrach & Baratz (1962) and Lukes (2005)). A tradition that goes back to Max Weber conceives of power as repressive: "Power (Macht) is the probability that one actor within a social relationship will be in a position to carry out his own will despite resistance, regardless of the basis on which this probability rests" (Weber, 1957, p. 152). Steven Lukes (2005) has refined this definition of power by arguing that there need not be resistance as power may distort people's conception of their own interests which may lead them to comply without resistance. Lukes speaks of an exercise of power where people's 'objective' interests are harmed, the identification of which is a matter of normative judgement.

In *The History of Sexuality. Volume 1: The Will to Knowledge*, Foucault[1] (1998) criticizes this limitation of the concept of power to acts of repression.[2] While Foucault includes such acts in his notion of power, he widens the concept of power to include the many ways in which power is productive by constituting subjects and objects and by inciting discourses. Foucault argues that all power relations are based on a field of knowledge that sustains them and vice versa. Foucault describes power as a 'strategic situation' where a multitude of force

relations and their 'tactics' are linked to form a larger whole. The exercise of power is non-subjective in that often no specific individuals or groups can be said to have consciously created a certain strategic situation. Often the strategic situation is the unintended outcome of millions of intentional actions. This strategic situation is formative of actors, it enables and constrains them by shaping their field of opportunities, by limiting their freedom. In 'The Subject and Power', Foucault argues that power is not the opposite of freedom. Instead, the exercise of power requires a minimum degree of freedom, with freedom being defined as the ability to make a choice within a constrained setting (Foucault, 1982, p. 221). Foucault (1982, p. 212) explains that the term 'subject' points at the same time to an actor capable of initiating action ("tied to his own identity by a conscience or self-knowledge") and to a being subjected by power ("subject to someone else by control and dependence"). Consequently, actors are never fully determined by this strategic situation and there is always scope for resistance left and thereby for transformation of this strategic field (Butler, 1997). Resistance here refers to the possibility of ignoring or rejecting the social demands and expectations that certain subject-positions direct at those filling them. Just like traditional political theory, Foucault takes resistance as an indication for the exercise of power. However, for Foucault the very act of resistance—if successful or not—constitutes an exercise of power.

Cutting off the Head of the King

Foucault's concept of governmentality was developed as a critique of the implicit assumption of most political science theories in the 1970s that any exercise of power should be understood as an exercise of sovereignty (Foucault, 1998, pp. 135–137; Neil, 2004). Foucault asserts that "the representation of power has remained under the spell of monarchy. In political thought and analysis, we still have not cut off the head of the king" (Foucault, 1998, pp. 88–89). This has limited the range of research questions to asking who holds power, what are the sources of this power and what makes the exercise of this power legitimate (Dean, 2003, p. 29). Foucault argues that traditional theories have conditioned us to believe that "power as a pure limit set on freedom is, at least in our society, the general form of its acceptability" (Foucault, 1998, p. 86). This belief may originate from the times when the monarchies in Europe were established as systems of order in the midst of religious and civil wars. Some limit set on everybody's freedom was acceptable because it was the condition for the re-establishment of order that benefited all (Foucault, 1998, pp. 86–87). Too often, the state is evoked as a natural object with a unity that according to Foucault should be deconstructed:

> But the state, no more probably today than at any other time in its history, does not have this unity, this individuality, this rigorous functionality, nor, to speak frankly, this importance. Maybe, after all, the state is no more than a composite reality and a mythicized abstraction, whose importance is a lot more limited than many of us think (Foucault, 2000, p. 220).

Theories of governance (Koiiman, 1993; Mayntz, 2004; Rhodes, 1997; Rosenau, 1992, 1995) constitute an important first point of departure from the traditional political science literature that focuses on the state and its sovereign power. Theories of governance postulate that the nation state is losing power to govern while

subnational and supranational levels are gaining such powers. They argue that the (nation) state is no longer the single source of government. The term 'governance' highlights the ways in which the power to govern is now dispersed between multiple actors (including private actors) and levels of government. They argue that the mechanisms of government are shifting from formal to informal ones, the forms from hierarchy to networks, from legally binding contracts to voluntary agreements. This literature supposes that where the state is on the way out, non-governmental actors and their 'soft' forms of governance are on the way in. However, state-based forms of government are not always replaced but often simply complemented by 'soft' forms of governance. If any reference is made to 'neoliberalism', the image of the economic sphere expanding into the political sphere is often evoked (a good example for such an argument is the analysis conducted by the Group of Lisbon, 1996). The idea is created that this process of 'neoliberalization' leads to less government and to more market, both being part of a zero sum game. Underlying such an understanding is the idea that the economic and the political are given as two separate spheres.

An account of the same transformation of government based on the lectures of the late Michel Foucault at the College de France (Foucault, 2004a, 2004b) starts from very different presuppositions. If one moves beyond the confines of sovereignty, one is compelled to ask a very different set of questions in order to make sense of processes of government. One wants to "understand how different locales are constituted as authoritative and powerful, how different agents are assembled with specific powers, and how different domains are constituted as governable and administrable" (Dean, 2003, p. 29). It can no longer be assumed that the location of power rests with the sovereign, but instead one needs to investigate the many technologies and practices, fields of knowledge, fields of visibility and forms of identity that constitute a ruler with certain powers. "To ask how governing works, then, is to ask how we are formed as various types of agents with particular capacities and possibilities of action" (Dean, 2003, p. 29).

Governmentality as Analytical Framework

A productive concept of power compels investigation of the very constitution of 'government' over the course of history. Foucault uses the term 'government' in its widest sense: it refers to the 'conduct of conduct' (Foucault, 1982, pp. 220–221). This implies that government is not limited to the state but can be exercised at all levels of society, namely as government of the self, government of the family and government of the state. Foucault has highlighted the extent to which government can be no more than an attempt at achieving certain results while there is no control over final outcomes. In that sense, government is a Utopian activity, it requires optimism about the effectiveness of acts of government (Dean, 2003, p. 33). Foucault requires a widening of understanding of government in the following way:

> Government is any more or less calculated and rational activity, undertaken by a multiplicity of authorities and agencies, employing a variety of techniques and forms of knowledge, that seeks to shape conduct by working through our desires, aspirations, interests and beliefs, for definite but shifting ends and with a diverse set of relatively unpredictable consequences, effects and outcomes (Dean, 2003, p. 11).

When the term 'government' is used from here on, it will refer to this very broad definition provided by Dean above. Foucault (2000, pp. 219–220) has introduced the concept of governmentality to refer to the government of a specific historical era (namely one characterized by biopower). Moreover, Foucault has used the term to describe the process of 'governmentalization' of the state, namely the process by which the institutions of the state become transformed to support a governmentality based on biopower. Finally, the concept of governmentality can be used as a general analytical concept, that helps distinguish between different types of governmentality (Dean, 2003, p. 1116). It is in this later sense that the term will be employed in the following discussion.

Mitchell Dean (2003) has developed a very useful framework for analysing and comparing different types of governmentality (see Table 1). Dean suggests studying so-called 'regimes of practices' by analysing (i) the field of visibility which is created by a governmentality, (ii) the technologies and practices of government which are applied, (iii) the forms of knowledge which arise from and inform the activity of governing and (iv) the forms of identity which are presupposed by the practices of government (for definitions and examples, see Table 1). It is particularly promising to focus analysis on 'programmes'. Programmes are interventions that seek to transform an existing regime of practices by using new technologies and procedures, which give rise to a different field of visibility, different forms of knowledge and which presuppose a different kind of identity. An 'analytics of government' must write a history of the present in tracing the trajectories that have forged the forms of government under study. Dean has called his approach an 'analytics of government', thereby wishing to acknowledge that his approach is one that rejects grand theory and instead grounds itself in the singularity and details of a time- and place-specific analysis (Dean, 2003, pp. 20–21). Dean understands his 'analytics of government' as a critical practice because it seeks to denaturalize regimes of practices and government (Dean, 2003, p. 37).

Discourse Analysis as Methodological Basis

Dean (2003) does not give any specific methodological advice regarding the question how to operationalize his analytical framework. It is suggested here that it may be useful to conduct a discourse analysis based on the Foucaultian

Table 1. Analytical framework for the study of governmentality

Analytical category	Questions	Examples
Fields of visibility	What is illuminated, what obscured? What problems are to be solved?	A map of biodiversity with or without native population on it
Technical aspects	By what instruments, procedures and technologies is rule accomplished?	Remote sensing of the global environment (via satellites)
Forms of knowledge	Which forms of thought arise from and inform the activity of governing?	Programme rationalities (lean management)
Formation of identities	What forms of self are presupposed by practices of government? Which transformations are sought?	The active job seeker

Source: Based on Dean (2003, pp. 30–33).

understanding of discourse when investigating the 'regimes of practices' introduced above. Foucault explains that "it is in discourse that power and knowledge are joined together" (Foucault, 1998, p. 100). Discourses are characterized as groups of statements, which are not necessarily homogeneous, they can include contradictions as well. Discourses are very mobile, the sets of statements undergo constant transformation, the statements themselves may be turned on their head over the course of time. Discourses are not loyal to any one power strategy, they can be captured by an opposing power strategy (Foucault, 1998, p. 102). There are always multiple discourses present at any one time, and they form a pattern which is an effect and an instrument of overlapping strategies of power and techniques of knowledge. So a specific discourse is both made possible by some local power relations and is used to reproduce and support these (Foucault, 1998, p. 97). Different discourses apply both at the level of the individual and at the level of the population, they are being reproduced in different local centres of power relations, but they are linked up in complex ways to form an overall strategy (Foucault, 1998, pp. 99–100). When discourses are analysed building on Foucault, one should ask "what reciprocal effects of power and knowledge they ensure" and "what conjunction and what force relationship make their utilization necessary in a given episode of the various confrontations that occur" (Foucault, 1998, p. 102). It is important to note that the power strategy behind a discourse is something much bigger than the discourse and that the contents of a discourse may be unrelated to the aims of this strategy (Foucault, 1998, p. 102).

Sovereignty, Discipline and Biopower

In his best-known lecture on governmentality presented on February 1, 1978, Foucault (2000) has distinguished between three types of governmentality (see Table 2), which can be introduced here only very briefly (for more extended descriptions see Dean, 2003). The oldest one is sovereign power which exercises power over subjects to sustain the principality of a sovereign. It uses the law as its main governmental technology, thereby giving the sovereign the 'right' to seize the life of its subjects and to collect taxes. Foucault contrasts this with disciplinary power, the purpose of which is to order and organize bodies in space. The main governmental technology associated with disciplinary power are disciplining norms to standardize behaviour. Finally, Foucault identified biopower as a governmentality that seeks to foster and use the forces and capabilities of the living individuals that make up a population. Biopower is best represented by the metaphor of the shepherd and his flock—the shepherd cares for the well-being of his entire flock, but also disciplines each individual. Biopower uses a combination of individualizing strategies aimed at disciplining individual bodies and totalizing strategies aimed at regulating the population. Biopower uses apparatuses of security (military, police, intelligence, health services, schooling etc.) to control and protect the population. While Foucault (2000) locates the emergence of disciplinary power in the sixteenth century and the rise of biopower in the eighteenth century, he does not suggest that one governmentality has simply been replaced in its entirety by the next. Instead, he emphasizes that each governmentality uses and recodes the technologies of earlier governmentalities. So elements of all three types of governmentality are present at any one time after the eighteenth century in the form of a triangle that governs the population, but the function performed by each element may have shifted. A good example

Table 2. Three types of governmentality as elaborated in Foucault's lecture on governmentality

	Sovereign power	Disciplinary power	'Government' power/Biopower
Emergence	Middle Ages	fifteenth-sixteenth century	eighteenth century
Objective of government	to sustain the power of the sovereign	the right disposition of things, arranged so as to lead to a convenient end	to use and optimize the forces and capacities of the population as living individuals
Fields of visibility	territory	individual body	population
Technical aspects	prescriptive norm codified in law	prescriptive norm operationalized by discipline/control/ surveillance	apparatuses of security; norm as statistical average; regulation
Forms of knowledge	advice to the prince	art of government: (i) of the self (morality); (ii) of the family (economy); (iii) of the state (politics) Reason of state Polizeiwissenschaft	science of government political economy population as object of knowledge of the human sciences (statistics, epidemiology, etc)
Formation of identities	juridical subject	normalized subject	subjects with interests

Source: Based on Foucault (2000).

for this is the 'family'. While government in the sixteenth–eighteenth century was modelled on the ways of governing a family (called 'economy'), the 'family' turned into an instrument of government in the eighteenth century, in that campaigns would address themselves to families as units of implementation. The significance of these three types of governmentality is that they should not be regarded as limited to the past but that they are tools for characterizing types of governmentality in contemporary states and/or specific policy fields.

Neoliberal Governmentality and Advanced Liberal Government

The latest types of governmentality identified by Foucault (2004b) and lectured about at the College de France are liberal and neoliberal governmentality (Table 3). Rose (1993) has called the latest variant of neoliberal governmentality 'advanced liberal government'. For the purposes of the following analysis, advanced liberal government will be referred to. While society in biopower was still conceptualized as a domain of needs, advanced liberal government regards the population as a pool of resources whose potential for self-optimization needs to be unleashed. It is a government without society in that it is based upon subunits like community, family, neighbourhood and not addressed at society as a whole.[3] Advanced liberal government introduces the market as organizing principle for all types of social organization including the state. Advanced liberal government employs market forces to guarantee freedom from excessive state intervention and bureaucracy. Markets have strong disciplinary effects on the subjects made to compete in them. These subjects model themselves on the 'calculating' and 'responsible' individual who needs to increase his/her

Table 3. Liberal and neoliberal governmentality

	Liberalism	Advanced liberal government
Objective of government	The aim of government is to guarantee the effective working of markets by regulation while respecting the 'natural' laws of the economy. A second aim is to safeguard the always threatened (artificial) liberty of those governed.	The aim of government is to establish markets that guarantee freedom from excessive (state) bureaucracy. It governs by using markets as the organizing principle for the state.
Fields of visibility	'Civil society' as a domain of needs is the object of government Economy as self-regulating sphere Market as natural process	'Individuals' and social groups as entrepreneurs of themselves Excessive state 'bureaucracy' Markets to be established
Technical aspects	It governs according to the 'natural' laws of the economy and of civil society. Market incentives Apparatuses of security	It governs using *markets* as organizing principle (for the state). *Technologies of Performance* comparison, benchmarking, best practice examples, performance indicators, audit method, budget devolution *Technologies of agency* 'new contractualism' (measurable objectives) Technologies of citizenship (new deliberative spaces)
Forms of knowledge	Welfare state economics/Keynes	Competition state/neoliberal economics
Formation of identities	'Free' individuals with rights and interests	'Calculating' individual entrepreneur of oneself

Source: Based on Dean (2003, pp. 149–175) and Lemke *et al*. (2000, pp. 15–16).

competitiveness in a constant strive for self-optimization (to become and remain lean, fit, flexible, autonomous).

The effectiveness of this kind of power is based on the ways in which the very agent is constituted as an already subjugated subject, that keeps reproducing the subjection: "This is a subject whose freedom is a condition of subjection. . . . in order to act freely, the subject must first be shaped, guided and moulded into one capable of responsibly exercising that freedom through systems of domination" (Dean, 2003, p. 165). Dean distinguishes 'technologies of freedom and agency' from 'technologies of performance' as two strategies geared at the production of the subjected subject. Technologies of agency include (quasi-) contracts, technologies of citizenship (deliberative spaces), instruments of voice and representation as well as the formation of partnerships. Their effect is to establish a subject with the capacity to keep the agreements of a contract, to speak out for themselves and to enter into partnerships. The freedom of this subject is limited by technologies of performance. Here, norms, standards, benchmarks, performance indicators, quality controls and best practice standards exercise a normalizing power over the individual, thereby pressuring it to conform to certain codes of

conduct. The control exercised over individuals may either be enshrined in a contract about performance standards (top-down) or control may be exercised by allowing customers to evaluate the performance of the individuals in the name of customer rights (bottom-up). The kinds of subjects constituted range from the 'active citizen' or 'free individual' to the 'calculating individual', but all of them are 'responsible' and thereby follow the imperatives of advanced liberal government. Dean's framework for analysing advanced liberal government has been applied by Haahr (2004) to characterize the mode of government implied by the European Union's (EU) Open Method of Coordination for policy fields where the EU lacks jurisdiction but still seeks to harmonize the national regulations of its member states.

State of the Art

In conclusion of this discussion of recent forms of governmentality, some reflection on the state of the art of using advanced liberal government as a framework for analysis must be given. While the governmentality studies are too numerous to be reviewed in total for this paper,[4] some methodological pitfalls to be avoided will simply be highlighted. First, instead of approaching the case study with a stereotyped account of advanced liberal government, any analysis should be grounded in the heterogeneities and multiplicities of the case study (Frankel, 1997; Larner, 2000, p. 14; Lemke *et al.*, 2000, p. 18). Secondly, case studies should not privilege official discourses by limiting their analysis to official policy documents only (Larner, 2000, p. 14). To counteract this tendency, Larner proposes that more research attention should be directed to the resistances to programmes and their rationalities. Third, governmentality studies should not forget to investigate the politics surrounding the programmes under study (Larner, 2000, p. 14). Finally, the focus on disciplinary forms of power should not make us blind to the significant role played by force and repression (Lemke *et al.*, 2000, p. 18). These will be concerns that the methodological design for the empirical investigation needs to take into account.

Environmental Governmentalities

This section asks if there is any indication of changing governmentalities in the environmental field. The idea is that a shift in governmentalities should be reflected in a shift in environmental discourse. It will be argued that the literature that has traced shifts in environmental discourse lends itself to the hypothesis that there has been a shift from biopower to advanced liberal government in the environmental field from the mid-1980s onwards. The following will introduce what Luke conceptualizes as green governmentality as a manifestation of biopower and a weak variant of what Hajer reconstructs as ecological modernization as a manifestation of advanced liberal government. Contrasting these two (as opposed to other possible) environmental discourses was first proposed by Bäckstrand & Lövbrand (2005). The boundary drawing between green governmentality and ecological modernization can be criticized as somewhat forced because of the many overlaps between the two concepts. However, it is a useful exercise to think about shifts in environmental discourse along the lines of Foucault's typology of governmentalities, even if this requires cutting the cake of environmental discourses in a slightly different way. The following

characterization of green governmentality as biopower and weak ecological modernization as advanced liberal government will prepare the ground for thinking more specifically about policy making in the field of climate change in the next section. Future work on this subject should look into environmental security discourses (Dalby, 2002; Stripple, 2002) which have been on the rise, particularly after 9/11, often in combination with neo-conservative discourses (see Greenberg, 2005; Luke, 2005). The rise of these discourses of environmental security may manifest a discursive shift away from advanced liberal government that needs further investigation.

Green Governmentality

This section will introduce what Luke (1999a, 1999b) and Rutherford (1999) conceptualize as green governmentality as a manifestation of biopower in the environmental field. Luke uses the term green governmentality to discuss all elements of environmental discourse since the 1970s drawing on Foucault's concept of governmentality, understood by Luke as the historically distinct era of biopower. There have been discursive shifts in (US but also transnational) environmental discourses and practices over the last decades which the concept of green governmentality, as applied by Luke, does not adequately draw attention to. Luke acknowledges the rise of economics in the environmental field, but does not distinguish such shift from his notion of green governmentality: "Moreover, rules of economic performativity now count far more in these interventions than do those of ecological preservation, because they provide managerial solutions that blur the central role of capitalist economic growth in causing the environmental crisis" (Luke, 1999b, p. 104). Luke even makes reference to Hajer's ecological modernization within his description of green governmentality (Luke, 1999b, p. 105). In his latest work, Luke (2005) uses the term 'enviro-nationalism' to mark the discursive shift in environmental discourse in the USA after 11 September 2001, thereby acknowledging departure from green governmentality. For the analytical purposes of this paper, the proposal is to limit understanding of 'green governmentality' to that of biopower and to distinguish it clearly from other forms of governmentality, such as advanced liberal government. The account here of green governmentality as biopower has been somewhat selective and left out a few elements which are taken as belonging to a neoliberal governmentality and which are covered by ecological modernization in the next section. It is important to acknowledge, however, that in practice elements of both environmental discourses and of both governmentalities are found.

Green governmentality has been defined by Luke as biopower that has been extended to the entire planet:[5]

> Over the past generation, the time–space compression of postmodern living has brought the bio-power of the entire planet, not merely that of human beings, under the strategic ambit of state power. The environment, particularly the goals of its protection in terms of 'safety' or 'security', has become a key theme of many political operations, economic interventions and ideological campaigns to raise public standards of collective morality, personal responsibility and collective vigour (Luke, 1999a, p. 122).

Luke characterizes green governmentality as a system of geopower, eco-knowledge and enviro-disciplines. Geopower in green geopolitics defines

ecological problems as transnational security threats that require political, economic or military interventions on a global scale. A good example is Ex-US-Vice President Gore's appeal for a Global Marshall Plan (Luke, 1999a, p. 130), that sought "to reorganise an entire region of the world and change its way of life" (Gore, 1992, p. 296 cited in Luke, 1999a, p. 130). Environmental concerns were integrated in US foreign policy making and diplomacy to create an administrative apparatus for pursuing national security through environmental security (Luke, 1999a, p. 123). The key forms of 'eco-knowledge' used to articulate ecological problems and solutions are the multiple discourses of sustainable development, which Luke characterizes as seeking to contain but not end economic growth (Luke, 1999a, p. 148). Eco-knowledge as constructed at American research universities is directed "at generating geo-power from the more rational insertion of natural and artificial bodies into the machinery of global production" (Luke, 1999b, p. 105). For this endeavour, the planet is reduced to a web of natural resource systems that provides ecosystem services (Luke, 1999b, p. 110), the environment is reduced to a "terrestrial infrastructure for global capital" (Luke, 1999b, p. 106) that requires techno-scientific management. Finally, as the third element of green governmentality, 'enviro-disciplines' normalize individual behaviour by imposing environmentally friendly codes of conduct upon individual bodies and by policing the fitness for survival of all biological organisms (Luke, 1999a, p. 146). The policing of individual bodies is complemented by large-scale technological surveillance systems of the global environment, which gives 'big science' a privileged position for articulating 'the environment'. "Environments are spaces under police supervision, expert management or technocratic control; hence, by taking environmentalistic agendas into the heart of state policy, one finds the ultimate meaning of the police state fulfilled" (Luke, 1999a, p. 149).

Green governmentality can be understood as an instance of reinforcing the power of the administrative state in the name of 'responsible stewardship of nature' (Luke, 1999a, p. 129), namely to legitimize governmental interventions.

Ecological Modernization

This section will introduce a weak variant of Hajer's discourse of ecological modernization as manifestation of advanced liberal government in the environmental field. Before the background of Foucault's typology of governmentalities, Hajer's notion of ecological modernization appears to combine elements of biopower and liberalism with elements of an advanced liberal government. Hajer recognizes the link between a general shift in governmentalities and the specific shift in environmental discourses: "The hierarchical legislative system often involved complicated administrative procedures which became problematic in a period in which deregulation became widely accepted as one of the goals of government" (Hajer, 1997, p. 27). The proposal here is to understand a weak variant of ecological modernization as advanced liberal government which still draws extensively on the apparatuses of biopower and liberalism, but that progressively recodes them in economic terms. Hajer acknowledges these continuities: "Indeed, ecological modernization is based on many of the same institutional principles that were already discussed as solutions in the early 1970s: efficiency, technological innovation, techno-scientific management, procedural integration, and coordinated management" (Hajer, 1997, p. 32). Clearly, ecological modernization

as characterized in the literature (for example Dryzek, 1997; Fisher & Freudenburg, 2001; Hajer, 1997; Mol & Sonnenfeld, 2000) embraces a continuum of positions that ranges from weak to strong ecological modernization (Christoff, 1996). The weak variant of ecological modernization believes that a free market setting and limited government incentives will spur technological innovation that solves the ecological crisis in a cost-efficient manner. Strong ecological modernization, on the other hand, demands broad public participation in environmental decision making and is more critical of the reform capacity of today's political, economic and social institutions. This paper follows Bäckstrand & Lövbrand (2005) in limiting understanding of ecological modernization to weak ecological modernization. This is justified because the weak variant is the most common interpretation of ecological modernization in political practice. Moreover, it is the weak variant of ecological modernization that best matches advanced liberal government.

Drawing on Foucault's discourse analysis, Maarten Hajer (1997, pp. 73–103) has analysed a shift in environmental discourse from a techno-bureaucratic end-of-pipe discourse in the 1970s and early 1980s to what he calls ecological modernization in the late 1980s and the 1990s. The successful emergence of a new discourse was facilitated by the perceived failure of the old techno-scientific paradigm of remedial strategies: "The 1970s idea to control environmental pollution, dividing the environment into 'components' (air, water, soil, noise) and then drawing on specialized knowledge to define routine solutions for each sub-category, had failed" (Hajer, 1997, p. 31). Hajer follows others in arguing that there has been a shift from a 'react-and-cure' approach to environmental problems in the 1970s and 1980s to an 'anticipate-and-prevent' approach in the 1990s (Hajer, 1997, p. 26).

At the heart of ecological modernization is the application of economics to thinking about environmental problems and solutions, which had traditionally been formulated in natural science terms. Ecological modernization reconceptualizes the ecological crises as an opportunity for innovation and reinvention of the capitalist system (Hajer, 1997, p. 32), thereby giving rise to the 'modernization' part of this discourse. The science of systems ecology played a central role in highlighting the need for integrated solutions to environmental problems, thereby explaining the 'ecology' part of this discourse. Ecological modernization understands environmental pollution as economic inefficiency (Hajer, 1997, p. 31). Nature is now conceptualized as a public good whose provision requires clever economic incentives and management to overcome collective action problems. The aim of environmental policy making is not to minimize pollution but to determine "the levels of pollution which nature can endure" (Hajer, 1997, p. 27) and to contain pollution below these levels. Environmental problems cease to be discussed in moral terms and are now addressed as issues that require cost-benefit-analyses.

> Accordingly, many new techniques were introduced that were supposed to allow individual firms to integrate environmental concerns into their overall calculation of costs and risk. Over the last two decades we thus saw the introduction of, more or less in order of appearance, the polluter pays principle, tradeable pollution rights and the levy of charges on polluting activities, as well as the debates on resource taxes and emission taxes (Hajer, 1997, p. 27).

As those examples show, (weak) ecological modernization creates markets (for example for pollution rights) to solve environmental problems, a main feature of advanced liberal government.

This section has argued that there may be an indication that the general shift from biopower to advanced liberal government has been reflected in the environmental field, namely in a shift in environmental discourse from green governmentality to (weak) ecological modernization. The following section will turn to the environmental subfield of climate change and generate some ideas that may guide empirical analysis.

Biopower, Advanced Liberal Government and Climate Change

Having spelled out the analytical framework for studying governmentality in general and environmental discourse in particular above, the paper will now investigate the governmentalities that render climate change governable. As explicit applications of the notion of governmentality to climate change are rare and very limited in scope (on computer modelling: Henman (2002); on a transnational campaign for involving cities in climate protection efforts: Slocum (2004)), the following section is rather explorative in nature. It will discuss the hypothesis that climate change started as an environmental issue framed in moral terms and is now mostly discussed in economic terms of cost-benefit analysis (Lutes, 1998, pp. 163–165; Paterson, 1996, p. 170). Before the background of the shift in environmental discourses from green governmentality to ecological modernization, it seems reasonable to explore the idea that this reconceptualization may have been enabled by and be a product of a transition of governmentalities, namely from biopower to advanced liberal government. Drawing on the wider constructivist literature on climate change, the visibilities, rationalities, practices and identities which are forged in the field of climate change will be explored and distinction made between those belonging to different governmentalities. The section will conclude that there is some indication that the scope for policy interventions by states on behalf of climate change has been reduced by a shift in governmentalities from biopower to advanced liberal government. The findings will be presented in turn, starting with biopower.

Climate change was first 'discovered' by concerned scientists, some of whom used the media and apocalyptic images to place climate change on the political agenda in the 1980s (Ingram *et al*., 1992, p. 34). Scientists have been accused of generating the issue of climate change and perpetuating uncertainty in order to secure funding and jobs for the climate change research community (Ingram *et al*., 1992, p. 46; Lutes, 1998, p. 162). Governments then captured the scientific discourse by creating the International Panel on Climate Change (IPCC) as the main authoritative voice on the science of climate change in the late 1980s (Bodansky, 1995, p. 51; Brunner, 2001, p. 6). By restricting access to the IPCC and by carefully choosing scientists to be on it, mostly from the North (Biermann, 2003), governments were able to influence who is qualified to speak in the name of science on climate change. Given the many uncertainties involved in predicting the impacts of climate change, establishing such an authoritative voice on climate change was considered essential as a basis for policy making (Shaw, 2003), also in silencing other views (Brunner, 2001, p. 6).

The IPCC may thus be understood as the administrative space created by governments where they expanded their biopolitical mission of using and

optimizing the forces and capacities of 'life' to the entire 'planet'. Under the auspices of the IPCC, climate change was framed as an issue of planetary management that required natural science expertise and a technological fix on that basis (Lutes, 1998). Boundary ordering between science and policy had the effect of legitimating a certain kind of knowledge and related policy making: "The ultimate aims of such a policy are a 'rational' and 'optimal' use of natural resources and regional planning according to the best available scientific knowledge" (Shackley & Wynne, 1996, p. 293). Hajer concludes on the basis of these findings that

> the approach of the working groups of the Intergovernmental Panel on Climate Change favours a particular sort of scientific approach that unnecessarily leads to a centralization of knowledge, an unnecessary reduction of flexibility regarding the inclusion of new evidence, and effectively prevents the application of the knowledge acquired for the development and assessment of various policy scenarios (Hajer, 1997, p. 278).

Thereby, a more critical discourse on climate change ('radical civic environmentalism') was marginalized that problematized climate change in terms of overconsumptive Western lifestyles and questioned the ecological viability of a capitalist economy (Bäckstrand & Lövbrand, 2005, p. 7; Lutes, 1998).

Planetary management on the basis of biopower grounds itself in the natural sciences to model the complex workings of the biosphere. Viewing the planet as a 'global' ecosystem is the important step of framing the problem of climate change as one that requires global solutions, while obscuring the scope for regional and local action (Lutes, 1998, pp. 165–170; Roe, 1998, p. xx). Roe (1998, p. 117) argues that global warming has been discursively situated within the discourse of globalisms, with the consequence that it now shares the fate of other public policy problems namely that "what used to be understood as local, regional, or national issues now have to be analysed (or so it is increasingly accepted) as global ones". The technologies employed by the IPCC have reinforced global visibilities at the cost of local specificities (Roe, 1998, pp. 122–123). Global surveys and a global surveillance system drawing on remote sensing of the 'global' environment are used to seek knowledge about the functioning of the ecosystem (Litfin, 1998, p. 213). Computer modelling of the entire 'global' climate system is one of the main technologies of making sense of that data, which creates specific visibilities (Henman, 2002). The planet gets to look like a spaceship that humankind is able to steer on the basis of data and models provided by the natural sciences. The planet needs to be protected from self-inflicted as well as human-made destructive forces that may become excessive if not managed carefully.

The ways climate change has been rendered governable by biopower will now be contrasted with those produced by advanced liberal government. The transition from biopower to advanced liberal government in the field of climate policy must be understood in the context of the global rise of neoliberalism in the late 1970s and 1980s. This transformed the discursive space in which environmental questions were discussed (Paterson, 1996, pp. 168–169). 'Ecological modernization' became the dominant discourse that was used to make sense of environmental issues in general and climate change in particular (Paterson, 1996, p. 169). Ecological modernization in the field of climate policy highlights the economic costs of taking action on climate change (Lutes, 1998, p. 163; Paterson,

1996, p. 170) and favours market-based solutions like tradeable permits and joint implementation (Paterson, 1996, p. 169).

The following analysis will take a look at the institutional frameworks through which states have rendered climate change governable at the international level, namely the Kyoto Protocol and the United Nations Framework Convention of Climate Change (UNFCCC). The UNFCCC could be interpreted as containing elements of both governmentalities, namely of biopower and of advanced liberal government. One example of this is article 2 of the UNFCCC that clarifies the objectives. An aim more related to biopower is the stabilization of the greenhouse gas concentration in the atmosphere at a level that prevents danger. This, however, is to be achieved while sustaining economic development, an aim more closely associated with advanced liberal government. In conclusion, the UNFCCC "does express multiple objectives and constraints, ambiguous and often incompatible, reflecting the plurality of interests represented in the regime" (Brunner, 2001, p. 8).

The Kyoto Protocol on the other hand can be interpreted as a clear example of advanced liberal government. It draws on markets, technologies of agency and technologies of citizenship to create 'responsible', 'calculating' member states. The Kyoto Protocol establishes markets for emission trading in the form of Joint Implementation, Emission Trading and Clean Development Mechanism. These markets institutionalize the idea that who or where emission reductions should take place is a matter of costs, not an ethical or moral issue (Lutes, 1998, p. 165). The targets and timetables of the Kyoto Protocol can be understood as an example of the 'new contractualism' fostered by technologies of agency, thereby binding 'responsible' member states to a shared objective, while leaving flexibility in the choice of measures. The extensive deliberations at the annual Conferences of the Parties (COPs) can be considered as an effort to establish deliberative spaces (technologies of citizenship) in which the member states shape their identity as responsible and calculating members to the UNFCCC. It is also where shared terms of reference for the phenomenon of climate change and the best ways of addressing it are created. The member state as 'free subject' that is constituted by the discussed technologies of agency is constrained in its 'freedom' of policy choice for climate policy making by technologies of performance. Here the comparative assessment of member states on the basis of their greenhouse gas inventories and their recent climate policies can exercise strong disciplinary power over member states if public interest in these comparisons can be raised (for example by environmental organizations). Also, the regular progress reports all member states are obliged to submit are a way to set the stage for shaming non-conforming member states at COPs. As a result, member states are forged as 'calculative' agents who, after weighing the costs and benefits of taking measures on climate change, will make a 'responsible' choice. This has led Brunner to conclude that the climate regime "is effectively limited to voluntary policies that leave the choice of compliance or non-compliance to the individual Parties" (Brunner, 2001, p. 10).

Finally, an advanced liberal government of climate change mobilizes actors in the business sector, the non-profit sector and governments at all levels to engage in 'partnerships' to contribute in their own ways to mitigating climate change, thereby turning climate change into a matter of concern and responsibility for all these actors (Jagers & Stripple, 2003). The voluntary commitments or self-interested investment strategies by business sectors in many countries can be

seen as examples of this tendency, as well as the Cities for Climate Protection campaign initiated by the non-profit organization ICLEI (International Council for Local Environmental Initiatives) (Slocum, 2004). The findings of the above analysis are summarized in Table 4.

There have been interesting differences in national and regional discourses, for example between the USA and the EU. While the EU has conceptualized climate change as an economic opportunity for innovation and for saving (energy) costs by investing in new technologies, the USA under the administration

Table 4. Governmentalities involved in governing 'global' climate change

	Biopower	Advanced liberal government
Objective	Climate change used to justify expansion of governmental interventions	Climate change used to justify the creation of new markets, that are to spur technological innovation
Fields of visibility	Market failure Earth as complex global system *Obscured*: Local solutions Local, Indigenous knowledge Knowledge from the South	State failure Costs of climate protection measures No-regrets policy options (win-win) *Obscured*: South is the bearer of costs caused by climate change Overconsumption in the North
Technical aspects	**Apparatuses of security** *Surveillance/Control* Remote sensing of the global environment Computer modelling of climate change 'Global' scientific assessments (IPCC, Global Biodiversity Assessment, etc.) *Regulation* State-funded environmental management (adaptation in coastal areas, i.e. capacity building) State funded geo-engineering	**Markets as organizing principle (for the state)** Joint Implementation Clean Develolopment Mechanism Emission trading of the European Union **Technologies of agency** *New contractualism* Targets and timetables of the Kyoto Protocol *Technologies of citizenship* Extensive deliberations at the Annual COPs to the Convention *Partnership* Voluntary agreements by industry to reduce greenhouse gases Cities for Climate Protection campaign **Technologies of performance** Comparative assessments of member states Greenhouse gas inventories Sink inventories Regular progress reports to COPs
Forms of knowledge	Environmental sciences, natural sciences (the planet as object of knowledge)	Economics (cost-benefit analyses, risk assessment)
Formation of identities	Humankind at the steering wheel of spaceship Earth with a moral responsibility	'Calculating' members of UNFCC and Kyoto Protocol

of President G. W. Bush have framed climate change in terms of reduced international competitiveness and costs to the economy, namely as a job killer. The US administration has continually used the (from their point of view) remaining scientific uncertainty about climate change as an argument to delay action that may waste resources on excessive climate protection measures (Brunner, 2001, p. 9; Lutes, 1998, p. 163). The commonality, however, is that both have framed climate change in economic terms. Especially the general concern with efficiency and cost-effectiveness obscures who bears the costs and who the benefits of climate protection measures (Lutes, 1998, pp. 165, 167).

Political Consequences of a Shift in Governmentalities

Whether climate change is rendered governable by biopower or by advanced liberal government has important implications for the available policy options. Climate change in a regime of biopower is produced by experts as an issue requiring global management, thereby making government interventions look inevitable. Climate change as framed by biopower creates the basis for justifying far-ranging policy interventions and even the extension of state power in the name of 'survival' of life on planet Earth. Advanced liberal government, on the other hand, renders climate change governable as an issue of state failure requiring market-based solutions or the creation of markets. The extent to which action is to be taken on climate change is not a moral issue but instead a matter of cost-benefit analysis. If the costs of destruction caused by climate change exceed the costs of preventing it, taking action is legitimate. This action is to be carried out in the most cost-efficient way, namely geographically where most greenhouse gas emissions can be cut, given a certain investment. In advanced liberal government, the range of available policy instruments is more or less limited to market-based solutions that spur technological innovation and economic growth: "The effect of neoliberalism has been to narrow the available policy options . . . Also, neoliberalism has led to environmental economics being almost exclusively concerned with 'market-based solutions'. These dominate policy debates on global warming . . ." (Paterson, 1996, p. 169).

Drawing on the example of Canada, Bernstein (2002, p. 228) warns that those climate policies compatible with the norm of what he calls 'liberal environmentalism' (similar to ecological modernization), economic growth and liberal markets may turn out not to be effective in halting global warming. On a provocative note, one could argue that climate stability was the entity to be secured by biopower, while advanced liberal government renders economic growth as the entity to be secured from excessive climate protection costs. It is concluded that there is some indication that the scope for policy interventions by states has been reduced as a result of the shift of governmentalities from biopower to advanced liberal government.

Directions for Further Research

This is, of course, all very speculative and should be considered as no more than a first daring attempt at thinking about climate change along the lines of governmentality. Given that the IPCC is still around and that a lot of the apparatuses of security are still forging climate change as an issue of biopower, it makes sense to investigate in more detail the ways in which the elements of biopower

(visibilities, technologies, knowledges, identities) have become displaced and recoded by advanced liberal government. One idea here is that these apparatuses may have reconfigured themselves within economic terms of reference in order to secure their existence (for example funding). A second issue for further research is the role of sovereign power that surely must be relevant to climate change as well. One way of thinking about sovereignty might be to investigate the link between the hypothesis of 'wars for oil' (in the far East) as a very imperial expression of sovereign power that is closely related to (ignoring?) climate change. Empirical analysis (for example of official UNFCCC documents, newspaper clippings, etc.) over a longer period of time will be necessary to come to a much more sophisticated perspective that does justice to Foucault's concern to ground all analysis in case work instead of creating ideal types of governmentality. This, however, is beyond the scope of this paper.

An empirical analysis would also need to investigate the resistances to climate protection and to the specific governmentalities ruling climate change at all levels, from protests by car drivers against the eco-tax on gas in Europe in the year 2000 via those countries that cheat in their progress report to the COP to industry's lobbying effort in the form of the now dissolved Global Climate Coalition. Also, the entire Framework Convention on Climate Change with its institutionalization of economic growth as an equal target besides stabilizing the emissions of greenhouse gases may be interpreted as an instance of institutionalizing resistance. The Kyoto Protocol's 5.2 per cent reduction target (1.8 per cent after subtracting sinks) for the first commitment period may also be interpreted as institutionalizing resistance to doing anything that would really make a difference to mitigating climate change, given its insignificance for halting global warming.

A governmentality analysis asks what this 'global climate regime' is actually doing, which visibilities is it creating, which technologies are being used, which fields of knowledge created or drawn upon and which identities forged, rather than assuming that what it does or is supposed to do is known. In that way, one can identify the many ways in which programme failure has already been built into the very formation of the Framework Convention on Climate Change and the Kyoto Protocol. The question can be asked as to what is being secured by this regime if it is not the climate (Stripple, 2002)? Is it the Western lifestyle, the growth of the fossil-fuel based economy and the imperial relationships between North and South? The responses to these questions must be grounded in empirical analysis rather than in provocative rhetoric.

Grounding Analysis in Case Study Work

One such attempt at grounding analysis in case study work at the local level is Rachel Slocum's case study of the 'Cities for Climate Protection' (CCP) campaign.[6] Her main argument will be presented here as supportive evidence for the hypothesis that there has been a shift in governmentalities which render climate change governable from biopower to advanced liberal government. Slocum does not make any reference to biopower in her paper and uses the term 'neoliberal governmentality' instead of advanced liberal government; her argument, however, is very similar to the one presented here. In the process of building support for membership in the CCP campaign at the local level, Slocum (2004) observed across all her case studies a significant shift in the issue framing used by local campaign proponents and administrators from 'saving the climate' to 'saving dollars'.

Moreover, in devising a strategy to get the public to join in the climate protection effort, local administrators uniformly pursued a neoliberal rationality of addressing the public as consumers of electricity, gas and better appliances, rather than as citizens: "The CCP campaign operates within the neoliberal state. As a product of neoliberalism, the campaign serves to regulate the interaction of the state and citizens by constructing the public as passive energy consumers—rather than as active citizens"(Slocum, 2004, p. 775).

Slocum summarizes the resulting limitations for active citizenship and for climate change in the following way:

> To summarize, the CCP campaign plays into the hand of the neoliberal faith in the market as the determinant of value and the wellspring of solutions. The danger of the bottom-line approach is that a decision made on the basis of cost stops the discussion by bracketing values, judgment, and responsibility. This approach limits the basis of democratic decisionmaking to cost, constructed narrowly in monetary terms. In this manner, the principle of protecting the climate is reduced to a commodity (Slocum, 2004, p. 774).

Slocum is concerned that this reduces the chances of the CCP campaign to make a significant contribution to climate protection efforts, particularly as some studies claim that energy efficiency measures and conservation programmes have a tendency to trigger increased energy consumption. Moreover, by limiting all activity to cost-effectiveness and energy efficiency, many other pathways to prevent climate change are left out of the picture. Surprisingly enough, however, Slocum concludes her article on an optimistic outlook, saying that a resignification of climate protection by subaltern and competing discourses may enable "protecting the climate for more sound, reasons" (Slocum, 2004, p. 779) in the future.

Conclusions

What are the advantages of looking at the issue of climate change through the glasses of governmentality? First, it enables one to investigate if transformations in the modes of rule, as Foucault, Rose, Dean and others have described, in the form of governmentalities can also be traced in the field of climate change. The thought experiment about climate change presented here shows that there may be an indication that advanced liberal government has displaced and recoded biopower. Secondly, the specific implications and particularly the limitations that result for the government of climate change from a certain combination of governmentalities may be analysed very systematically. Advanced liberal government may limit the range of policy choices perceived as 'possible' to technological measures of energy efficiency and will identify the location for these measures purely on the basis of costs, not by attributing moral responsibilities. Forging citizen consumers in the Cities for Climate Protection campaign may pre-empt active citizen involvement in climate protection measures that go beyond efficiency measures. It may even undermine the goal of the campaign as such, given that a focus on efficiency measures has been suspected of triggering increased energy usage. Thirdly, a perspective based on governmentality is able to investigate the ways in which programme failure is always already part of its functioning, how programme failure is an inbuilt property of many programmes

(Lemke *et al.*, 2000). Instead of assuming that what a programme is doing or supposed to do is known, one must study the visibilities, technologies, knowledges and identities forged by such a programme in order to understand what a programme does that is not part of its official rationality. Finally, understanding the governmentalities involved may also enable oneself or others to identify what constitutes subversive strategies that do not reinforce existing limitations and blind spots. De-naturalizing and disrupting the involved governmentalities (Shapiro, 1992) may be an important step in opening new possibilities for addressing climate change.

Acknowledgement

Notes

1. Over the course of his writing, Foucault has used different strategies to capture power relations and there have been significant shifts of emphasis in his work. It is not before Foucault's third phase (the 'middle' Foucault), that he turns towards a productive concept of power and challenges the conventional concept of power as repressive. Some have argued that Foucault's theorizing of power failed (Fink-Eitel, 2002, p. 94; Taylor, 1985, p. 167) because of unresolved conceptual problems within certain works and inconsistencies between the various phases of Foucault's work. In opposition to that, it is argued that while there are shifts of emphasis, all the different strands of Foucault's investigations come together to form a more or less coherent whole (for a similar view: Deacon, 2002, p. 90; Smart, 1983, p. 63).
2. A more extended comparison of Foucault's concept of power and traditional approaches to power in political theory can be found in Digeser (1992). The implications of a Foucaultian approach for the practice of policy analysis have been spelled out most systematically by Gottweis (2003).
3. This is based on the assumption that it is impossible to gain knowledge of 'society' that would allow the effective deployment of public policy (Dean, 2003, p. 163).
4. Edited volumes with governmentality studies include Barry *et al.* (1996), Bröckling *et al.* (2000), Burchell *et al.* (1991), Darier (1999), Dean & Hindess (1998); for a good overview of the literature see Lemke (2002).
5. While the use of the term biopower in the following quote is different from the usage employed by Foucault, Luke's concept of eco-governmentality exhibits all characteristics of Foucault's notion of biopower as extended to the planet.
6. To sign up for the CCP campaign, a local government has to ratify a commitment to reduce its 1990 levels of carbon dioxide emissions by 20 per cent by the year 2010. The commitment is monitored on the basis of an obligatory emissions inventory and grounded in a local action plan.

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