

International Relations, Governance and Security

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Abstract

This essay argues for an extension of Foucault's conception of modern power as 'governmentality' to the contemporary international regime of global liberal governance. In line with Foucault's account of modern power as 'power-knowledge' it targets the epistemic shift associated with the advent of global liberal governance. That epistemic shift is in turn associated with the complexity sciences and with networks. We argue that a reproblematisation of security is taking place in consequence of these changes, and we document that point by examining the advent of network-centric warfare.

International Relations and Governmental Rationalities

This essay draws on an extensive body of work, inspired by the thought of Michel Foucault. That work has been devoted to analysing the operation of what Foucault called governmental rationalities (Barry et al, 1993 and 1996; Burchall, et al, 1991; Dean 1991 and 1996; Dean and Hindess, 1998; Ericsson and Stehr, 1999; Helliwell and Hindess, 1999; Hindess, 1998a; Rose and Miller, 1994). Governmental rationalities involve a form of power - what Foucault called power-knowledge - that works with rather than against the freedom of the modern subject. He sees governmentality arising in sixteenth and seventeenth century Europe. It comes into its own by the eighteenth century and is intimately related both to liberalism's critique of police and to the advent of a novel understanding of >society= as a complex and independent reality that has its own laws and mechanisms of disturbance@ (Foucault, 1989: 261).

While concern with the conduct of conduct is central to all of his discussions of government, Foucault pays particular attention to the predominant modern understanding of the term as referring to, the particular form of governing which can be applied to the state as a whole.@ (Foucault, 1991: 91). Government is not so much concerned here in Foucault's terms with seizing the state or with ruling it according to some legitimating principle of rule such as that of representative and accountable government. It is concerned instead with regulating the affairs of its population in the interests of the whole. On this understanding of government, governance of a state may be conducted not only by the agencies of the state but also by agencies of many other kinds. These will include, for example, those we have come to know today as non-governmental agencies and quasi-non-governmental agencies. Here the government of governmentality does not emanate from any single centre of power either. It

operates instead as a pervasive, complex and heterogeneous set of practices that have as their purpose:

Not the act of government itself, but the welfare of the population, the improvement of its condition, the increase of its wealth, longevity, health, etc.; and the means that the government uses to attain those ends are themselves all immanent to the population. @

(Foucault, 1991: 100)

Concerned with effecting the conduct of conduct by structuring the desires, proprieties and possibilities that shape the field of operation of free subjects, governmental rationalities develop therefore around specific problematics such as health, wealth, security, poverty, culture, sexuality and so on. The detailed study of these as objects of knowledge to be known in intimate detail gives rise to the techniques, rationalities and practices of governance - by which, through their specification, dissemination and assimilation by free subjects, such agents effect the regulation of their own conduct.

His examination of these developing epistemologies of the social and of the individual, and of the ways in which they emerge as powerful means of governing the conduct of conduct, led Foucault to coin the term power-knowledge. In doing so he deliberately sidestepped the epistemological question of whether or not the truth claims of such human and social sciences are well formed. He focused instead on what might be called the collateral effects of their epistemically driven projects. In doing so he made the disturbing point that such knowledge also has the effect of operating as a hitherto

unexamined system of power. He noted also that such knowledge not only has powerful collateral effects, it may also effect significant collateral damage by perpetrating its own subtle cruelties and by insidiously limiting the horizons of our imagination; of what it is, for example, to be a free and an ethical subject.

A number of contemporary political analysts have devoted aspects of their own intellectual enterprises to exploring and extending Foucault=s insights. William Connolly, for example, extols and extends the Nietzschean ethic of generosity that he finds coursing throughout Foucault=s work (Connolly, 1991 and 1993). Michael Shapiro has been assiduous in disclosing throughout the operation of diverse sites of political, social and aesthetic practices how the collateral effects of power-knowledge effect collateral damage by continuously effecting a policing politics of politics (Shapiro, 1981; 1984; 1991; and 1997). Others have also suggested extending what Foucault had to say about governmental rationalities, especially as these relate to the government of the state, by relating it to the terrain of international relations as a whole. (Author, 1993;and Lui-Bright, 1997). In a recent paper suggesting that citizenship be re-addressed as part of the overall government of population effected by the international state system, Barry Hindess has provided a specific example of where and how this might be done (Hindess, 1998b). Hindess goes on to argue that government of the state should now be located in a more general examination of the government of populations.

In this paper, we examine a change in governmental rationalities that concerns a problematic that is ordinarily examined in terms of state sovereignty but was in fact deeply involved also in the advent and further development of governmental rationalities. That problematic is the problematic of security. In

addition to its close association with the development of governmental rationalities B noted for example in lectures that Foucault gave on the subject (Author, 1993) - there are a number of contemporary reasons why security should be revisited. First, we suggest that Foucault's project should be extended to the global governance to which liberalism now aspires, and recommends that one way of doing so be via its reproblematisation of security. Second, recall that power-knowledge is the form of power through which governmentality operates. Both power and knowledge have been undergoing astonishing transformations in the last quarter of a century. Through the convergence of the information and communication revolution with the advances in micro-biological sciences a powerful incentive as been lent in particular to the emergence of a science of living assemblages that some call the complexity sciences. These revolutions in knowledge have contributed substantially also towards a transformation of the forces of industrial production and the globalisation of those of capital. Along with allies in the organization and management sciences, some sociologists have even begun to call the resultant social form network society (Castells, 1996; Messner, 1999). Some prominent students of international relations (Rosenau, 1992; Jervis, 1999; Alker, 1999) have not only adopted the model and the metaphor of network; the idea of network has very powerfully inspired the advent of global liberal governance itself. Hence we propose to analyse global liberal government's reproblematisation of security via the changing epistemic outlook associated with the complexity sciences upon which that reproblematisation continues to draw.

Global Liberal Governance

Since the enactment of its own structures of power-knowledge transform the very character of both liberalism and capitalism, and of their shifting modes of association, we are dealing with a highly diversified moving historical target rather than a monolithic and immutable social form. A revolution comprised of complex epistemic and technological change centred around the mode of code, shared by the information and communication as well as the microbiological sciences, is reshaping the entire productive basis of what used to be called advanced industrial society. The phenomenon is an accelerating and a global one. In the process capitalism has been undergoing a profound global mutation characterised *inter alia* by greater management flexibility; decentralisation and networking of firms internally and in relation to other firms; empowering of capital over organised labour; individualisation and diversification of working relations and practices; massive incorporation of women into the paid labour force usually under adverse and discriminatory conditions of employment; deregulation of markets by selective state intervention; restriction of social welfare commitments; global competition; rapid technological change, product innovation and the transportation of processes of production from region to region as well as the transformation of processes of production from one technological mode to another; and the systematic recruitment of knowledge for the purposes of production and its more efficient and effective organisation. 'Information' is now product and 'messaging' is work.

These developments seem to be distinguished by greater social and economic differentiation posing novel problems of social and economic integration locally as well as globally. They are characterised also by a quantum

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increase in the density, intensity and extensiveness of interactions locally and globally and of space-time compression that make for a more complex rather than simply more complicated social, economic and political interdependence nationally and internationally. That is why liberalism too has been changing its form. Where once it aspired to the ideal of world government it now pursues global governance instead. The shift is not a semantic one. It represents a profound extension of liberalism's very figuration of the problematic of government itself and of how it can be most successfully pursued in a world characterised by greater uncertainty and greater interdependence, in short of a world increasingly understood complexly. Complicated worlds were once to be commanded by means of reduction and simplification: the rational actor; the sovereign subject; balances of power; friends and enemies; positivist epistemologies. Complexly understood worlds have conversely to be orchestrated, it is now maintained, into becoming self-governing in classical Foucauldian fashion. Such self-orchestration is precisely what the new preoccupation with governance both nationally and internationally, as the dissemination of the term governance from local administration and politics to World Bank programmes testifies, is concerned with developing. Governance seeks to govern without government - or at least with diminished reliance on >rule= - and in the process reduces the vocation of politics to the power-knowledge formations and policing mechanisms of governance (Rosenau, 1992). The prevailing metaphor for such governance commercially as well as socially is network. The social order spawned by the information and communications revolution globally is said to be network society. Its related model of successful organisation for commercial and industrial enterprise is

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similarly said to be network organisation (Castells, 1996; Messner, 1999).

Behind these changes lies an allied and equally profound epistemic shift as well, however. We refer to what has become known as the complexity sciences.

The exponents of network organisation and network society are therefore not simply explaining the emergence of a new social form. In the process of articulating strategies of governance as the means of regulating that social form they are simultaneously also articulating a new political rationality and specifying the diverse problematics of the organisation of differentiation and integration to which the governmental regulation of network society gives rise. Moreover, the very understanding of governance is inflected with an epistemology, that of complexity. While the provenance of complexity thinking is admittedly plural and diverse, our final point in this chain of argument is that complexity looks set to become the epistemology of the political rationality of global liberal governance. While network has become its prized social form, connectivity has become the law of its laws. We conceive of global liberal governance in Foucauldian fashion, as a complex political rationality comprised of diverse and dynamic discursive formations of power-knowledge because that is precisely how global liberal governance now defines itself. One has only to read The Order of Things and compare it for example with some defining global liberal governance text such as that for example of Governance. The World Bank's Experience (1994) to immediately register the point. Such formations are, however, comprised of specific problematics. Each problematic generates its own distinctive terrain of governance and politics. The one that concerns us here is the problematic of security.

Problematizing Security

The history of security is a history of changing problematisations not the persistence of a universal value guiding the interests and practices of pre-formed subjects, individual or collective (Author, 1996). We think security in the way that we do because of the ways in which we think and problematise existence. Given the foundational significance of security to all established formulations of politics, throughout the political tradition of the West, the changing history of the problematisation of security is in addition a history of the changing problematisation of what it is to be a political subject and to be politically subject (Campbell\Author, 1993; Author, 1996). In short, the history of security is always deeply implicated in the history of an allied political rationality. Security may then be accounted for in terms analogous with those of Donzelot's Foucauldian conception of 'the social' as a particular surface of social management (1979), or those of Bennett's revisionary construal of the terrain of culture in precisely the same way (1992). Just as the social and the cultural have since their modern inception been intimately allied with the notion of police, and of what Foucault in his recapitulation of police called governmentality, so also has the notion of security (Author, 1989; 1992; 1993; and 1996).

The emergence of new problematics is, however, a complex phenomenon. It is not simply determined by the recognition of new needs by established political subjects whose structures and attributes are presumed to pre-exist the relations of force, knowledge and power constitutive of them. The emergence of new problematisations is profoundly influenced also by the complex interplay of epistemic invention and technological innovation. Here the relations of force, knowledge and power that produce the assemblages we call

political subjects and their political rationalities are most clearly in evidence. Here too the evidence of the ways in which the history of security is a history of changing problematisations is not only most pronounced. It is also most pertinent to the argument that we wish to run concerning current transformations of the problematisation of security into what we term hypersecurity.

One of the most interesting features of the changing problematisation of security is, therefore, the way in which it is also a history of changing epistemic structures and ideas that inform changes in political rationalities. That is to say, the way the world is problematised in terms of fear and danger, force and violence, is intimately related also to the ways in which it is approached as an object to be known. While the transparent value of knowledge is one of the most potent of our scientific civilisation, it also serves to obscure the relation between knowledge and fear. A powerful dialogue operates between the changing problematics of both knowing and fearing. The relationship is a reciprocal one in which influence flows in both directions. Knowing may stimulate fears as much as fears may stimulate knowing. That dialogue helps fuel the changing history of the problematisation of security. A similar dialogue also takes place between knowing and strategising. Just as changing epistemologies re-problematised the world and our very sense of being individual and collective subjects in it so also they inform the changing conceptions of strategy which seek to govern how we act in and on the world. In the process new political rationalities also emerge. Specifically, here, new politics of insecurity develop and new military strategic problematics are also developed.

These are amongst the reasons why this paper outlines how a shift in the very problematisation of security has been taking place in response to the

interplay of epistemic and technological as well as political and economic change. It further examines the way in which contemporary strategists are seeking to reinterpret the character of strategy. They are doing so we argue not only in response to the advent of the more turbulent international politics that followed the dissolution of the Cold War and the reverberations of the Revolution in Military Affairs, or Military Technical Revolution, in which war has become critically determined by information and communication technologies and the new political rationality of global liberal governance that has begun to replace bipolarity. They are doing so also in response to an epistemic shift, characteristic of the so-called sciences of complexity, in the way in which the world is treated as an object to be known. Here a significant change in the very vocabulary and disposition of military strategisers has begun to take place through their progressive adoption of the language of complexity. In the process they are also progressively assimilating the metaphors of a bio-philosophy characteristic of the shift from the mode of production to the mode of code (Poster, 1990 and 1995; Bogard, 1996; Vattimo, 1992).

Along with these epistemic and technological changes have come revisions in the theorisation and description also of successful organisational form as autopoietic systems or as networks (Chia, 1994; 1995; 1996). Some social and political analysts, notably for example Manuel Castells and Dirk Messner amongst many others, have concluded that the current globalising industrial revolution being wrought by the mode of code has introduced a network society (Castells, 1996; Messner, 1997). Its no surprise then that since 1996 US strategic doctrine has come to be officially formulated in terms of network-centric warfare.¹

Complexity.

Science seems to have discovered complexity (so also have some distinguished scholars of international relations: Rosenau, 1992; Jervis, 1999; Alker, 1999). That discovery has led to the significant epistemic shift known as the complexity sciences. The history of the emergence of complexity theory and of complexity science does not need to be rehearsed in detail here. There are by now many excellent professional as well as popular summaries (Capra, 1996; Kellert, 1993; Gleick, 1987). Typically, discussions of complexity begin with a problematisation of the so-called Newtonian paradigm² followed by some claim about the unity of the theory that will replace it. Much of the popularisation of complexity and chaos theory is done by those not involved in the research. There is, then, a distinct lack of clear differentiation between profusion of emerging sciences. This is often explained as a function of the very nature of complexity science, or its radical cross-disciplinary nature (Waldrop, 1992). It appears however as if there is not so much a forging, or birthing, of a unified science of complexity but, rather, a phase transition in which, through a manifold of connectivities, fields and sub-fields are converging and interconnecting in typically complex ways.

Such a manifold is fractal and manifoldness that unfolds is what the complexity sciences claim to address. Elements or features are understood to be folded back onto themselves not as reflections or representations but as refractions. Turning in and out of themselves they repeat in ever more complex detail at scales getting simultaneously bigger and smaller. In musical terms fractals are fugue-like. Expressing complexity out of the simple line which opens

the (the turbulent and non-periodic) event, and thence continues unfolding it dissipatively away in time from its initial expression; the fugue always expresses the essential relation of its 'cleaving'; the precise word for this dual process of protention and retention, of separating and joining, of cutting apart from and of clinging together with.³ In the process new rationalities as well as new problematics are being formulated. One consequence of this is that there is considerable nuancing and slippage between technical terms, and a continuum of preoccupations from those who emphasise the order in complexity to those who emphasise turbulence and change. That spread of views is complicated also by a difference between those whose concern is with the formation of form and with self-adaptive systems, and those for whom continuous contaminating and infectious interplays across contingent boundaries focuses attention on the flow of forces effecting, rather than the (albeit adaptive) characteristics of, systemic behaviour.

Two of the most prominent sites from which complexity thinking has been emerging have been the networks surrounding Ilya Prigogine's Brussels school and the Santa Fe Institute in the United States. Both are involved in creating a portfolio of concepts as well as a generic vocabulary of complexity. There are significant differences between the centres. Prigogine seems particularly concerned, for example, with the manifestation of irreversibility in natural phenomena, with microscopics, and with the features observed in transition phenomena; contrasting conservative with dissipative systems that exist in far-from-equilibrium conditions, for example, as well as emphasising irreversibility in natural processes. Typically, Santa Fe Institute members refer very little to Prigogine, or have done so only to dismiss some of his key ideas; such as that

of dissipative structures (Anderson and Stein, 1987: 445-457). Within the Institute complex itself, complexity is conceived in plural ways. Reference is made, for example, to: crude complexity; effective complexity; computational complexity; and algorithmic (or Kolmogorov) complexity. Contriving a delicate balancing act between rule and randomness in complex systems, coarse-graining plays a particularly important part in defining complexity for the Santa Fe Nobel-Prize thinker, Gell-Mann. Others forms of complexity, it is said, have yet to be conceived (Gell-Mann, 1994). For Gell-Mann, however, thermodynamics is the fundamental law around which complexity revolves, since he conceives of entropy not as a simple running down, but as a mode of exploration of different states. This exploratory experimentation of states effects change but also accounts for why there is not simply generic disorder.

Despite the differences, despite the hyperbole of those evidently seeking to effect a hegemonic account of complexity science, and despite the diversity that characterises it, therefore, there is nonetheless a shared commitment to two key perspectival shifts. These two key moves are also intimately related, and the epistemic outcome of their conjunction is profound. They concern the two essential ways in which science describes and accounts for the natural world. The one concerns taxonomy, and the other concerns relationality. Traditional epistemic forms are Newtonian and taxonomic. Newtonian science - to use a term that conflates a large and diverse field - conceives of pre-formed bodies in mechanical relations and processes of exchange. One in which time is a parameter, rather than an operator, unaffected by the transformations that it describes (Prigogine, 1980: 3), it was also based upon a naïve realism which assumed that the properties of matter were 'there' independent of the

experimental devices by which they were observed, and recorded as existing (Prigogine, 1980: 215). The assumption of pre-formed bodies is the key link between the Newtonianism of traditional epistemic structures and their reliance, in addition, on secure taxonomic schemas. Taxonomy too, of course, shares the assumption of pre-formed bodies. It is the function of taxonomic science - take zoology for example - reliably to assign natural bodies to appropriate categories and classifications; assuming also that the world is pre-inscribed with the natural order mapped by taxonomy.

It follows that should a mode of relating in time that is not merely mechanical, or confined to exchange, and that allows time to be an operator rather than just a parameter, is allowed, then the status of bodies and their formation will come into question. Similarly, but conversely, it follows that should bodies (organs, molecules, plants, animals, humans, hybrids of human/non-human form) arise that are anomalous, or 'monstrous', that is to say 'radically disordered' and intractable to secure classification, then the scientific adequacy of taxonimisation itself, and not just any individual taxonomy, is called into question (Foucault, 1980; Ritvo, 1998).

Fundamentally, complexity science concerns itself with both developments. It appears to insist upon what we call 'the anteriority of radical relationality'.⁴ The term 'radical' qualifies 'relationality' here in the following way. It means that nothing is without being in relation, and that everything is - in the ways that it is - in terms and in virtue of relationality. Poststructuralism and complexity both argue for this. More importantly they increasingly argue from it. That is to say they take radical relationality as their point of departure for the ramification of all sorts of enquiries and accounts of the 'natural' and of the 'social' world; better

to say of their radical relationality. That they do so does not however mean that they subscribe to the anteriority of radical relationality in exactly the same ways and for precisely the same reasons. That is the point. They do not. The anteriority of radical relationality is described differently, its implications have been pursued differently, and the entailments of the anteriority of radical relationality are embraced in different ways. Notably we would say, and in direct contradistinction to those who complain differently, there is and always has been an explicit and powerful ethical and political impetus behind poststructuralist thinking (Author, 1996 and 1999a).

The very vocabulary of complexity science, and its preference for the terminology of systems in particular, together with its allied preoccupation with boundary rather more than liminality, conversely, indicates a much more functional and continuingly instrumental or strategic disposition amongst complexity thinkers than amongst poststructuralists. This is the locus of some of the difference in approaches since so much poststructuralist thinking remains heavily indebted to Heidegger's account of the age of the world picture and his corresponding indictment of machination, instrumentality and what he generically describes as 'technology' (Heidegger, 1977). While so much complexity thinking remains indebted to the modern project of science, however much it seeks to distance and differentiate itself from 'Newtonianism' (Nicolis and Prigogine, 1989). The point of significant difference between them is however simpler than this. Whereas complexity thinkers are preoccupied with the laws and dynamics, the processes and productive capacities, of a mere radical relationality, the overriding concern of so-called post-structuralist thinkers is with a radical

relationality that is constantly disrupted because it is conceived instead as a radical relationality with the radically non-relational.

Here the non-relational is the utterly intractable, that which resist being drawn into and subsumed by relation albeit it persists in all relationality as a disruptive movement that prevents the full realisation or final closure of relationality. It is important to note that the non-relational is figured in many different ways by such thinkers. With the Heidegger of Being and Time, for example, the non-relational is figured as death. For Levinas the non-relational is the Other or radical Alterity. For Derrida, too, the non-relational is also that of Alterity, though he gives it many other names and explores its deconstructive force in many other contexts. For Lacan the non-relational is the Real. Each of these starting points also gives rise to different projects and that is why, amongst many other reasons, there is no single school of thought here sensibly encapsulated by such terms as post-structural or post-modern. Heidegger=s project, initially at least, was authenticity. Levinas= was an infinite ethicality. Derrida=s too, is that of an inescapable and infinite responsibility ramified especially in terms of justice and of undecidability. Lacan=s was a revised psychoanalysis. The political theorist Jacques Rancière figures the non-relational as Aa magnitude that escapes ordinary measurement. @ (1999: 15) and his project is an explicit theorisation of the political as a relation that is formed by relation with this figuration of the non-relational.⁵

In prioritising the mode of relating, accepting that temporality is an operator rather than a mere parameter, and conceiving of 'bodies' in terms of the contingent assemblages and ensembles (systems) that are a function of a mode of relating, complexity sciences simultaneously subvert the epistemic structures

upon which Newtonian physics and the great scientific taxonomic enterprises of the last several hundred years have proceeded. That is why - and how - the sciences of complexity, it is claimed, are now challenging the epistemic hegemony of traditional scientific thought. Stable taxonomy and mechanical predictability are thus displaced by the rationalities and problematics of the composite sciences of what is best described as 'being-in-information'; where 'code' or 'information' is increasingly becoming the prevailing term of art.

The Mode of Code.

Now, advances in biology and in molecular science, in particular, not only do offer ways of conceiving of modes of relation (infiltration; distribution; infection; contamination; mutation; colonisation; symbiosis) that are not simply mechanical ones of exchange, and in which temporality is an effective operator rather than a mere parameter, they also offer accounts of bodies that defy secure taxonomic classification; since, as a function of modes of relation, such bodies are contingent assemblages B as we say, bodies-in-information - rather than pre-formed entities. Biology, particularly at the microscopic rather than the macroscopic level - but, with genetic engineering, even there also - therefore offers a description of astonishing fecundity, mutability, motility, and sheer creative transformation and change that defies the macroscopic entropy of Newtonian science and the exhaustive taxonomies of classificatory schemas alike. Bacteria, for example, trade variable quantities of information in the form of variable quantities of genes with virtually no regard for species barriers, while new forms and modalities are propagated across species boundaries with almost indecent speed. Morphogenesis cannot be described or explained within

the terms of the linear paradigm of pre-formed bodies in the predictable entropic motion of a logic of strategically determined succession. However, according to one exponent: "It has to be understood that what is not deterministic need not be random. The solution is the existence of a new type of causality." (Kempis, 1991: 257). How to understand that 'causality', and its allied notions of pre-diction and pre-monition, is a key issue closely related to the ways in which the complexity sciences not only understand processes of formation and change but also those of creativity; how things happen, how they can be made to happen, and how matters can be construed so that certain kinds of happenings are encouraged or discouraged.

Prigogine's non-linear mathematics makes the claim that it is producing the mathematical formulations that lead to a unified picture that "enables us to relate many aspects of our observations of physical systems to biological ones." (Prigogine, 1980: xiv). Consequently, just as the concepts, dynamics, modes of analysis and metaphors of biophilosophy and biotechnics have begun radically, and extensively, to supplant those of mechanics and taxonomics, so also Prigoginean mathematics claims to complement their insights and to offer a means, "not to 'reduce' physics and biology to a single scheme, but to clearly define the various levels of description and to present conditions that permit us to pass from one level to another." (Prigogine, 1980: xiv).

Although we would argue forcefully against conflating his project with that of complexity, one of the single most powerful metaphor for distinguishing between Newtonianism and its competitors in biophilosophy and complexity has been provided by the French philosopher Gilles Deleuze. It is an especially important one since it also serves to open-up debate within the evolutionary

thinking as well; something that inevitably comes to the fore once the shift to biophilosophy is made. For Deleuze, the strategic order presumed by Newtonian science and taxonomisation alike was 'arboreal': (think trees). The self-propagation to which complexity science refers is 'rhizomatic': (think grass, lilies or bamboo). As opposed to traditional phyletic lineages, rhizomatic lineages serve to demonstrate the extent to which exclusively filiative models of evolution are dependent upon exophysical system descriptions that are simply unable to account for the genuinely creative aspects of evolution. If the organism is a function of the frame within which the science of biology encodes it, then it is necessary to recognise that the frame captures only a small part of the possible being-in-form that the assemblages are able to express, and of the creative potential immanent in the system. The existence of a code simultaneously requires a process of de-coding. Hence there is no genetics without genetic drift. Symbiosis, especially, serves to show that the delineation of organic units, such as genes, plasmids, cells, organisms and genomes is a tool of a certain mode of investigation as well; not an absolute ideal or model. It challenges notions of pure autonomous entities and unities because it functions through assemblages (multiplicities made up of heterogeneous terms) that operate in terms of cross-fertilising alliances rather than tight genealogical filiations of more or less scrupulous linear descent. A clear establishment of distinct 'kingdoms' - in the human as well as the non-human world - is rendered problematic. What become important, instead, are the relational order and its creative propensities. Symbiosis similarly challenges the notion of informationally closed systems and corresponds as well to the rhizomatic rather than the arboreal model. Since codes are modes of mediation - in effect modes of transversal communication

because there is no code without its corresponding de-coding - they are strictly speaking '*paralogical*': *para* being the Greek prefix for alongside, besides, between, or in the midst of (Author, 1995). There is, in short, no tree life characterised by an increasingly differentiated genealogy, but a rhizome of spontaneous propagation occurring at diverse sites of spontaneous local creativity amenable to *paralogic* understanding (Taylor, 1995).

What is more, however, such biological forms of understanding and description seem best suited also to comprehending the transformations occurring with the global digitalisation of information and communication and the vast powers of propagation that characterise these developments as well. What biophilosophy, biotechnics and complexity share with information and communication technologies is, then, a shift from a preoccupation with physical and isolated entities, whose relations are described largely in terms of interactive exchange, to beings-in-formation, as well as components of information, whose structures, decisively influenced by the mode of relation governing their connectivity with their 'environments', display autonomous powers of adaptation, formation, organisation and spontaneous emergence.

The very character of the mode of relating is, then, an active process of individuating the component parts in relation. An individual component does not then possess a unity in its 'identity'; that of the, presumed, stable state within which no transformation, or only linear transformation, is allowable. Rather, a component, or part, has a transductive unity. What that means is that it can pass out of phase with itself, break its own bounds, unfold its own potential. This capacity of becoming is an integral dimension of the component in a mode of relating, and not something that happens to it following a succession of events

effecting something thought to be already fully given and present. Individuation is the process of change to which the component is subject in virtue of its very participation in a mode of relating. It is the becoming of the entity, not an exhaustion of its signification. What goes for machinic assemblages applies also to political subjects, of whatever description.

Here, while the world seems more viral and mutable than it does mechanistic and entropic (Ansell-Pearson, 1997b): "If the word 'nature' is to retain a meaning, it must signify an uninhibited polyphenomenality," of manifestation (Rabinow, 1996a, p.108). It is very reminiscent of Aristotle's term *phusis* especially as this is translated and explored by Heidegger (Heidegger, 1997 and 1998). Finitude as empiricity gives way, also, to an 'unlimited-finite' play of forces and forms, the best example of which is DNA. An infinity of beings can and has arisen from the four bases out of which DNA is constituted. The Nobel Prize-winning biologist, Francois Jacob, makes the same point when he writes: "A limited amount of genetic information in the germ line produces an enormous amount of protein structures in the soma?nature operates to create diversity by endlessly combining bits and pieces." (Rabinow, 1996a, p.92).

The mode of relation not only differentiates components; it also combines and re-combines them in novel ways to produce new form. It demands the >re-engineering= of components themselves. Add temporality as an operator rather than parameter to this and modes of relation necessarily also entail motion. Together with the character of the mode of relating, it is also that movedness which ensures that a mode of relating cannot leave the structure of components unaffected. Movedness here exceeds the understanding of mobility where mobility merely refers to the movement of pre-formed bodies through space. It

accords more instead with motility, where motility refers in the dual capacity to move and be moved to an entity=s very changing composition and form. Movedness is no external effect on >living assemblages'; it is co-constitutive of them. Relationality - connectivity - is transformatory. The power play of relationality is a productive flow, displaying different forms of motion - speed; velocity; waves; continuous flow; pulsing; fluidity and viscosity; rhythm; harmony; discordance; and turbulence - as its in-formation incites the formation, deformation and reformation of contingent assemblages and complex life-forms. No party to a relation is therefore a monadic, or molar, entity. Each is, instead, a mutable function of the character of the mode of being-related.

Going beyond the twin traditional arguments that organisms are either only more perfect machines, or that machines are never more than mere extensions of the organism, we arrive at the threshold of the sciences of dynamic living assemblages in which the traditional ways of distinguishing human and non-human, organic and non-organic, break-down; as does the related way of privileging components over the modes, and intensities, of relation in which they are found. This does not eliminate the human. On the contrary, it calls, instead, for other ways of accounting for and describing the human; since what is being thought and argued here is, of course, a human disclosure made through signification - from mathematics to semiotics - that discloses new horizons of human-ness as well: "if the world is an infinite series?it is therefore enveloped by an infinity of individual souls of which each retains its irreducible point of view." (Deleuze, 1993: 24)

Having to relate - openness to intervention - is, therefore, invariant for all forms of life. That does not mean that life forms are determined in advance. On

the contrary, it is the inescapable condition of complex patterns of *autopoiesis* in which both relationality and component change. Being-in-formation, necessarily entails deformation, reformation and transformation. That is to say being-in-formation is characterised by gaps, misfires, breaks, slippages, unintended outcomes, transferences and change. These cuts and breaks are not simply 'unauthorised' transversal communications within and between assemblages or systems that bring novel forces and relations into play and so also new formations. They are also a function of the way events occur which is not rule governed, or where the rule does not apply. Where the rule breaks-off, 'decision' comes in. Such movement takes place not simply as transfer and exchange but also as 'dissipation', 'dispersion', 'attenuation', 'infection', 'contamination', 'invasion', 'colonisation', 'mutation' and so on. That is to say, the involuted (feedback) connectivity of the system is a measure of its very liminality. Sustaining diverse kinds of alterior relations, this then manifests itself as bifurcation, singularity and phase transition. Opposed to this view is the ideal of systems implacably closed in on themselves striving to maintain an illusory autonomy, equilibrium or 'survival', by expending vast resource on specifying everything that is foreign to the system so that it can be expelled or kept from it. The price of such 'autonomy', or autarchy, is paid in terms of a self-destructive diminution of the liminal capacity of the system's connectivity.

Becoming-Dangerous.

The mode of code is intimately associated with the digitalisation of information and communication technologies as well as with startling developments in the microbiological sciences. It has also become one of the

characteristic means of speaking about and acting into the complexity of >living assemblages=. It therefore represents a significant epistemic shift that has profound implications for the problematisation of security (Baudrillard, 1983). It does not deal with the operation of pre-formed bodies but the operations of relations that are productive, instead, of bodies-in-formation. Life here is largely conceived as informatted in the sense of belonging to complex networks of interchange. Informatted life is a being-in-relation that is simultaneously also a being-in-formation, becoming being via the mode of code (Bogard, 1996; Zuboff, 1988). Now, specifically in relation to our concern, since becoming is not only a mercurial inconstancy-in-being, one that may incite fear in proportion to its subversion of the affection invested in the identity of contingent assemblages, becoming can never be guaranteed benign either. Becoming, in short, may also be regarded as 'becoming-dangerous'.

As the logics of the security problematic of becoming-dangerous ramify, so the entire terrain of the politics of security will of course mutate: new artefacts, new objects, new subjects, novel modes of relation, in sum a different correlation of forces emerge. This will transform, is already transforming, even the traditional politics of resource allocation in respect of weapons acquisition, command, control, communication and information systems, the constitution of force and force deployments as well as the training and indoctrination of personnel. The established politico-industrial economies of security will necessarily, therefore, undergo change in response to this changing correlation of forces. These in turn will also effect the processes and practices of representation by which they mobilise strategic and political legitimacy for their continuing operations.

According to Virilio, for example, one of the distinguishing features of this shift is

the move from the logic of post-war nuclear deterrence, in which military power depended fundamentally on display for its effect, to the logic of simulation in which military power depends on its capacity fully to model, as necessary, the radical ambivalent interplay between the visible and the invisible (Virilio, 1997). Simulation threatens to become dominant in response to the advent of becoming-dangerous since it is only virtual reality that ultimately promises to command the infinity of insecurity threatened by becoming-dangerous. Hence, its apotheosis in the simulacrum of hypersecurity. This transformation not only excites new terrains of security, subjectivity and fear. In the hypersecurity of becoming-dangerous new calls to arms are also issued in terms of surveillance and simulation. Novel forms of strategic intelligence are also demanded and these entail fundamental reappraisal of strategy itself.

Hypersecurity.

Such being-in-relation productive of bodies-in-formation radically subverts security=s traditional problematisation in terms of pre-formed bodies operating in mechanical processes of inter-subjective exchange judged in the classical terms of the friend-enemy distinction. We can illustrate what we mean by pre-formed bodies in ways that directly relate it to the traditional politics of security and war by reference to Deleuze and Guattari=s account of the classical understanding of the politics of security and war in terms of chess (Deleuze and Guattari, 1986). AChess, @ they note, Ais a game of state, or of the courtYChess piecesYhave an internal nature and intrinsic properties, from which their movements, situations and confrontations derive. They have qualities; a knight remains a knight, a pawn a pawn, a bishop a bishop.@ (Deleuze and Guattari, 1986: 3). Problematisations of

security we have already noted are intimately allied also to the production of political subjectivity. Carl Schmitt's theorisation of politics is a classic case in point. According to Schmitt, a political entity comes into being when the distinction between friend and enemy is drawn - "The specific political distinction to which political actions and motives can be reduced is that between friend and enemy." (Schmitt, 1976: 26) - and that entity which draws this distinction is the political entity. For him, in the modern age, that entity is the sovereign state:

"The state... [as] an entity and in fact the decisive entity rests upon its political character....To the state as a political entity belongs the *jus belli*, i.e., the real possibility of deciding in a concrete situation upon the enemy and the ability to fight him with the power emanating from the entity."(Schmitt, 1976: 44)

This fundamental understanding of the essence of the political, however, does not merely establish a principle for differentiating the political from all other acts of differentiation - such as the good from the evil; the beautiful from the ugly; the profitable from the unprofitable - it necessarily also does much more than this, as Schmitt's own texts often reveal. It establishes, in effect, a certain economy of differentiation designed, indeed obliged, to make war on alterity, difference and hybridity because that is the way the Western tradition has come to establish and privilege identity (especially in the inauguration of the sovereign political subject) as such. There is within this framework of understanding a prevailing need to eliminate "unwanted perturbations or unwanted needs." (Schmitt, 1976: 48). "The political enemy need not be morally evil or aesthetically ugly," Schmitt insists. He, "need not

appear as an economic competitor, and it may even be advantageous to engage with him in business transactions." The crux of the matter is precisely this:

"he is nevertheless the other, the stranger; and it is sufficient for his nature that he is, in a specially intense way, existentially something different and alien, so that in the extreme case conflicts with him are possible." (Schmitt, 1976: 27)

If there were a stable notion of the human - much less that of any political or cultural formation B the human would provide a secure referent the application of which would safely determine the differentiation of friends and enemies. From the epistemic standpoint of complexity, however, all living assemblages B including the human - are bodies-in-relation that are thereby also bodies-in-formation. Neither friend nor enemy can be given beforehand since the emergence of living assemblages is fluid and contingent upon the dynamics of the changing modes, affects and effects of always already being-related. In the dissolution of the friend-enemy distinction, the security problematic emerges in terms of the becoming-dangerous of modes of relation, and the play of forces that effect the formation of contingent assemblages. >Living assemblages= are significant in respect of security and insecurity not by virtue of their essences B the power politics and national interests of traditional international relations or Schmitt=s existential otherness - but as new locales and sites of inscription, encryption and enunciation. What might be said, then, is that consistent with the shift to the view of the 'subject' - and therefore also of course the subject of

security - as a function of modes of relation, of the operation of the play of forces and of the taking place of certain events, occurrences and conjunctions, there is a shift in security problematics as well. States remain an issue. But they are either states in-formation themselves the emergent assemblages of power characteristic of the Transcaucases, Africa and the Balkans rather than pre-given political entities. Or, they may be conceived as states in the sense of conditions, anticipated events or estimated occurrences rather than traditionally conceived political actors and political events. The diverse and dynamic means by which formation happens, and the occurrences of events are projected and probabilised, becomes the theatre of operations for new security practices.

The assessment of the propensity to become dangerous of different modalities of relating is understood less as an entirely novel practice. Even in the drawing of the friend/enemy distinction the parties to it are constructs. It represents the development instead of a reproblematisation of security - in respect of its changing rationalities and instrumentalities - that constitutes an emerging ensemble of practices and concerns distinguishable in many significant ways from traditional understandings of the politics of international security. Traditional models and practices do of course continue to persist. But these new ones exist as well. And, whereas traditional views depend upon the Newtonian conception of pre-formed bodies - states - in mechanical relation and exchange, 'becoming-dangerous' focuses, instead, on modes of being-in-relation and their bodies-in-formation that, according to the ways in which they are problematised by the new rationalities of security may become dangerous. These include but are not exhausted by the contemporary emphasis on risk and insurance.

Network Society, Network-Centric Warfare.

"There is as yet no equivalent to Carl Von Clausewitz's On War for this second revolution - but we can gain some insight through the general observation that nation's make war the same way they make wealth."

(Arthur K. Cebrowski, Vice-Admiral USN, 1998, p.2)

Clausewitz's On War was unsurpassed as an expression of the military strategic problematic of the political rationality of the Enlightenment. It cannot however be understood without locating it within what William Connolly would call the ontopolitics of the Enlightenment's political rationality. Here, consonant with a certain Cartesian ideal of the calculating subject of cognition, politics is conceptualised as a certain form of means-end rationality critically defined in terms also of its capacity to command violence and deploy it to the political ends of sovereign political subjects. Since all locutions are subject to deconstruct themselves so also does that of Clausewitz. That takes place notably in the preface to On War written by Clausewitz's wife, where the male ideal of command is exposed and in Clausewitz's own account of the sublime moment of combat where that male subject is fired. Clausewitz is not diminished by deconstruction. It simply makes him a much more interesting figure than his epigones could possibly conceive him to be. The point to make here however is this. The political rationality who=s military strategic problematic Clausewitz so brilliantly formulated has mutated. Global liberal governance is not the politics of European states at the height of the operation of the Westphalian system. It is something else. That something else is already giving rise to formulations of its

own peculiar military problematic such as that provided classically by Vice-Admiral Cebrowski on behalf of the United States Department of Defence.

Our argument thus far has been that the advent of radical relationality and the law of connectivity of living assemblages are necessarily giving rise to a reproblematisation of security. That reproblematisation has been characterised as a shift from the problematics of the friend/enemy distinction to those of the hypersecurity of becoming-dangerous. Thus far the argument has been conducted at a fairly abstract level illustrated primarily through an account of the impact of the mode of code on the security problematic as such. After all, national security has only ever been a sub-set of the broader security problematic that our civilisation continuously sets for itself via the inherited ways in which it has problematised life epistemically, socially, spiritually, economically and finally also of course politically. Now national security is no longer conceived simply in terms of the outmoded categories of the national and of the secure that once dominated the discourse of international relations and international security. And neither is its military problematic, as anyone who cares to follow up the reference to Cebrowski's network-centric warfare will discover.

According to one close observer, "DoD has now embraced, at the highest levels, the concept of 'network-centric warfare,' in which tactical, intelligence and logistics information becomes as much a weapon for the war fighter as light arms or heavy armour, and combat units are ordered to battle from a desktop computer." (Brewin, 1997). The concept of network-centric warfare first took centre stage in the US Joint Chiefs of Staff's 'Joint Vision 2010' paper, released in July 1996 by the then-chairman of the JCS General John M. Shalikashvili. The document laid out the department's operational concept of joint war fighting and

put networks, with their ability to disseminate information quickly, at the centre of military strategy during the next decade. The USN had given a lead to this all service move to networks through its Information Technology for the 21st Century (IT-21) Project. Conceived by the C-in-C of the Pacific Fleet, IT-21 set out to define the standard for the network computing environment based on commercial technology for its ashore and afloat units. A follow-on project IT-21 Plus is designed to develop a concept of operations for a naval virtual intranet, planning the networks needed for warfare. Similar moves are now underway throughout the other services (Brewin, 1997).

The crucial point to make is that network-centric warfare incorporates but provides a broader strategic architecture for the already widely popularised information and communication warfare. It is not synonymous with IW. It extends the whole metaphor and technology of the mode of code to the revision of war preparation and warfare as such. It is a strategic design in the broadest sense of the term, rather than a sub-domain of military conflict, with vast implications not only for recruitment, training, organisational design, procurement, weapons acquisition and budgets but for the very ways in which danger will be construed and 'defence' provided. Its provenance and its range are well summarised by Cebrowski and his co-author. "Network-centric warfare and all of its associated revolutions in military affairs," they write, "grow out of and draw their power from the fundamental changes in American society. These changes have been dominated by the co-evolution of economics, information technology, and business processes and organisations." (p.1) They go on to note that these are in turn linked by three themes. These themes exemplify the arguments that have been made throughout this essay. First is the shift in focus from the weapons

platform to the network. The second is the shift, "from viewing actors as independent to viewing them as part of a continuously adapting ecosystem." Third, is "the importance of making strategic choices to adapt or even survive in such changing ecosystems." (Cebrowski and Garstka, 1998, pp1-2). They further note that: "Not all actors in ecosystems are enemies (competitors); some can have symbiotic relationships with each other. For such closely coupled relationships the sharing of information can lead to superior results." (Cebrowski and Gartska, 1998, p.4). Speed, self-synchronisation and flexibility are at a premium and network-centric operations are claimed to deliver to the US military, "the same powerful dynamics as they produced in American business." (p.5). In sum concluding the points we have been making: ""Military operations are enormously complex, and complexity theory tells us such enterprises organise best from the bottom-up. This is not just a matter of introducing new technology; this is a matter of the co-evolution of that technology with operational concepts, doctrine, and organisation. This is not theory - it is happening now. For example, new classes of threats have acquired increased defensive combat power for joint forces. The combat power that has emerged - the co-operative engagement capability (CEC) - was enabled by a shift to network-centric operations." (Cebrowski and Gartska, pp.7-9).

Note, finally then, that whereas for Clausewitz war was the extension of politics by other means, for Cebrowski the practice of war is the extension of wealth creation. By that he means that successful organisation of war must mimic successful organisation for profit (Cebrowski and Gartska, 1999; Stein, 1999). Pioneered by US naval institutions and think tanks, network-centric warfare is a theorisation of war derived from the insights of complexity scientists

and network thinkers (Cebrowski and Gartska, 1999). The fact that naval institutes have generated the concept is apt since the sea is a mobile, changeable and polymorphic space and naval strategists have traditionally displayed a nuanced and variable understandings of the complexity of polymorphic spaces, including possibly the rhizomatic spaces of epistemology (Mahan, 1893; Corbett, 1972). Contrast these with the striative approaches of land-based strategic theorists (Jomini, 1992; Liddell Hart, 1942). Michel Serres, a noted philosopher of complexity, it might also be recalled, was a naval engineer (Serres, 1980).

Successful organisation for profit it is now argued is dependent however upon the radical relationality of effective network organisation. Moreover, effective network organisation is now also the prevailing objective of the novel forms of social and political regulation to which global liberal governance aspires. Where once military revolutions were embraced in order to afford operational advantage for existing political bodies, now they are proclaimed and pursued in the name of transforming political bodies so that these conform to the law of connectivity and enjoy its superior creative force. That is why aligning with the law of connectivity that seems to have incited the second revolution in industrialisation and global capitalisation to which Cebrowski refers thereby becomes the strategic imperative driving the military problematisation at the centre of his new theorisation of warfare.

In order to understand Cebrowski's formulation of the military strategic problematic in its wider setting and significance, one has therefore to understand that it is deeply embedded in the emergence of the new political rationality that has developed in close association with all the epistemic changes detailed in

this essay, together with the social and political changes with which they are also intimately related. In network-centric warfare Cebrowski has therefore provided a detailed account of the military strategic problematic of the political rationality of global liberal governance. The hypersecurity of becoming-dangerous haunts network-centric warfare, however, just as it does the entire political rationality of global liberal governance since they share the same complex provenance of complexity itself and its exposure to becoming-dangerous. Driven by an infinity of fear hypersecurity not only excites a manifold of specific security problematics, it colonises the political imagination of global liberal governance and fuels its nightmares. Becoming-dangerous ultimately goads global liberal governance into the violence it officially abjures and will thereby betray the peace that it proclaims.

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^{1.} According to its own home page description the Assistant Secretary of Defence manages the C4ISR Cooperative Research Program (CCRP) for DoD for Command, Control, Communications, and Intelligence (ASDC3I). The CCRP focuses upon improving both the state of the art and the state of the practice of command and control. As ASDC3I's executive agent for the CCRP, the Director has the mission of improving DoD's understanding of the national security implications of the Information Age, helping DoD take full advantage of the opportunities afforded by technology, bridging the operational and technical communities, and enhancing the body of knowledge and research infrastructure upon which future progress depends. Further detail and publications concerning networkcentric warfare may be found through the CCRP home page: <http://www.dodccrp.org/splash3.htm>

^{2.} The term post-Newtonian as is commonly recognised, refers more to the tradition of science which linearised Newton's ideas (for instance by Laplace) than the original work of Newton.

^{3.} *Cleave*: i. To part or divide by a cutting blow; to hew asunder; or to split. a. Often with asunder in two; b. to pierce and penetrate (air, water etc.); c. To intersect, penetrate or fissure in position. *Cleave*: ii. To stick fast or adhere as by a glutinous surface; iii. To adhere or cling (to a person, party, principle etc.); iv. To remain attached devoted or faithful. [O.E.D.]

^{4.} For that reason there is a debate about its proximity to poststructural thought. See, for example Cilliers, 1998 and Author, 1999b.

^{5.} For a detailed account of Rancière's political thinking see Author, 2000.