Europeanisation, Complexity, and the British Welfare State*

Paper presented to the UACES/ESRC Study Group on *The Europeanisation of British Politics and Policy-Making*, Department of Politics, University of Sheffield, September 19, 2003.

Robert Geyer
Department of Politics
University of Liverpool

* This paper is based on drafts of the first two chapters of my forthcoming book 'Europeanisation, Complexity and the British Welfare State' (Policy Press 2004).

What is Complexity Theory?

What is Complexity theory? How and when did it emerge? Is it a hot new academic fad like globalisation or the end of history, or is it something more profound? To begin to answer these questions we need to jump back a few centuries and briefly discuss the emergence of what is variously labelled as the Newtonian or linear paradigm. For reasons that will become clear, we have called it, the paradigm of order.

The Paradigm of Order

Although it has been said thousands of times before, it bears repeating, the Enlightenment was an astounding time for Europe. Relatively stagnate and weak and intellectually repressed by the Church during the so-called Dark Ages, intellectual energies released by the Renaissance came to fruition in the Enlightenment. During this time, Europe was reborn and became the centre of an intellectual, technical and economic transformation. It had an enormous impact on the way life is viewed at all levels from the mundane to the profound. Science was liberated from centuries of control by religious stipulations and blind trust in ancient philosophies. Rene Descartes (1596-1650) and, slightly later, Sir Isaac Newton (1642-1727) set the scene. The former advocated rationalism while the latter unearthed a wondrous collection of fundamental laws. A flood of other discoveries in diverse fields such as magnetism, electricity, astronomy and chemistry soon followed, injecting a heightened sense of confidence in the power of reason to tackle any situation. The growing sense of human achievement led the famous author and scientist Alexander Pope to poeticise, "Nature, and Nature's laws lay hid in night. God said *Let Newton be!* And all was light"[i]. Later, the 18th century French scientist and author of *Celestial Mechanics* Pierre Simon de Laplace (1749-1827) carried the underlying determinism of the Newtonian framework to its logical conclusion by arguing that, "if at one time, we knew the positions and motion of all the particles in the universe, then we could calculate their behaviour at any other time, in the past or future"[ii].

The subsequent phenomenal success of the industrial revolution in the 18th and 19th centuries, which was based on this new scientific approach, created a high degree of confidence in the power of human reason to tackle any physical situation. By the late 19th and early 20th century many scientists believed that few surprises remained to be discovered. For the American Nobel Laureate, Albert Michelson (1852-1931), "the future truths of Physical Science are to be looked for in the sixth place of decimals"[iii] From that time onwards, physicists would merely be filling in the cracks in human knowledge. More fundamentally, the assumption and expectation was that over time the orderly nature of all phenomena would eventually be revealed to the human mind. Science became the search for hidden order.

By and large, that vision of the universe survived well into the twentieth century. In 1996 John Horgan, a sernior writer at *Scientific American*, published a bestselling book entitled *The End of Science* which argued that since science was linear and all the major discoveries had been made, then real science had come to an end. All that was left was "ironic science" which:

does not make any significant contributions to knowledge itself. Ironic science is thus less akin to science in the traditional sense than to literary criticism – or to philosophy (Horgan, 1996: 31).

Siimilarly, the eminent biologist and Pulitzer prize winner, Edward O. Wilson argued in his bestselling book *Consilience* (1999) that all science should be unified in a fundamentally linear framework based on physics:

The central idea of the consilience world view is that all tangible phenomena, from the birth of stars to the workings of social institutions, are based on material processes that are ultimately reducible, however long and tortuous the sequences, to the laws of physics (Wilson, 1998: 291).

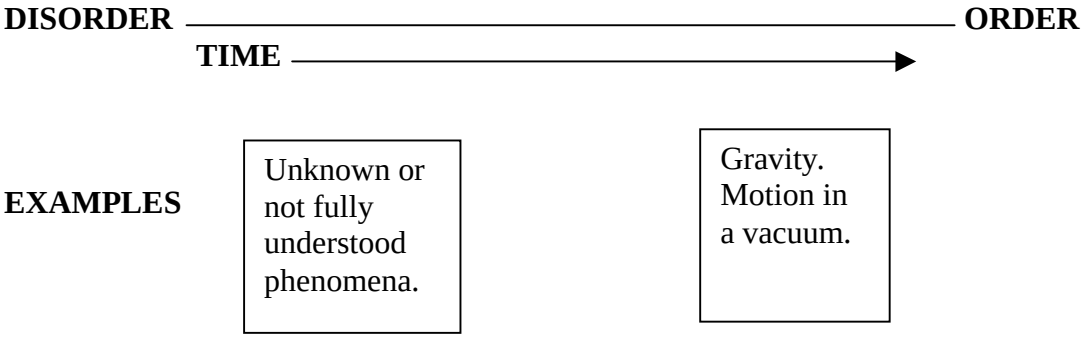
The linear view of the world prospered not only in the sciences, but in the fundamental nature of Western social and political life.

To simplify drastically, the paradigm of order was founded on four golden rules:

- *Order:* given causes lead to known effects at all times and places.
- *Reductionism*: the behaviour of a system could be understood, clockwork fashion, by observing the behaviour of its parts. There are no hidden surprises; the whole is the sum of the parts, no more and no less.
- *Predictability*: once global behaviour is defined, the future course of events could be predicted by application of the appropriate inputs to the model.
- *Determinism*: processes flow along orderly and predictable paths that have clear beginnings and rational ends.

From these golden rules a simple picture of reality emerged.

Figure 1: Phenomena in the Paradigm of Order



Given the golden rules and picture of reality, several expectations emerged**:**

- Over time as human knowledge increases, phenomena will shift from the disorderly to the orderly side.
- Knowledge equals order. Hence, greater knowledge equals greater order.

- With greater knowledge/order humans can increasingly predict and control more and more phenomena.

- There is an endpoint to phenomena and hence knowledge

The orderly paradigm worked remarkably well and was conspicuous by incredible leaps in technological, scientific and industrial achievements. Science became orderly and hierarchical with clear divisions that manifested themselves in the departmentalised evolution of modern universities and in a hierarchy of sciences. As the Nobel prize winning physicist (though he won the award for chemistry) Ernst Rutherford famously said, "All science is either physics or stamp collecting"[iv]. Not surprisingly, success in these areas had a profound effect on attitudes in all sectors of human activity, spreading well beyond the disciplines covered by the original discoveries.

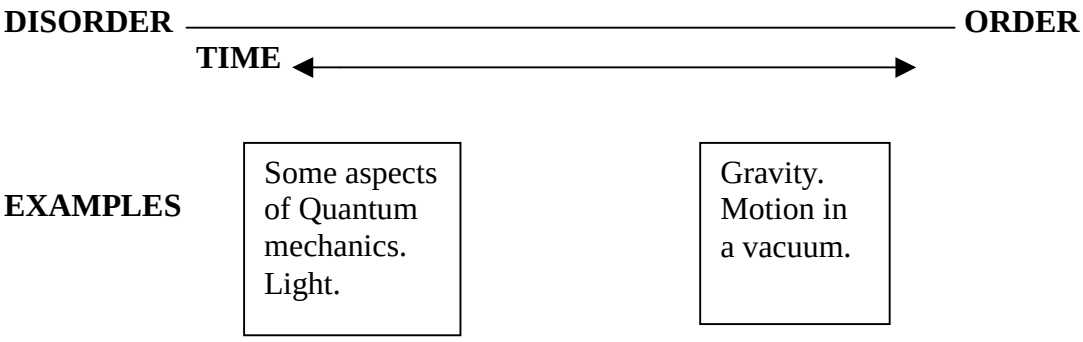
Ripples of Doubt

Certainty and predictability for all, the hallmarks of an orderly frame of mind, were too good to last. Fissures had existed for some time, even Issac Newton and Christiaan Huygens in the 17th century couldn't agree on something as fundamental as the nature of light (is it a particle or a wave?). These difficulties bubbled under the surface of acceptable scientific discourse and the expanding university arenas. They were often seen as unimportant phenomena that would be resolved by the next wave of emerging fundamental laws. However, by the early 20th century they could no longer be ignored. Henri Poincaré (1854-1912), the supreme physicist of his age, was one of the first to voice disquiet about some contemporary scientific beliefs. He advanced ideas that predated chaos theory by some seventy years (Coveney and Highfield, 1996: 169). Later, Einstein's (1879-1955) theory of relativity, Neils Bohr's (1885-1962) contribution to quantum mechanics, Erwin Schrödinger's (1887-1961) quantum measurement problem, Werner Heisenberg's (1901-1976) uncertainty principle and Paul A. M. Dirac's (1902-1984) work on quantum field theory all played a decisive role in pushing conventional wisdom beyond the Newtonian limits that enclosed it centuries before. These scientists, all Nobel laureates, set in motion a process that eventually transformed attitudes in many other disciplines.[v]

The new discoveries did not disprove Newton. Essentially, they revealed that not all phenomena were orderly, reducible, predictable and/or determined. For example, no matter how hard classical physicists tried they could not fit the dualistic nature of light as both a wave and a particle into the orderly classical system. Heisenberg's uncertainty principle, which shows that one can either know the momentum or position of a sub-atomic particle, but not both at the same time, presents an obvious problem for the orderly paradigm. Or, the paradox of Schrodinger's Cat experiment, which demonstrated the distinctive nature of quantum probability, again broke the fundamental boundaries of the former order. What this meant was that even at the most fundamental level some phenomena do conform to the classical framework, others do not. With this, the boundaries of the classical paradigm were cast asunder. Gravity continued to function and linear mechanics continued to work, but it could no longer claim to be universally applicable to all physical phenomena. It had to live alongside phenomena and theories that were essentially *probabilistic*. They do not conform to the four golden rules associated with linearity: order, reductionism, predictability and determinism. Causes and effects are not linked, the whole is not simply the sum of the parts; *emergent properties* often appear seemingly out of the blue, taking the system

apart does not reveal much about its global behaviour, and the related processes do not steer the systems to inevitable and distinct ends.

Figure 2: Phenomena in the Paradigms of Disorder and Order



Given these non-linear phenomena and non-adherence to the golden rules of order, new expectations were necessary for this expanding paradigm**:**

- Over time human knowledge may increase, but phenomena will not necessarily shift from the disorderly to the orderly.

- Knowledge does not always equal order. Greater knowledge may mean the increasing recognition of the limits of order/knowledge.

- Greater knowledge does not necessarily impart greater prediction and control. Greater knowledge may indicate increasing limitations to prediction and control.

- There is no universal structure/endpoint to phenomena/knowledge

It is important to note that the shift in scientific analysis from utter certainty to considerations of probability was not accepted lightly. Schrodinger had originally designed his cat experiment as a way of eliminating the duality problem! The sea change radiated slowly outwards from quantum mechanics' domain of sub-atomic particles. Naturally, there was a wide schism between the exclusive niches occupied by leading particle physicists and mathematicians, on the one hand, and the rest of the scientific community, on the other. High specialisation meant that even scholars involved in the same discipline were not immediately aware of discoveries being made by their colleagues. Moreover, the language of science itself became almost unintelligible beyond a select circle of specialists. In any case, their intriguing speculations were not thought at first to be of everyday concern. Nevertheless, uncertainty was eventually recognised as an inevitable feature of some situations. In effect, the envelope of orderly science was expanded to add complex phenomena, also know as *complex systems*, to those already in place.

Complex systems in an Abiotic World

Once the door was open to probability and uncertainty, a new wave of scientists began studying phenomena that had previously been ignored or considered secondary or uninteresting, Rutherford's "stamp-collecting" activities.[vi] Weather patterns, fluid dynamics and Boolean networks were just three of the areas that saw the growing

acceptance of non-linear complex phenomena and systems. For example, one of the earliest people to conceptualise and model a non-linear complex system was an American meteorologist, Edward Lorenz (Gleick, 1987). Lorenz developed a computer programme for modelling weather systems in 1961. However, to his dismay due to a slight discrepancy in his initial programme, the programme produced wildly divergent patterns. How was this possible? From an orderly linear framework, small differences in initial conditions should only lead to small differences in outcomes. But, in Lorenz's programme, small discrepancies experienced feedback and reinforced themselves in chaotic ways producing radically divergent outcomes. Lorenz called this the phenomena where small changes in initial conditions lead to radically divergent outcomes in the same system the "butterfly effect", arguing that given the appropriate circumstances a butterfly flapping its wings in China could eventually lead to a tornado in the USA. Cause did not lead to effect. Order was not certain. Chaos/complexity was an integral part of physical phenomena. Moreover, phenomena could not be reduced and isolated, but seen as part of larger systems.

Other examples of complex systems can be found in simple forms of fluid dynamics. For example, the water molecules creating a vortex in your bathtub is a type of abiotic complex system. The molecules self-organise and form a stable complex system so long as the water lasts in the bathtub. The vortex is easy to recreate, but the exact combination of water molecules that made the specific vortex would be virtually impossible to recreate. Each vortex, though similar, is not an exact copy of the other. Another case is the movement of heated fluid in a contained space. As the fluid is heated it begins to organise itself into cylindrical rolls, heated fluid rising on one side and cooling on the other (the process of convection). However, when more heat is added instability ensues and a wobble develops on the rolls. Add even more heat and the flow becomes wild and turbulent (Gleick, 1987: 25).

One of the most famous and simple examples of this type of fluid based complex systems is the Lorenzian Waterwheel. This is a wheel which pivots around a centrepoint and has hanging buckets at the wheel's rim. The buckets have holes in the bottom. Water is poured in from the top. If the flow of water is too low, the bucket will not fill, friction will not be overcome and the wheel will not move. Increase the flow, the buckets will fill and the wheel will spin in one direction or another. However, increase the flow to a certain point and the buckets wont have time to empty on their upward journey. This will cause the spin to slow down and even reverse at chaotic intervals. In this way, even a simple linear mechanical system can exhibit chaotic non-linear behaviour.

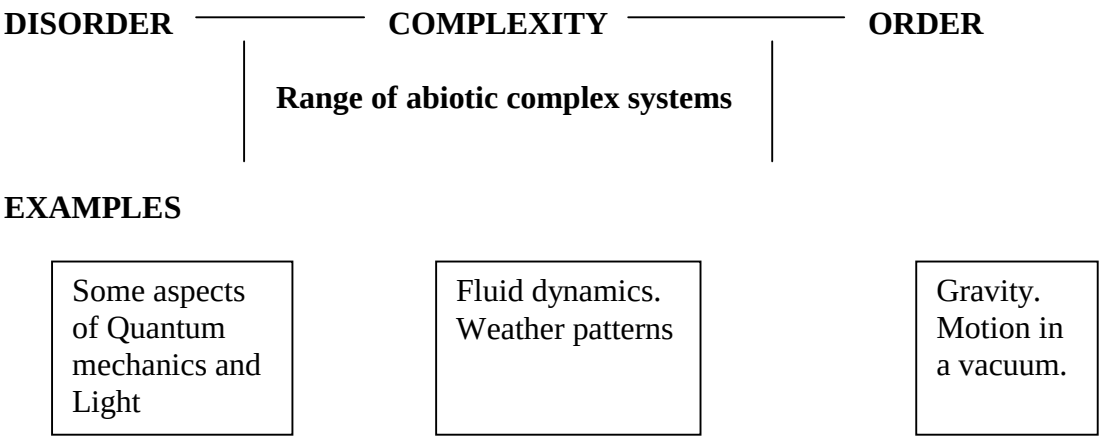
This systems approach led to the creation of a variety of definitions of Complex Systems. In the abiotic world these systems are described as being *complex*, because they have numerous internal elements, *dynamic*, because their global behaviour is governed by local interactions between the elements, and *dissipative*, because they have to consume energy to maintain stable global patterns. Abiotic complex systems obey fundamental physical laws, but not in the same way as orderly linear systems. For example, the second law of thermodynamics, the most fundamental law of nature, states that when a system is left alone it drifts steadily into disorder. The effects of the second law are plain to see. A deserted building, for instance, eventually turns into a pile of rubble. After a few centuries even the rubble disappears without a trace. Ultimately, a system cut off from the outside world will fall into a deathly state of equilibrium in

which change does not occur. For the complexity physicist Peter Allen, orderly equilibrium systems are "dead" systems (Allen, 2001).

Orderly linear systems are found at or near equilibrium. A ball bearing inside a bowl is a classic example; it quickly settles at the bottom and that is that. These systems can be very complicated. A jet engine is a wonderfully complicated piece of orderly machinery creating highly predictable physical outcomes that millions of pilots and passengers successfully depend upon every year. Complexity, by contrast, is exhibited by systems that are far from equilibrium. In this instance, the system has to exchange (dissipate) energy, or matter, with other systems in order to acquire and maintain self-organised stable patterns. That is the only option open to it to avoid falling into the destructive clutches of the second law of thermodynamics. The most dramatic illustration of that process is planet Earth. Without the nourishing rays of energy from the Sun, Earth would perish into complete equilibrium, and therefore nothingness. Continuous supply of energy from the Sun keeps the planet in a highly active state far from equilibrium. The energy is absorbed, dissipated and used to drive numerous local interactions that in total produce the stable pattern that we perceive as life on Earth. [vii]

Visualising the range of abiotic phenomena can be done in the following way.

Figure 3: The Range of Abiotic Phenomena in a Complexity Paradigm



Golden rules for abiotic systems in a complexity paradigm:

- *Partial Order*: phenomena can exhibit both orderly and chaotic behaviours.
- *Reductionism and Holism*: some phenomena are reducible others are not.
- *Predictability and Uncertainty*: phenomena can be partially modelled, predicted and controlled.
- *Probablistic*: there are general boundaries to most phenomena, but within these boundaries exact outcomes are uncertain.

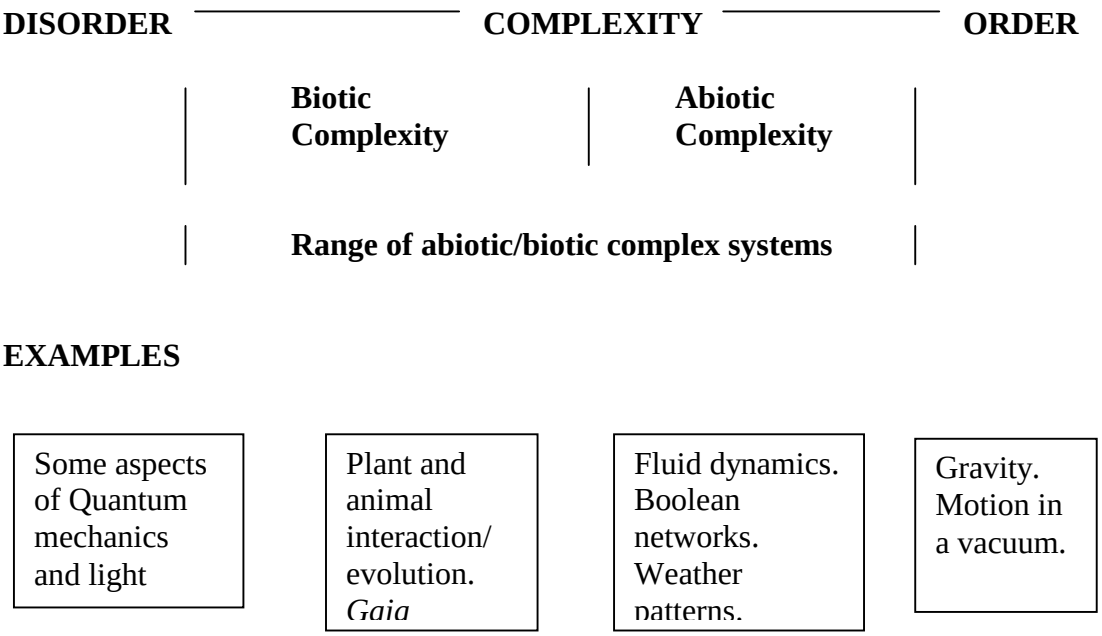
Complex systems in the biotic world

By the later half of the 20th century, with complexity already deeply penetrating the physical sciences, biologists, geneticists, environmentalists and physiologists also began to consider their respective disciplines within the context of complexity.[viii] Analysts in these fields set out to investigate the properties of systems, including human beings, comprised of a large number of internal parts that interacted locally in what looked like a state of anarchy that somehow managed to engender self-organised, stable and sustainable global order. These systems were not only complex, dynamic and dissipative, but also adaptive and display *emergent properties* or *emergence*.

In the words of Murray Gell-Man, a Nobel prize-winning physicist, "turbulent flow in a liquid is a complex system… But it doesn't produce a schema, a compression of information with which it can predict the environment" (Lewin, 1999: 15). Without that schema, non-biological systems cannot respond to their environments in anything other than orderly, disorderly or abiotically complex ways. The ability of biotic complex systems to adapt and evolve creates a whole new range of complex outcomes. Likewise, biological complex system are able to develop new emergent properties that may reshape the complex system as a whole and/or the sub-units that make up the system. As Coveney and Highfield argue: "Life is also an emergent property, one that arises when physiochemical systems are organized and interact in certain ways" (Coveney and Highfield: 1995: 330).

From this perspective a whole new range of biotic complex systems began to be studied. For example, S, Kauffman was one of the first to view the genetic code as an evolving complex system (Kauffmann 1993). Other concepts like autopoiesis, symbiosis and the *Gaia* system emerged to challenge the orderly framework in the biological sphere (Capra 1996, Fleischaker 1992, Lovelock 1972 and 1979, Margulis 1993). Due to the emergent nature of biological systems, the level of complexity can be significantly higher than those of abiotic phenomena and systems. Hence, on our simple scale of complexity biotic complexity is placed on the more disorderly side of the scale than biotic complexity.

FIGURE 4: The Range of Abiotic and Biotic Phenomena



Golden rules of biotic systems in a complexity paradigm:

- Partial Order: phenomena can exhibit both orderly and chaotic behaviours.
- Reductionism and Holism: some phenomena are reducible others are not.
- Predictability and Uncertainty: phenomena can be partially modelled, predicted and controlled.
- Probablistic: there are general boundaries to most phenomena, but within these boundaries exact outcomes are uncertain.
- Emergence: they exhibit elements of adaptation and emergence.

A simple example of a biotic complex system would be the evolution of a species or the interaction of a given plant or animal in a particular ecosystem. A fish in a small pond will evolve and interact with the various food sources (small plants and animals) in the pond to create a stable complex system (such as a stable total number of fish). However, if a change is introduced to the system, a new competitor or food source, the fish may adapt and alter the nature of the system in totally unforeseen ways. Over time, new emergent properties may evolve in the system and/or in the fish itself.

A larger example is that of the concept of *Gaia*. As summarised in Coveney and Highfield:

> *In 1968 James Lovelock upset gene-centered proponents of Darwin's views by arguing that the earth was not a ball of rock with a green layer of life on the surface. Biologists, following Darwin, see life adapting to its environment. The independently minded Lovelock viewed life and the environment as part of one superorganism in which creatures, rocks, air, and water interact in subtle ways to ensure that the environment remains stable… feedback mechanisms are invoked to explain the relative constancy of the climate, the surprisingly moderate levels of salt in the oceans, the constant level of oxygen over the past few hundred million years, and why life forms are so diverse. Like it or hate it, simply looking for Gaia can give new insights into the complex feedback systems that rule the planet* (Coveney and Highfield 1996: 234-5).

Orderly (Modernist) and Disorderly (Postmodernist) Social Science

The success of the orderly linear paradigm in the natural sciences had a profound effect on attitudes and practices in all sectors of human activity, spreading well beyond the disciplines embraced by the original scientific discoveries. The social sciences were no exception. Surrounded by the technological marvels of the industrial revolution which were founded on a Newtonian vision of an orderly, clockwork universe driven by observable and immutable laws, it did not take much of an intellectual leap to apply the lessons of the physical sciences to the social realm. The English philosopher Thomas Hobbes (1588-1678) used Newton's mechanistic vision

to shape an orderly society, a *Leviathan*, that would save it from chaos and civil war. The French economist Francois Quesnay (1694-1774) and the *physiocrates* modelled the economic system on a mechanical clock. The French mathematician, philosopher and revolutionary politician, Condorcet (1743-1794) wrote while imprisoned by the Committee of Public Safety:

> *The sole foundation for belief in the natural sciences is the idea that the general laws directing the phenomena of the universe, known or unknown, are necessary and constant. Why should this principle be any less true for the development of the intellectual and moral faculties of man than for other operations of nature?* (Wilson 1998: 21).

The famous British economist Adam Smith (1723-1790) claimed to have captured the laws of economic interaction while his follower, David Ricardo (1772-1823) believed that some economic laws were "as certain as the principles of gravitation"(Mainzer 1997: 264). Karl Marx (1818-1883) wedded his vision of class struggle to an analysis of the capitalist mode of production to create the "immutable" and deterministic laws of capitalist development. Academics in all the major fields of social science welcomed the new age of certainty and predictability with open arms. Economics, politics, sociology all became "sciences", desperate to duplicate the success of the natural sciences. Moreover, this desire was institutionalised through the development of modern universities that created and reinforced the disciplinarisation and professionalisation of the social sciences (Gulbenkian Commission 1996).

The high point of the linear paradigm was reached in the 1950s and 60s, particularly in universities in the United States. Strengthened by the success of planning programmes during WWII and the early post-war period, pressured by the growing Cold War, and lavishly funded by the expanding universities, American academics strived to demonstrate, and hence control, the presumedly rational nature of human interaction. This traditional Newtonian approach was clearly expressed in the modernisation theories of the Third World development, the realist vision of international relations, the behaviouralist writings of sociologists, the positivist foundations of liberal economics and the rational plans of public policy experts and urban planners.

Using the Newtonian frame of reference modern social scientists unjustifiably assumed that physical and social phenomena were primarily linear and therefore predictable. They, consequently, applied reductionist methods founded on the belief that stable relationships exist between causes and effects, such as the assumption that individual self-interest is an explanation and/or a model for national level self-interest. Furthermore, based on this linear thinking they assumed that society and social institutions had an "end-state" towards which they were evolving. Hence, economic interaction, democracy, fundamental social orders (communism, capitalism, development), etc. all had final stages towards which they were evolving. Nation-states, societies and even individuals could be positioned along this developmental pathway and policies could be devised to help them towards the next level.

The cultural embodiments of the orderly paradigm evolved in a variety of forms, ranging from Sherlock Holmes to *Star Trek*. Like a good linear social scientist, Holmes' "scientific" study of crime enables him to solve all cases and astound his observers. As Holmes tries to make clear to Watson, there is nothing special about his powers, they are just a matter of method and effort. A similar belief in human rational capabilities underlies *Star Trek*'s philosophy of "to boldly go where no man has gone before". In one episode from the 1960s series after the crew of the Enterprise have

solved a local planetary difficulty, one crewmember was concerned that the planet will revert to its former violent ways. The captain calmly responds that some "sociologists" will be sent down to the planet to make sure that the problem wont happen again. The parallels to US "advisors" in Vietnam or IMF/World Bank advisors in the Third World are all too obvious.

The remarkable dominance of the Newtonian frame of reference is brilliantly captured by a quotation from an early critic of the "scientific" approach in politics argued in 1962:

> *So deep and widespread is the belief, so eminent and able the believers in the value of the contemporary scientific study of politics, that there is not a little impatience with any attempt to question it… All of us who profess the study of politics are confronted with the prevailing scientific approach, no matter how practical our concern, how slight out interest in methodology, or how keen our desire to get on with the business of direct investigation* (Strong 1962: *v*).

The notable international success of Francis Fukuyama's book, *The End of History and the Last Man* (1993)[ix], which claimed that history had reached its endpoint, demonstrated the continued influence of the linear framework. As Figure 6 summarises, orderly social science rests on the same foundation as orderly natural science, treated human beings like orderly atomistic objects and drew similar orderly conclusions.

Figure 5: The Foundations of Orderly (modernist) Social Science

Theoretical basis:

- Order
- Reductionism
- Predictability
- Determinism

Ontological/Epistemological Expectations:

- Over time as human knowledge increases, phenomena will shift from the disorderly to the orderly side. *Social scientists are able to understand more and more about society and humanity.*

- Knowledge equals order. Hence, greater knowledge equals greater order. *Thus, history is progressive, leading to greater order.*

- With greater knowledge humans can increasingly predict and control more and more phenomena. *Those with greater knowledge can know more and thus should be in control.*

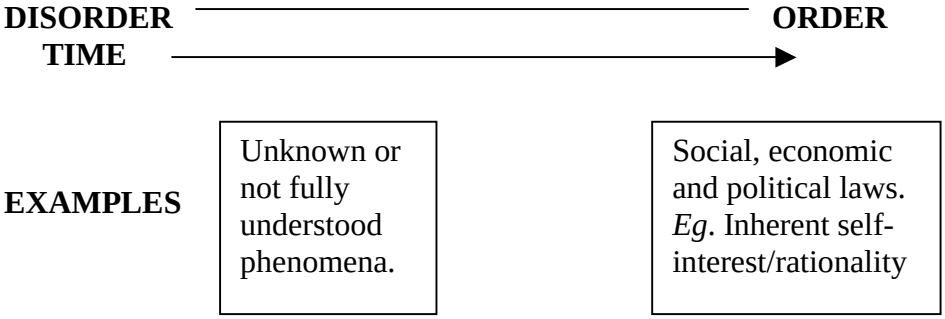
- There is an endpoint to phenomena and hence knowledge. *Once this endpoint is reached history stops and societal change comes to an end.*

- There is a hierarchy of scientific knowledge and methods with the orderly natural sciences at the zenith. Duplicating this knowledge and methods is the justification of orderly social science.

Methodological Implications:

- Researchers look for rational foundations to all phenomena.
- There are no inherent limits to human knowledge. The only constrains are effort and technology.
- Researchers can obtain predictable and repeatable experimental results
- Duplicating orderly natural science methods is the primary methodological strategy.
- The creation of universal and parsimonious social laws is the ultimate goal.

Range of outcomes for the Paradigm of Order



(Over time, social phenomena will move from disorder to order)

However, even at its peak countervailing tendencies in the social sciences survived. There is nothing new about questioning the fundamental order and rationality of human existence. Debates over theses issues are easily traced back to Plato and Aristotle.[x] A belief in the fundamentally rational and orderly nature of human existence only emerged in the Western philosophical tradition in the 17th and 18th centuries. Before this period, much of the human and physical world embraced unknowable mysteries that were cloaked in the enigmas of religion. During the 18th, 19th and 20th centuries, there continued to be a huge variety of potent critics of the mechanistic view and nature and society and of the limits of human rationality. In the late 18th century, the German scientist and philosopher, Immanuel Kant (1724-1804) argued that an organism, "cannot only be a machine, because a machine has only moving force; but an organism has an organising force… which cannot be explained by mechanical motion alone"[xi]. These arguments plus the work of Friedrich Schelling (1775-1854) who described an organic "science of living" and the writings of Goethe (1749-1832) who saw the mechanistic model of nature as "grey… like death… a ghost and without sun" (Mainzer 1997: 84) created the foundation of the German romantic philosophy of nature which rejected the mechanism of Newton. In the early 20th century, the hermeneutical tradition of Sigmund Freud (1865-1939) and Max Weber (1864-1920) challenged the belief in the human rational capabilities and the degree to which humans can understand and control their environment and societies. In the mid-20th century, the American philosopher John Dewey (1859-1952) was espousing his philosophy of pragmatism as a strategy for dealing with the limits of knowledge and uniqueness of human experience. In the 1960s the famous Austrian economist F. A. Hayek argued that: "in the field of complex phenomena the term 'law' as well as the concepts of cause and effect are not applicable" (Hayek 1967: 42).

By the 1970s, the influential French post-modernist philosopher Jean-Francois Lyotard, in *The Postmodern Condition: A Report on Knowledge* was arguing for an end to all "grand narratives" of Western society. Consequently, from the 1970s onwards as social scientists continually failed to capture the 'laws'[xii] of society and economic interaction and were continually frustrated over their inability to do so, they began to significantly question the Newtonian framework that underpinned political thinking on the left and right.

Out of this emerged the extremely diverse, but significant challenge of (disorderly) post-modern position in social science. As defined by Terry Eagleton:

> *Postmodernism… is a style of thought which is suspicious of classical notions of truth, reason, identity and objectivity, of the idea of universal progress or emancipation, of single frameworks, grand narratives or ultimate grounds of explanation. Against these Enlightenment norms, it sees the world as contingent, ungrounded, diverse, unstable, indeterminate, a set of disunified cultures or interpretations which breed a degree of scepticism about the objectivity of truth, history and norms, the givenness of natures and the coherence of identities* (Eagleton 1996: *vii*).

As excellently summarised by Colin Hay (2002), the postmodernist position stands in direct contrast to the traditional orderly (modernist) social science position. As we shall see this drove postmodernists towards a strong "anti-naturalist" (opposed to linking the natural and social sciences) position, seeing the study of society and humans as something entirely distinct from the study of nature and the physical world.

Figure 6: The Foundations of Disorderly (Postmodern) Social Science [xiii]

Ontological Position

- The world is relational and experienced differently
- Such experiences are culturally and temporally specific
- Such experiences are singular and unique
- They are neither linked by, nor expression of, generic processes

Epistemological Position (Radical scepticism)

- Different subject-positions inform different knowledge-claims
- Knowledge is perspectival and different perspectives are incommensurate.
- Truth claims cannot be adjudicated empirically
- The assertion of truth claims are dogmatic and potentially totalitarian

Methodological Position (Deconstruction)

- Undermine strong knowledge claims.
- Undermine modernist assumption of a privileged access to reality that is untenable and potentially totalitarian in its effects
- Use deconstructivist techniques to disrupt modernist meta-narratives, drawing attention to otherwise marginalized 'others'.

Range of Outcomes for the post-modernist Paradigm of Contested Order (Disorder)

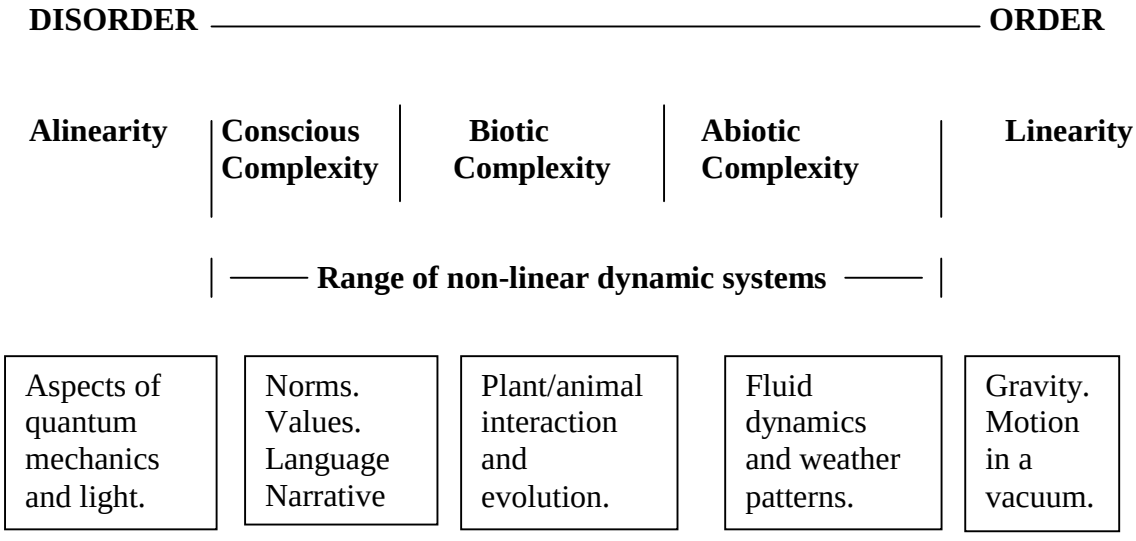
- Multiple contested relational "orders" which rise and fall over time, but have no developmental path or direction.

It is important to note that postmodernism, by its own disorderly nature, has never been as structured and coherent as the modernist paradigm. Moreover, postmodernists anti-naturalist tendencies have generally kept them at arms-length from the natural and physical sciences. Hence, the postmodernist critique has mainly occurred within the social sciences. Despite these limitations it has had a profound impact on the social sciences forcing many in such diverse fields as international relations, political science and sociology to address its fundamentally disorderly and irrationalist arguments. In general, however, other fields, particularly economics, have held on tightly to the linear Newtonian framework, while others drifted towards a middling position between the extremes of a strictly scientific Newtonian framework and the fundamentally irrationalist reflectivist one.[xiv] It is this division and debate that has led the social sciences to the threshold of a 'scientific revolution' that could shift them into a complexity paradigm.

Complexity and Social Science

The next question to ask is, how do human beings fit into the complexity paradigm? They are an obvious symbiotic part of the complex web of their physical and biological surroundings. Nevertheless, what makes them distinct from this environment? There most fundamental difference is consciousness. The ability to ask “who am I?”, “How did I get here?”, “What does life mean?”. This ability to be self-aware, to understand aspects of the world around them, be aware of their history and to evolve interpretations of themselves, their surroundings and their history makes human beings fundamentally different from all other life forms and physical phenomena. However, this interpretive ability does not produce orderly interpretations. The uniqueness of individual human experience combined with multitudinous possibilities of collective human interaction and the evolutionary nature of human society produce a very high degree of complex interpretive outcomes. Therefore, conscious interpretive outcomes (norms, values, historical interpretation) must be positioned on the more disorderly side of our complexity scale. This does not imply that there are no universal norms, values or interpretations. For example, a prohibition against murder is a common societal trait. However, the definition of murder, the mitigating circumstances that could surround it and the punishment for the act all vary widely over time and between different societies and cultures. The position of conscious phenomena is outlined in Figure 7.

Figure 7: The Range of Abiotic, Biotic and Conscious Phenomena



Golden rules of conscious systems in a complexity paradigm:

- *Partial Order*: phenomena can exhibit both orderly and chaotic behaviours.
- *Reductionism and Holism*: some phenomena are reducible others are not.
- *Predictability and Uncertainty*: phenomena can be partially modelled, predicted and controlled.
- *Probablistic*: there are general boundaries to most phenomena, but within these boundaries exact outcomes are uncertain.
- *Emergence*: they exhibit elements of adaptation and emergence.
- *Interpretation*: the actors in the system can be aware of themselves, the system and their history and may strive to interpret and direct themselves and the system.

Complexity theory does not disprove the rationalist paradigm or its antithesis (postmodernism), but acts like a synthesis or bridge between the naturalism of rationalism and the anti-naturalism of postmodernism and creates a new framework which bridges the two opposing positions. Both orderly modernism and disorderly postmodernism are equally flawed. Both assume that humanity and its relationship to the natural are inherently orderly or disorderly when in reality they are both. This bridging position is summarised in the following table.

TABLE 1: Summary of fundamental positions of Modern, Complexity and Postmodern Science

Modern	**Complexity**	**Postmodern**
Epistemological position:		
Order	Partial order	Relational
Rationality	Bounded rationality	Relational rationality
Predictability	Predictability and uncertainty	Unpredictable
Reductionism	Reductionism and holism	Irreducible
Determinism	Probablistic and emergent	indeterminate
Non-interpretive	Interpretive	Relational interpretation
Relation of physical and social sciences:		

Subservient/inferiority relationship. Social science must strive to duplicate methods and results of physical science.	Integrative relationship. No necessary separation between physical and social sciences.	No clear relationship exists. Relational and interpretative nature of humanity makes clear relationship difficult.

Relation of humanity to nature:

Expanding human dominance over nature	Holistic interpretation of human and natural symbiotic co-evolution	Unclear relational distinction between humans and nature

Methodological implications:

Experimentation, quantification and search for fundamental laws	Integration of experiment-ation and interpretation. Fundamental laws and distinctive outcomes	Relational interpretations and undermining truth claims

Vision of Progress:

There are no inherent limits to human knowledge and progress.	Significant limits to knowledge and progress due to complexity and uncertainty.	No fundamental order. Pure knowledge creation and progress is impossible to know.
History is progressive, cumulative, and leads to an ultimate end.	History may progress and display fundamental patterns, but it is also uncertain and tortuous	History is relational hence it does not universally progress.

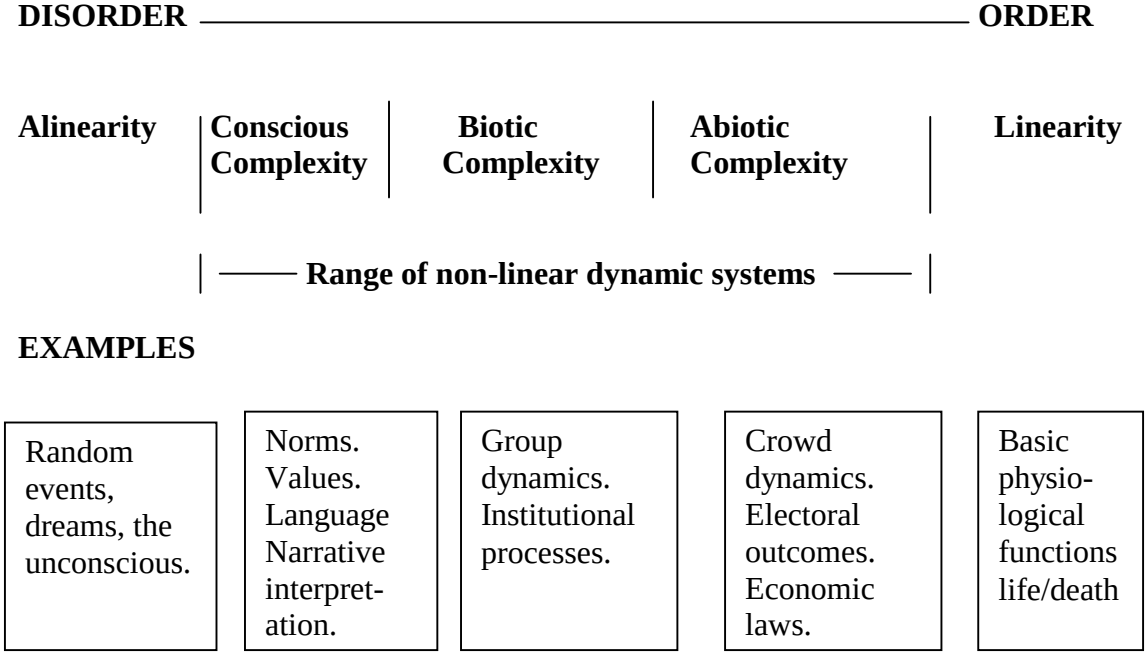
More importantly, for the social sciences if one accepts a complexity framework then one must abandon the rigid divisions and certainties of both modern and postmodern science and recognise the integrative nature of the physical and social sciences. Complexity theory argues that physical and social reality is composed of a wide range of interacting orderly, complex and disorderly phenomena. One can focus on different aspects, orderly (gravity or basic aspects of existence: life/death), complex (species evolution or institutional development) or disorderly (random chance or irrationality) but that does not mean that the others do not exist. Consequently, complexity theory demands a broad and open-minded approach to epistemological positions and methodological strategies without universalising particular positions or strategies. As Richardson and Cilliers argued:

> *If we allow different methods, we should allow them without granting a higher status to some of them. Thus, we need both mathematical equations and narrative descriptions. Perhaps one is more appropriate than the other under certain circumstances, but one should not be seen as more scientific than the other* (Richardson and Cilliers 2001: 12).

These conclusions, "bridge the old divide between the two worlds (of natural and human sciences) without privileging the one above the other" (Richardson and Cilliers 2001: 11).

A strategy for conceptualising the integrative nature of complexity is to look at how all types of complexity dynamics are reflected in the human condition. For example, using Figure 7 as a template we can produce an overview of the range of complexity dynamics of human phenomena. The key point to recognise is that there are both orderly and disorderly dynamics and that they are not hierarchically organised. A given human outcome, a decision to have coffee at breakfast or bomb a particular village, could be based on orderly, complex and disorderly dynamics with all being equally essential to the final outcome.

Figure 8: The Range of Complexity Dynamics in Human Phenomena



Beginning with linearity, the most fundamental and universalistic elements of human complexity are basic physiological functioning, in particular life and death. These physical boundaries and requirements, carbon based life forms requiring air, water and food to survive and reproduce, are the most orderly aspects of human existence. Deprived of these fundamentals, a human will die. What could be more orderly?

Moving into the range of complex systems, examples of mechanistic complexity in human systems would involve situations where individuals were forced to act in a mechanistic fashion. Traffic dynamics, choosing one road or another, crowd dynamics, choosing one exit or another and electoral outcomes, choosing one candidate or another are all examples of mechanical complex systems. Like mechanical complex system, relatively simple and stable patterns will emerge. However, this is no guarantee that these patterns will be continuously stable (traffic jams, crowd delays, landslide elections) nor is it possible to perfectly recreate the exact conditions of these events at a later time. The golden rules of abiotic complex systems apply.

Examples of organic complex systems in the human world can easily been seen in the organisational dynamics of economic and social institutions. As demonstrated by the huge growth in management and complexity literature, a

business is a complex system that interacts with a larger complex environment (the market) that is very similar to the earlier model of a fish in a pond. General patterns emerge and the business is able to adapt to changes in its environment, but exact predictions and explanations of how a change in the environment will affect the business or the best strategies for the business to survive in the altered environment are impossible to know in advance.

An added layer of complexity in the human condition is its faculty of consciousness. Human beings create signs, symbols, myths, narratives and discourse in order to understand, control and exchange information about their surroundings. This ability adds another layer of complexity onto the human condition that is distinctive from the natural world. Examples of this conscious complexity include the creation of language, norms and values, and discourse and can be taken from virtually any type of human verbal interaction. A seemingly simple student-teacher relationship can be layered in historically, culturally and personally specific aspects that would be impossible to recreate in a different time and place.

Lastly, like the natural world, alinear human phenomena are nearly impossible to explain using examples since they are without a pattern and would have to be completely random. The closest common human experiences that readily come to mind would be the chaotic nature of dreams and the unconscious, random effects of certain disorders on the complex functioning of the brain and the phenomena of luck.

How can all of these dynamics be combined to explain a human phenomena? Let us begin with the phenomena of going to a shop to get a cup of coffee. I have a basic human need for water and nutrition that is very orderly and highly predictable. This is combined in the case of the coffee with the desire for a mildly addictive stimulant. As I leave my home to walk to the coffee shop, I immediately encounter crowd dynamics that may speed or impede my progress to the shops. When I reach my favourite coffee shop, I see that a new coffee shop is open on the opposite corner of the street competing for my business. These shops are engaged in the complex biotic process of competition. In a process of conscious complexity, I am enticed to enter the new shop by its pleasant name, *Vic's Coffee Shop*, which reminds me of my childhood. As I enter the shop a woman is leaving with a cup of coffee. I open the door for her and say "good morning". As she turns to thank me a fly randomly lands on her face, blown there by a turbulent gust of wind from a passing bus. She has a dreadful fear of insects from the stories her grandmother used to tell her as a child and immediately flinches from the touch of the fly. The coffee spills, mostly on my pants. I return, change my pants and make a cup of coffee for myself at home. The point of detailing my pursuit of coffee is to demonstrate the remarkable linear, complex and alinear processes that are the foundation of most commonplace events in human existence.

But what if the stakes are higher, when lives are at stake? Does complexity still apply? In 1971 Graham Allison, a leading Professor of Political Science at Harvard University, wrote *The Essence of Decision*, one of the greatest English language books in International Relations and the best book on the Cuban missile crisis. The basic story is well known. In 1962, responding to the deployment of US nuclear missiles in Turkey, the USSR began secretly deploying missile bases in Cuba. The bases were discovered and a blockade imposed on Cuba. The USSR challenged the blockade and threatened nuclear war, but eventually backed down dismantling the bases in Cuba. On the surface this would seem to be a simple game of threat and counter-threat that luckily for the lives of 100s of millions it did not go wrong. At one level this is correct. On the other hand, as Allison brilliantly demonstrated several

different political and bureaucratic dynamics both between and within the USSR and USA were going on at the same time. Seemingly rational and irrational strategies emerge from the interplay of these dynamics. For example, when the Soviets were building the missile bases, they built them out in the open and in the same pattern as their bases in the USSR, making them easy to detect by US spyplanes, a clear strategic blunder. This was not caused by military stupidity or poor implementation, but caused by the centralised control over Soviet military engineers. The engineers were told to build missile bases in Cuba. They had a model from the USSR, in the open and in a certain pattern and they did as they were told. On the US side, the decision to form of naval blockade to stop the Soviets shipping the missiles to Cuba was fraught with military, bureaucratic and personal rivalries. In the end it may have come down to President Kennedy's personal naval experience that led him to choose a naval option. Overall, as Allison points out, these different dynamics could explain parts of the crisis, but none explained all of it. As President John F. Kennedy said after the crisis:

> *The essence of ultimate decision remains impenetrable to the observer – often, indeed, to the decider himself… There will always be the dark and tangled stretches in the decision-making process – mysterious even to those who may be most intimately involved* (Allison 1971: vi).

Debates in Complexity Science

Not surprisingly, due to its growing popularity, evolution as a "New Age selling feature" (Thrift 1999) and, most importantly, the breadth of its macro- and meta-theoretical implications, complexity theory generates a significant variation in theoretical interpretations.[xv] Detailing these differences is clearly beyond the boundaries of this chapter. However, understanding the difference between modernist and postmodernist interpretations of complexity is important since it will have direct relevance to later applications.

For some, complexity is a strategy for going beyond a linear paradigm, but maintaining a modernist and progressive vision. In one of the major books on complexity and the social sciences, Daivd Byrne, claiming to follow in the footsteps of the scientific realism of the philosopher Roy Bhaskar (Bhaskar 1986), argued that while "positivism was dead… and starting to smell" (Byrne 1998: 37) and the relativism of postmodernism was "bone idleness promoted to a metatheoretical programme" (Byrne 1998: 45):

> Complexity/chaos offers the possibility of an engaged science not founded in pride, in the assertion of an absolute knowledge as the basis for social programmes, but rather in a humility about the complexity of the world coupled with a hopeful belief in the potential of human beings for doing something about it (Byrne 1998: 45).

Moreover, for Byrne, 'complexity accounts are foundationalist [can provide a foundation for further knowledge], although they are absolutely not reductionist and positivist… (and) are surely part of the modernist programme' (Byrne 1998: 35).

For others, in particular Paul Cilliers, complexity is best understood by postmodernists, particularly those working in the tradition of Derrida and Lyotard, because their theories 'have an implicit sensitivity for the complexity of the phenomena they deal with'(Cilliers 1998: *iix*). Cilliers certainly agrees with Byrne that complexity is non-reductionist and anti-positivist, but stresses that:

> Claiming that self-organisation is an important property of complex systems is to argue against foundationalism. The dynamic nature of self-organisation,

> where the structure of the system is continuously transformed through the interaction of contingent, external factors and historical, internal factors, cannot be explained by resorting to a single origin or to an immutable principle… self-organisation provides the mechanism whereby complex structure can evolve without having to postulate first beginnings… It is exactly in this sense that postmodern theory contributes to our understanding of complex self-organising systems (Cilliers 1998: 106).

Generally, both authors have much in common. They both see the complexity framework as a challenge to linearity and reductionism. They both reject the relativism of some strands of postmodernism and argue that formal modelling is still possible, though significantly restrained under a complexity framework.

There differences are primarily those of degree and allegiances to certain theoretical traditions, but are important. For Byrne, coming from a more modernist orientation, complex systems theory represents a type of progress. In essence, more phenomena can be understood which enables individuals and state actors to exert more control over their lives and societies. For Cilliers, with a more postmodern orientation, complexity theory emphasises the uncertain and contingent and thus may expand our understanding, but cannot constitute a foundation for pure knowledge and hence be a gauge for progress. These differences are due to the level of complexity theory that one concentrates on. At its meso/macro theoretical level, complexity theory provides new tools for understanding these systems, hence it does seem progressive. At the same time, at the meta-theoretical level, it stresses that there are always orderly, complex and disorderly phenomena. Although one may be able to develop new ways and systems for understanding orderly and complex phenomena, there is always uncertainty and contingency in complex phenomena and the uncharted realm of disorder. Hence, it can appear as both foundationalist and anti-foundationalist.

Lastly, although neither Byrne nor Cilliers explicitly discuss it, complexity has obvious implications for both naturalists and anti-naturalists (those who support and oppose the use of physical science theories and methods in the social sciences). Again, drawing on critical realism and the ‘non-positivist’ or ‘critical’ naturalism Bhaskar, both try to use complexity as a bridge to link the natural and social sciences. Both want to break down the barriers between the major fields of knowledge, mirroring the conclusions of the Gulbenkian Commission, but neither wants to impose a new unifying ‘scientific’ law on the social realm. In essence, they want to open up the sciences, ‘not only towards the world, but also internally. The barriers between the various scientific disciplines need to be crossed’ (Cilliers 1998: 127). In this sense, complexity theory is a direct challenge to strong naturalists and anti-naturalists who argue for the complete dominance or distinctiveness of one type of science over or from another, or who reject the possibility of some types of generalisable scientific knowledge.

A Question of Method

As mentioned above, complexity implies methodological pluralism. However, this does not mean that all methodological strategies are appropriate for all phenomena. Linear, reductionist, quantitative and predictive methods can be more applicable to certain social phenomena and less so to others. This goes for non-linear methods as well. An excellent way for visually conceptualising this constrained methodological pluralism was created by David Harvey and Michael Reed. Building

on the work of Kenneth Boulding (1968) and Neil Smelser (1963) they created a hierarchy of ontological complexity in social systems. By combining this on a matrix with a liner layout of levels of modelling abstraction, more linear (left) to less linear (right) they produced the following Figure.

Levels of Complexity in Social Phenomena	Levels of Modelling Abstraction (From left to right, moving from more prediction to greater description)

	Predictive Modelling	Statistical Modelling	Ideal Type Modelling	Historical Narratives	Deconstructive Techniques
Alinear				X	X
Conscious complexity			X	X	X
Biotic Complexity		X	X	X	
Abiotic Complexity	X	X	X		
Linear	X	X			

Figure 10. Demonstrates the general range of fit between the level of complexity in social phenomena and the general range of methodological strategies (Keil and Elliot 1997: 307).[xvi]

One could certainly quibble over the exact divisions of ontological complexity or whether more methods could be added to the left or right of the levels of modelling. Nevertheless, the underlying principle that only extremely orderly or disorderly phenomena can be explored with one or a few methodological strategies while the vast range of complex social phenomena require a fuller panoply of methodological strategies undermines hierarchical assumptions about methodologies and rejects a radical relativist positions as well.

As briefly discussed in the introduction to this book, the case studies will rely heavily on institutional and historical narratives combined with comparative ideal-type modelling. This does not preclude more statistical and predictive modelling for the more linear aspects of the EU-UK welfare state relationship. In fact, many of complexity's most exciting discoveries and biggest claims come from its potential in the field of computer modelling. Detailed discussions and descriptions of these modelling techniques are readily available and are increasingly being explored by a growing range of social scientists[xvii]. However, it is beyond the range of this book and will have to be dealt with by others.

Complexity and the Politics of Order

Why is the complexity framework so radical and important? The Newtonian paradigm had much to commend it. It helped to lift the miasma of religious interpretation from the eyes of Renaissance thinkers. It fired the desire of countless academic, scientists and philosophers to "to strive, to seek, to find and not to yield"[xviii] and was the foundation of the industrial revolution. Its fundamental weakness was its arrogance. For a Newtonian thinker, with the complete knowledge of nature and humanity, they could be gods and create heaven on Earth. By the 20th century, flushed with the heady success of mechanistic and industrial achievement and the growing power and capabilities of the state, no problem seemed beyond the grasp of humanity. Social scientists merely wedded this orderly vision and arrogance to the social realm and produced the fundamental visions of social order, communism and capitalism, which structured the history of the 20th century. Many had the best of intentions, hoping to make the world of better place for all time, the final order. That these visions led to the extreme forms of human suffering and environmental degradation in large parts of the globe was certainly a setback for their dreams and the Newtonian framework.

In the EU-UK context, as we will argue later, much of the UK debate surrounding the EU and its policies is shaped by an implicit orderly Newtonian framework. Anti-Europeans are often complaining that the EU is too disorderly, messy and/or incoherent to function as a true state. This implies that there is a set form or endpoint that the EU must reach if it is ever to become legitimate. Interestingly, this is the same type of mental framework that shapes the thinking of pro-Europeans within the UK. For them, if the EU does not obtain certain powers or structures it will be left "unfinished". From a complexity perspective, the EU is an evolving process that has a stable fundamental framework but is open enough to allow for a vast range of distinctive local interactions and developments. The very messiness of the EU is one of its major hidden strengths.

Does this mean the end of progress? Are we back to Nietzscheian nihilism or Heideggerian fatalism in the face of forces beyond our control? Complexity is clearly focused on attacking the cult of order. However, complexity is an equal challenge to the cult of disorder. That human beings cannot be gods, that we live in a symbiotic relationship with each other and nature and that we do not have complete control over our lives and hence complete freedom does not imply failure and apathy. As a leading complexity thinker, Klaus Mainzer, put it:

> *The complex system approach cannot explain to us **wha**t life is. But it can show us **how** complex and sensitive life is. Thus it can help us to become aware of the value of our life* (Mainzer 1997: 325).

Reverting to apathy will not solve our problems and may easily lead our complex human system into a more negative "attractor state". The need to respond to the threat of global warming immediately springs to mind. In essence, apathy is just as blind as a desperate attempt to find the new, new order or to buttress and defend an existing one. The problem with both the orderist and disorderist positions is that they refuse to recognise the complex and uncertain reality that surrounds them. That it is uncertain does not mean it cannot progress, but it will not progress in a clear path. In some ways a disorderist position is as arrogant as an orderist position, both know the future. One is desperate to make the present squeeze into a given future. The other is unwilling to do anything about the present because it is already heading to a given future.

Once one abandons the arrogance of order and disorder and accepts the humbling limits of knowledge and uncertain potential which complexity implies then a new politics emerges: a politics of uncertainty, but also of openness, of mistakes and learning, of failure and adaptation. Exploring this new politics in the context of the EU-UK relationship is what this book is all about. However, before we can begin this exploration, we need to explore how complexity theory relates to and reinterprets European integration and UK welfare state theory.

European Integration, The British Welfare State and the Problem (and Implications) of Complexity

During one of our many trips to London to interview governmental actors for this book we had an eye opening experience. It was early in the morning and we were meeting with a high level civil servant in the Department of Education and Employment. She was very pleasant (as most were) and listened politely as we presented our project and the parameters of the interview. Before we had a chance to ask our first question she blurted out, "As soon as you understand the larger relationship, you let me know. We have a grip on our particular area, but beyond that we have no idea". It was a sentiment that was echoed throughout our interviews with governmental and non-governmental actors. It reflected not only the specialisation of one particular departmental actor, but also the much larger problem of interdependence and complexity that confronts public actors.

In this chapter we will argue that this problem of interdependence and complexity runs much deeper than most social scientists are willing to admit. As we will demonstrate, early post-WWII models and theories of European integration and the welfare state rested on the assumptions of the fundamentally orderly and rational nature of human beings and society. From the 1970s onwards, with the failure of linear social science to capture the fundamental laws of human development, growing level of international-national human interaction and impact of post-modernist theories and interpretations, social scientists began to look for ways of understanding and dealing with the problem of complexity. Some attempted to reassert different types of orderly frameworks. Others drifted towards the irrationalism of post-modernism and constructivism. Meanwhile, others drifted towards a messy mixture of bounded rationalism and uncertainty. It is this condition of intellectual pluralism that opens the door to complexity theory.

EUROPEAN INTEGRATION AND THE PROBLEM OF COMPLEXITY

Complexity has always been a problem for those trying to understand the dynamics of Europeanisation and European integration. From the 1970s when Ernst Haas admitted that one should see the EU as composed "of infinitely tiered multiple loyalties" (Haas, 1970: 635) and Donald Puchala complained that integration researchers were like blind men describing an elephant (Puchala, 1972), to the present

where Wolfgang Streeck described the EU as "a collection of overlapping functionally specific arrangements for mutual coordination among varying sets of participating countries" (Streeck, 1996: 70), and Philip Schmitter tried to describe it as a "post-national, unsovereign, polycentric, non-coterminus, neo-medieval arrangement" (Schmitter, 1996: 26), complexity has challenged the integration theorist. This recognition of complexity is a core element of the two most influential current approaches to integration: historical institutionalism and multi-level governance. Its influence is so profound that researchers are loath to make larger theoretical propositions and conjectures and continually focus downwards on particular parts of the EU.

Before discussing complexity and Europeanisation directly it is necessary to briefly review the growing theoretical diversification and recognition of complexity in the major theories which surround it: international relations and integration theory and in the concept of globalisation.

International Relations: the growth of theoretical diversity and recognition of complexity

As is well known, international relations (IR) theory in the early post-WWII period was dominated by the theory of realism (Morgenthau 1973, Waltz 1979). Realism assumed that nation-states were the primary units at the international level, they were rational utility-maximisers and the international level was an amoral anarchical arena where nation-states competed against one another for economic, political and military advantage. In essence, the system had a clear unchanging order (states in anarchy) which unsurprisingly reflected the experience of the Cold War. Given these assumptions, the international system could be understood from a positivist epistemological and methodological perspective. Nation-states were like balls in motion on a pool table and their behaviour and capabilities were assumed conformed to Newton's laws of motion. They could be rationally calculated and predicted and would tend towards equilibrium (the "balance of power" concept).

By the 1970s with the collapse of the Bretton Woods economic system, growth of transnational corporations and cooling of the Cold war, interdependence or regime theorists began to emerge (Keohane and Nye 1977, Krasner 1983). They stressed that the international system was not wholly anarchical, international actors had emerged and were increasingly important and the actions and interests of national actors could be reshaped by the "web of interdependence" or "regimes". These theorists often tried to adhere to the positivist tradition. However, the "bounded rationality" of the main actors, the growing number and complexity of the key actors and the uncertain developments made a strict adherence to this tradition increasingly difficult. The international arena could no longer be understood as uniformly orderly and therefore analysed through purely reductionist and parsimonious strategies.

In the 1980s and 1990s both realists and interdependence/regime theorists were criticised by reflectivist theories. These theories incorporate a broad range of perpectives from critical theory and feminism, to postmodernism and post-strucutralism (Ashley 1986, Checkel 1998 and Walker 1993). Reflectivists emphasised that much of international relations (and realism in particular) were ideological constructs created by the dominant powers in the international system. Neither the actors nor the system were inherently rational and what was deemed to be rational in one time or context may vary in another time or context. Many reflectivists adopted anti-naturalist and anti-foundationalist positions, arguing that human experience was inherently distinctive from natural phenomena and that there could be

no certain epistemological foundations for claims to fundamental human truths. Reality was what one made of it.

From the early 1990s, constructivists (Adler 1997; Onuf 1989; Wendt 1999) attempted to "build a bridge between these two traditions" (Wendt 1992: 394) by emphasising ontological and epistemological openness. Not surprisingly, despite these bridge-building efforts both rationalists and reflectivists have continued to exclude and ignore each other while clinging to the certainty of their orderly or disorderly ontological/epistemological claims. For example, rationalists attempted to co-opt constructivism by arguing that, "rationalism… and constructivism now provide the major points of contestation for international relations scholarship" (Katzenstein *et al.* 1998: 646) and exclude reflectivism by stressing that:

> *(it) denies… the use of evidence to adjudicate between truth claims… (it) falls clearly outside of the social science enterprise, and in IR research it risks becoming self-referential and disengaged from the world, protests to the contrary notwithstanding* (Katzenstein *et al.*1998: 678).

On the other side, reflectivists have complained that social constructivism goes too far in a rationalist direction, accepting many of the major constructs such as the primacy of nation-states and drifting towards a positivist methodology (Smith 2001). Thus, despite good intentions is the bridge-building strategy of constructivism appears to have stalled.

The short rise and fall of "hard" globalisation

Out of this complex theoretical debate emerged the real and perceived impact of globalisation. Emerging out of the rapid development of international capital markets in the 1970s, 80s and 90s, the revival of neo-liberal economic policy in the USA and UK (Reagan and Thatcher "revolutions"), and the economic difficulties following the collapse of the Bretton Woods system, globalisation was seen as a new hegemonic economic force which would empower capital, undermine state powers, and force all advanced industrial countries (let alone 3rd world countries) to pursue neo-liberal economic policies, abandon welfare states and create a destructive competition between national social and environmental systems of regulation (Ohmae 1990 and 1995). However, as political and academic debates raged in the 1990s, it became increasingly obvious that the impact and development of globalisation was more complex that the early thinkers/ideologues had assumed. Summarised nicely in the work of Paul Hirst and Grahame Thompson (Hirst and Thompson 1996), observers began to note that despite growing economic regionalisation within the 1st world, the 3rd world was being left out of the process. Despite greater capital mobility and the internationalisation of production, general trade flows and patterns remained remarkably stable. Despite the collapse of traditional Keynesian fiscal policy, active monetary, regional, and labour market policies remained viable. Finally, despite significant pressures on taxation levels and welfare regimes in advanced industrial states, taxation levels had remained remarkably stable (Swank, 1998) and welfare state expenditure had actually grown slightly during the period (Hay 2001). Not surprisingly, given this growing body of "limited globalisation", the focus began to shift from seeing globalisation as a hard "hegemonic force" to a softer "interactive influence" on national systems (Axtmann 1998, Prakash and Hart 1999, Sykes, Palier and Prior 2001) . By the end of the 1990s, globalisation became much more uncertain, variable, complex and interdependent.

European Integration Theory: From simple to complex interaction

European integration (EI) theory mirrored much of the post-WWII development of IR theory (Chryssocyoou 2001, Rosamond 2000). In the 1950s and 60s, the core European integration debate involved intergovernmentalists, who saw the EU as an intergovernmental extension of a fundamentally realist international order, and functionalists/neo-functionalists, who saw the early EU as possessing the ability to functionally reshape the realist international order (at least within Western Europe). During these years debates raged over the degree to which early EU policy developments were determined by intergovernmental bargains or functional spillover. The fates of the theories were tied to the success or failure of the integration process. When it succeeded, neo-functionalists boasted. When it faltered, intergovernmentalists exulted.

Following a period of stagnation in the 1970s, when many integration theorists drifted to other areas of research, integration theory revived in the 1980s and 1990s with the revival of integration through the Single European Market project. New theories, linked to the earlier ones, began to recognise the more complex and uncertain nature of European integration (Taylor 1983). Andrew Moravcsik carried the torch for intergovermentalists. However, even his concept of liberal intergovernmentalism recognised the importance of complex institutional dynamics (Moravcsik 1993). Others (Tranholm-Mikkelsen 1991) held on to a modified neo-functionalism. Both theories were brought together by multi-level governance theorists (Hooghe and Marks 2001) who argued that the EU was composed of, "overlapping competencies of among multiple levels of governments and the interaction of political actors across those levels" (Marks, Nielsen, Ray and Salk 1996: 41).

Despite this increasing recognition of complexity, or because of it, reflectivist and constructivist works came late to EI theory, only beginning to emerge in the late 1990s (Christiansen *et al*. 2001; Checkel 1998 and 1999; Diez 1999; Jørgensen 1997). Again, similar to the experience in IR theory, constructivists saw themselves as "establishing a middle ground" (Christiansen *et al*. 2001: 8) between rationalist and reflectivist paradigms. Unsurprisingly, they came under fire from both sides of the debate. On the one hand, reflectivists complained that it was:

> *Far more 'rationalist' in character than 'reflectivist'; indeed I would go so far as to say that social constructivism in its dominant (mainly North American) form is very close to the neo-liberalist wing of the rationalist paradigm* (Smith 2001a: 191).

On the other hand, rationalists argued that:

> *All this (philosophical speculation) distracts constructivists from the only element truly essential to social science: the vulnerability of conjectures to some sore of empirical disconfirmation* (Moravcsik 2001: 186).

Moreover, Mark Pollack, echoing the conclusions of Katzenstein *et al.* (1998) in IR theory, argued that EI theory must accept "broader ontologies", but:

> *we must necessarily fall back on careful empirical testing… as the ultimate, and indeed the only, standard of what constitutes 'good work' and what constitutes support for one approach or another* (Pollack 2001: 236).

Just like IR, EI theory was divided into two opposing poles and a struggling bridging strategy.

Europeanisation: the baby brother of globalisation

Europeanisation as a marketable academic concept emerged on the back of the aforementioned success of European integration and impact of globalisation in the 1990s. For many, particularly in the early 1990s, it became the regional extension of the globalisation debate. As Gamble notes, "it is most widely understood as the penetration of the European dimension into the national arena", but after this rather straightforward assertion, "the agreement tends to stop" (Gamble 2001). In the context of welfare issues, since the international economy was globalising and putting pressure on national welfare states, the EU had to either embrace and enhance this development or build walls to protect the distinctive importance of "Social Europe". These debates were particularly visible in the areas of EU social policy and European welfare state research (Geyer 2000, Leibfried and Pierson 1995, Rhodes 1996).

However, again similar to the fate of globalisation, Europeanisation became a much more subtle, complex and interactive concept as the 1990s progressed. Despite the growing influence of the EU in a multitude of policy areas, national policy regimes remained remarkably distinctive. The research focus began to shift from how Europe was shaping national policy regimes to how national regimes were interacting with and adjusting to EU developments. Numerous nationally and comparatively oriented works began to emerge to explore this detailed interaction (Bonoli *et al*. 2000, Cowles *et al*. 2001, Ferrera and Rhodes 2000 Esping-Andersen 1996, Knill 2001, Leibfried and Obinger 2000 and Sykes *et al*. 2001).

One of the most comprehensive and systematic of these works was developed by Claudio Radaelli (2001). He argued that there were at least four possible national outcomes to the processes of Europeanisation:

- Inertia: where no change occurs at the national level.
- Adaptation/Absorption: where EU policy is absorbed by the national level, thus implying some degree of domestic policy change as a result of European level impulses.
- Transformation: where EU developments induce a fundamental shift in the existing national policy framework.
- Retrenchment: where national policy approaches are augmented by European dynamics.

Moreover, these outcomes were caused by a variable combination of "vertical" and "horizontal" Europeanisation. Vertical forces include 'hard' laws and regulations, such as market-regulating measures, where there is a direct requirement for memberstates to adapt to EU level requirements. Horizontal forces are 'soft' laws and indirect processes of change, such as the open method of co-ordination or the growth of EU norms, where there is no direct pressure to conform to EU policy.

However, like most of the other authors working on Europeanisation, he could identify some of the general aspects of Europeanisation but freely admitted that there was no general pattern or direction to the process. Europeanisation was a multi-level process where historical pathways, institutions, memberstates and economic and social actors all played variable roles over time. These conclusions were mirrored by two other major works on Europeanisation. In his impressive book on the Europeanisation of national administrations, Christoph Knill concluded that:

> *the form, logic and scope of everything that happens within this macro-institutional range (of national administrative traditions) varies with European policies, domestic interest constellations, beliefs and expectations as well as institutional opportunity structures* (Knill 2001: 227).

Meanwhile, in the conclusion to their pathbreaking edited volume, Maria Green Cowles and Thomas Risse argued that:

> *Europeanization does not result in the homogenisation of domestic structures. Member states face varying degrees of adaptational pressures to the "regulatory patchwork" of EU rules and regulations. Different factors restrain or facilitate their adaptation to these Europeanization pressures. Yet, the transformation of domestic strctures takes place all the same, oftentimes in rather fundamental ways.* (Cowles, *et al*. 2001: 236)

In essence, in the new millenium, simple positions regarding the costs and benefits of the EU and Europeanisation were being buried under a mountain of more subtle and interactive analyses. European integration and Europeanisation had become ripe for complexity.

HOW DOES COMPLEXITY THEORY RE-INTERPRET EUROPEAN INTEGRATION?

What does this brief review of IR and EI theory demonstrate? First, there has been a significant challenge to the hegemonic position of the rationalist paradigm in IR and EI theory since the 1970s. Second, linked to this challenge has been the growing recognition of human and social complexity. Third, a core division has emerged within the discipline between rationalists who adopt a strong naturalist position, modelling themselves on a traditional view of the natural sciences, and reflectivists who adopt an anti-naturalist position and oppose the use of natural science epistemologies and methods in the human sphere. Lastly, constructivists have attempted to bridge this division by emphasising the importance of broader ontologies, but have been rejected and/or co-opted by both sides.

How does complexity theory fit into these debates? Unsurprisingly, the growth of complexity in the social sciences has begun to spill over into IR and EU theory (Geyer and Rihani 2004, Jervis 1997, Rengger 2000). As we have seen, complexity theory argues that order, complexity and disorder all play a role in the creation of the natural and human world. For complexity theory, there are orderly, complex and disorderly phenomena and different epistemological and methodological strategies apply to each. Universal laws and order only apply to certain phenomena. This implies that the fundamental naturalist – anti-naturalist division within the IR and EI theory is based on an out of date view of the natural sciences. The natural sciences have not stood still. They have gone through a Kuhnian paradigmatic shift that challenges the traditional naturalist – anti-naturalist division. Without this division, neither rationalists nor reflectivists can claim to have a superior grasp of reality or a greater access to the "truth" since both are only describing part of the picture and "the divisions between 'rationalist' and 'reflectivist'… will become progressively harder to draw" (Rengger 2000: 195).

Can the International Arena and European Union be Interpreted as Complex Systems?

The easiest way to view the international arena as a complex system is to insert it into the complexity framework developed in Chapter 1.

Figure 1 The Range of International Arena Phenomena

DISORDER ——————————————————— **ORDER**

Alinearity	**Conscious Complexity**	**Biotic Complexity**	**Abiotic Complexity**	**Linearity**

——— Range of non-linear dynamic systems ———

EXAMPLES

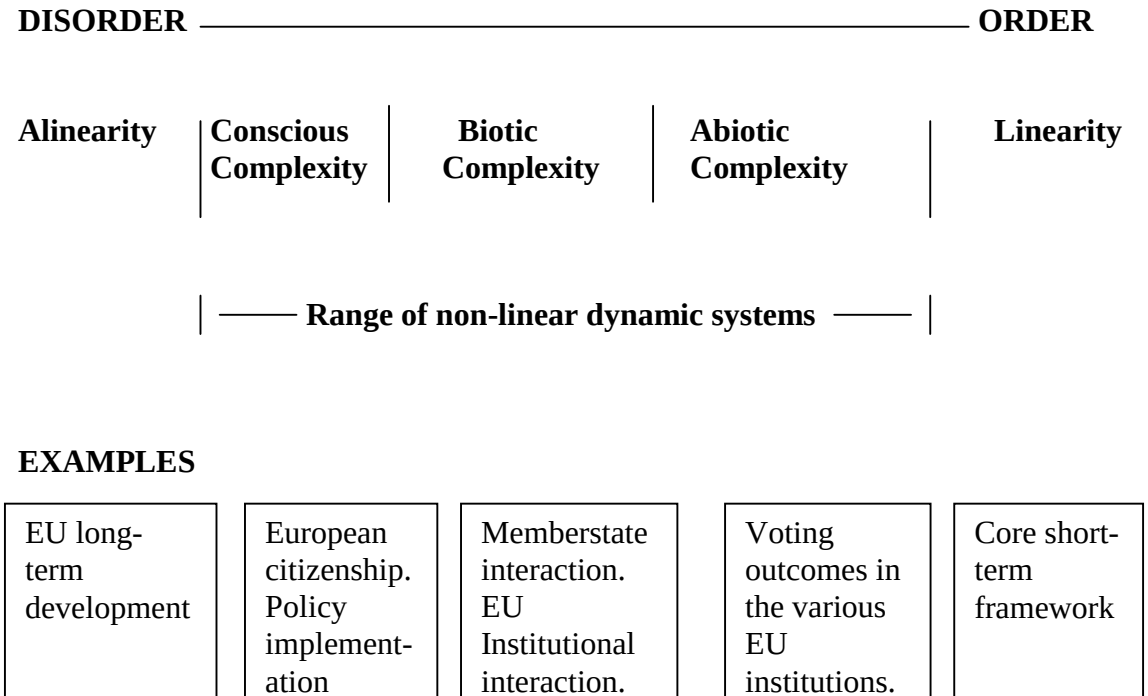
Long-term development The next world system	National-ism and Internation-alism	State and non-state actor interaction. Institutional interaction.	Voting outcomes in the various international institutions.	Basic framework and power relation-ships

The short-term basic framework of the system, particularly its significant power inequalities, appears as its most obvious linear aspects. Nation-states have been significant actors, have experienced power inequalities and struggled to adapt and change them are all parts of what appears to be a basic framework of the international system. The power of the USA significantly influences its range of options for responding to events such as those of 11 September. However, dynamics similar to abiotic complexity can be immediately perceived within the procedures of the international institutions and regimes (UN, regional and trade organisations, etc.) that pervade the international system. The voting pattern in the UN of supporting the USA in its "war on terrorism" led to a recognisable pattern of responses from various countries. However, the exact reasons behind these decisions or that an exact group would support a later "war on terrorism" would be extremely hard to predict.

Dynamics similar to those found in biotic complex systems can easily be identified in the adaptive and interactive strategies that emerge when international institutions, states and non-state actors interact with each other. For example, as the USA began talking about expanding the "war on terrorism" to include other nations (North Korea, Libya, etc.) they upset the balance in the coalition which was supporting the actions in Afghanistan. Allies began to weaken their support and question other areas, Palestinian conflict in Israel, of US international policy. This was obviously complicated by the conscious complexity of competing norms and interpretations of the "war" and US policies. A good example would be the different interpretations of the treatment and rights of the prisoners at Camp X-Ray at Guantonamo Bay. Finally, the exact long-term development of the international system would seem to be the most uncertain and unpredictable analysis. How could an observer of the international system of 1900 have predicted the rise of communism, two world wars and the hegemony of the USA by 1950? How could an observer in 1950 have predicted the economic success of the West, collapse of communism and rise of the European Union by 2000? The range of possible developments and interactions is enormously large.

In a similar fashion the European Union can easily be inserted into a complexity framework.

Figure 2: The Range of European Union Phenomena



The most linear aspect of the EU is its core short-term framework. There is a very high degree of probability (near linearity) that the basic structures of the EU (core memberstate voting balances, institutional structures, power relationships) will remain stable in the short term. The various voting procedures in the EU Parliament and Council demonstrate aspects of abiotic complexity of the EU. Choices are constrained by having to vote for or against a particular proposal and may produce stable patterns (certain member states or groups always voting for/against certain proposals). However, the pattern is not continuously stable, nor can one be certain that similar voting patterns at different times were based on the exact same factors. For example, the Scandinavian countries may generally vote as a block on most proposals, demonstrating a stable pattern, but their exact reasons for doing so may vary substantial with every proposal.

As any multi-level governance theorist would point out, aspects of biotic complexity are most obvious in the multiple types of memberstate and EU institutional interaction. Member states and EU institutions are constantly interacting in evolving and adaptive ways to new policies and developments within the EU system. Stable patterns emerge, but these are much more susceptible to unpredictable developments as different member states and institutions constantly evolve and adjust to new opportunities and constraints. For example, many observers of EU social policy expected it to expand rapidly after the defeat of the British Conservative government in 1997. However, despite a more receptive pro-social policy Labour government other supposedly pro-EU social policy member states suddenly became less supportive. The basic pattern of limited EU social policy developments continued, but the internal dynamics were transformed (Geyer 2000).

Conscious complexity is most obvious in areas such as the meaning of EU citizenship and the implementation of EU policies in the member states. EU citizenship is an extremely contested concept and means drastically different things to the various member states and groups within the member states. This is complicated by the continual evolution of the norms surrounding "citizenship" within the member states themselves and how the actions of the EU, its policies, are implemented and interpreted by the member states and their populations.

A good example of the alinear nature of the EU would be assumptions of its long term. There are so many possible outcomes of the mechanical, organic and conscious complex systems with and surrounding the EU that predicting its exact development in the long term is obviously an alinear exercise. One can guess or pick a future that one would like to see, but it will have virtually no direct relationship to the one which will emerge.

General Implications

If the EU and international system can be interpreted as complex systems, then there are several major implications. First, this implies "incompressibility", that any truly accurate description must be as complex as the system itself. Hence, the pursuit of parsimonious order must of necessity take the observer further and further from holistic reality. Second, since the EU and international systems are composed of different phenomena then one must accept methodological pluralism; quantitative modelling, qualitative analysis, historical description and narrative discourse all have their place with regard to particular phenomena. There is no universal hierarchy of phenomena and hence no hierarchy of method. Third, this uncertainty or perceived lack of knowledge is actually a strength of human systems since:

> *it is this very "ignorance" or multiple misunderstandings that generates microdiversity, and leads therefore to exploration and (imperfect) learning* (Allen 2001: 41).

This means that different interpretations, diverse interests, uncertain responses, clumsy adaptations, learning and mistakes are what keep a system healthy and evolving. Truly orderly systems, where all of the elements are at the average or are in agreement, are dead systems and have no ability to explore new patterns or adapt to new environments.

The EU itself provides an excellent example of the healthy nature of complexity. From an orderly rationalist framework it is incomprehensively messy. From a reflectivist standpoint it cannot possibly order the multi-faceted and multi-level nature of its constituent societies and sub-groups. Nevertheless, it exists and thrives as an excellent set of institutions for promoting complex interaction, learning, diversity and adaptation at the sub-national, national and European levels. Just imagine how long the EU would last if it did try to assert a comprehensive rigid order on the multitude of memberstates. Even its most rigid policies, such as EMU, allow for a surprising amount of hidden flexibility and adaptation. In fact, it is the very flexibility of the other aspects of economic policy that allows the memberstates to accept the rigidity within the European monetary order. As Hodson and Maher explain in relation to the EU's "open method of coordination" (developed for the 2000 Lisbon European Council) for promoting economic policy cooperation:

> *This is no formal attempt to control outcomes (outside of fiscal policy of course), and process is determined by a system of benchmarking and lesson-*

> *drawing, emphasizing state competence and the voluntary alignment of policies… The desire of the EC to control outcomes, as manifest in the directive as the rule of choice in the single market, with its emphasis on common outcomes if not methods, is overcome by recognition of the importance of diversity at the national level in relation to policy formation, legal frameworks, ideational references and popular perceptions and reactions to either the European project generally or the specific policy being co-ordinated* (Hodson and Maher 2001: 731).

In essence, European integration is not a threat because it combines an agreed fundamental framework with memberstate diversity and autonomy. This was not based on any preordained plan, but emerged from a multi-faceted combination of historical events and political economic structures including the weakness of the EU as a power centre, the continuing resilience of the memberstates to oppose centralising EU initiatives and the evolving nature of the international system. A significant change in any of these factors could easily have disrupted the seemingly rational complex development of European integration and Europeanisation.

THE BRITISH WELFARE STATE AND THE PROBLEM OF COMPLEXITY

Similar to international relations and European integration, the study of the British politic system and welfare state have also gone through a complexity shift in the latter half of the 20th century. In the 1950s and 1960s, theories of British politics and the state revolved around the ideal of the "Westminster model" which emphasised centralised power in the hands of the core executive and parliament with a supposedly apolitical civil service carrying out the democratic will of the people. Lines of authority, power and legitimacy were clear and rational. Likewise, the Beveridge welfare state was seen as the progressive culmination of the development of Marshallian civil, political and social rights. Rationally correcting the limitations of the market, the welfare state would continuously improve fundamental living standards (Marshall 1975, Fraser 1973).

However, linked to the poor economic performance of the British economy and the perception of an increasingly burdensome welfare state, during 1970s a variety of potent critics began to question the usefulness and coherence of the Westminster model and traditional welfare state. From the left, some argued that the expansion of the welfare state was incompatible with the continued functioning of capitalism (Gough 1979, Miliband 1969). The right countered with the "overload thesis" (Brittan 1977, King 1976) which stressed that the welfare state was part of a larger problem of state expansion in the post-WWII period. As the state became increasingly responsible for social outcomes, demands expanded exponentially and overloaded the political system, increased "ungovernability", fomented a fiscal crisis of the state and created a dependency culture among the population. With the rise of Margaret Thatcher and success of the Conservative party, the overload thesis appeared to have won the day.

This perception of overload and inefficiency coalesced easily with the growing debate over the impact of globalisation and Europeanisation. Particularly for the right, global economic development and pressure required states to abandon traditional forms of welfare and adopt more market oriented approaches. Economic success and survival depended on it. Likewise, the emerging European single market had to concentrate on enhancing these competitive pressures and market forces if Europe

was to survive in the increasingly competitive global system. As Margaret Thatcher famously warned in her attack on European social policy in 1988, " we have not rolled back the frontiers of the state to see them re-imposed from Brussels".

Nevertheless, despite the polemical success of the overload thesis and the growth of globalisation and Europeanisation, welfare states refused to collapse or converge. In Britain, as many commentators noted (Krieger 1986, Pierson 1991), the radical anti-statist polemics of the Thatcher governments were not matched by similar policies. The British welfare state was restructured, but not radically reduced. Modes of welfare delivery have been altered (particularly with the rise of *new public management:* See Newman 2000), but "there has been no wholesale transfer of state welfare provision into the private sector (with the partial exception of housing)" (Pierson 1999: 157). More broadly, within the advanced industrial countries there has been no significant decline in welfare state expenditure or a significant convergence of welfare state structures (Cochrane et al 2001, Goodin et al. 1999). Moreover, as discussed earlier, the EU has not radically undermined existing national welfare states, forced them to significantly converge or created a new European level welfare state. Out of these debates and the rise of post-modernist social theory emerged more subtle and broad ranging interpretations of British politics and the welfare state that tried to go beyond the traditional left-right debates. These included the development of the governance approach in British politics (Rhodes 1997) and most influentially, the concept of the "third way" by Anthony Giddens. Due to its political impact on the welfare state and left more generally, we must take some time to more thoroughly discuss the third way.

The Third Way

Defining the "third way" is a notoriously slippery problem. The current use of the term "third way" is often poorly defined, obfuscated by political opportunism and complicated by distinctive national interpretations.[xix] Politically, the concept clearly fulfilled the needs of "modernisers" in leftist parties looking for an intellectual and theoretical justification for shifting their parties towards the political centre. With the success of the Clinton administration in 1992 and 1996, the Blair victory in 1997 and the Schroeder victory in Germany, the "third way" became an influential and widely discussed political strategy and theory. Intellectually, the modern concept of the "third way" has generated a significant discussion (Powell 1999, Giddens 2001) and is based strongly on two key books by Giddens, *Beyond Left and Right: The Future of Radical Politics* (1994) and *The Third Way: The Renewal of Social Democracy* (1998).

Beyond Left and Right (BLR) was Giddens' most thorough attempt to create a wide ranging modern philosophy and strategy for the left. Its strength lied in the concept of "manufactured risk/uncertainty". Following in the footsteps of a number of post-modern authors and sociological intellectual traditions, Giddens argued that, "the world we live in today is not one subject to tight human mastery" (Giddens 1994: 4). This is not due to the complexity of nature or the failure of humankind to master it, but due to "our conscious intrusion into our own history and our interventions into nature" (Giddens 1994: 78). For Giddens, due to the development of industrialisation, globalisation, a post-traditional social order and the rise of "social reflexivity" (Beck, 1992), uncertainty and risk can no longer be externalised to natural occurrences, but are more and more a product of human action and awareness. In other words, despite the hopes of the Enlightenment, where humanity would increasingly entrench it dominance over natural and social conditions, the very pursuit of this dominance had led to the creation of human manufactured uncertainty and risk which altered the

fundamental framework of our relationship to the natural world and human social development.

Much of the remainder of the book focuses on the implications of manufactured uncertainty/risk. For example, given no "tight human mastery" over the world and a reflexive society, then the authority and certainty of tradition, science, experts and bureaucratic organisations must be questioned and reinterpreted. For Giddens, one had to be careful not to allow this reinterpretation to lead to a "new medievalism" of back-to-nature green movements (Giddens 1994: 79), a post-modernist attraction to Nietzschian nihilism (Giddens 1994: 252) or a reassertion of "fundamentalism" (Giddens 1994: 6). Nevertheless, recognising the inherently uncertain nature of human existence and the manufactured nature of those uncertainties and risks was essential to establishing a viable and radical new theory and strategy for the left.

The need to recognise and respond to manufactured risk/uncertainty lies of the heart of Giddens' explanation for and solution to the current crisis of social democracy. For Giddens' the early appeal and fundamental weakness of Marxism was that it rested on the belief that humanly created problems must be humanly resolvable and, consequently, that it had found the fundamental direction of human evolution. This basic belief in the ability of revolutionary (later, technocratic) elites to direct and understand human economic and social interaction manifested itself in the planned economies under communism and the belief in planning in the advanced industrial economies in the early post-WWII period. For Giddens, this "cybernetic model" was "reasonably effective as a means of generating economic development in conditions of simple modernization" (Giddens 1994: 66). However, as societies and economies become more complicated and reflexive, the cybernetic model became increasingly dysfunctional. As Giddens wrote:

> *A modern economy can tolerate, and prosper under, a good deal of central planning only so long as certain conditions hold – so long as it is primarily a national economy; social life is segmentalized rather than penetrated extensively by globalizing influences; and the degree of institutional reflexivity is not high. As these circumstances alter, Keynesianism falters and Soviet-type economies stagnate* (Giddens 1994: 67).

Consequently, with the collapse of the Soviet Union in 1989 and the difficulties of social democracy in Sweden in the late 1980s, often seen as the most developed social democratic society, socialism lost its radical edge and fell back on a static defence of the welfare state. Meanwhile, neo-liberals, espousing the ability of the unfettered market to solve both economic and social ills, "appropriated the future-oriented radicalism which was once the hallmark of the bolder forms of socialist thinking" (Giddens 1994: 73).

In order to bring radicalism back to the left he explored the implications of manufactured risk/uncertainty on a variety of policy arenas, particularly the welfare state. He argued that the left had to abandon its traditional defence of the welfare state and replace them with ideas of "positive welfare". For Giddens, "the welfare state cannot survive in its existing form" (Giddens 1994: 174). Like Keynesian economic ideas, the welfare state performed well under conditions of simple modernisation:

> *in which 'industriousness' and paid work remained central to the social system; where class relations were closely linked to communal forms; where the nation-state was strong and even in some respects further developing its sovereign powers; and where risk could still be treated largely as external and to be coped with by quite orthodox programmes of social insurance. None of*

> *these conditions holds in the same way in conditions of intensifying globalization and social reflexivity* (Giddens 1994: 149).

Consequently, the attempt by the welfare state to combat stable external risks, for example unemployment insurance, may lead to contradictory outcomes such as welfare dependency rather than encouraging a return to work. Thus, the left defence of the welfare state is ultimately doomed to failure. Without abandoning the "providentialism", that history has a particular direction, of the leftist programme, accepting the new conditions of manufactured risk/uncertainty and reforming its thinking, particularly in regards to its last defensive stronghold (the welfare state), the left will never regain its historical radicalism.

The Third Way (TTW), a remarkably wide selling book that summarised and popularised his thinking in BLR, extended the third way to a wide variety of policy implications. Regarding the welfare state, Giddens again argued that the third way charted a middle path between the antagonism towards state activities by liberals and an uncritical faith in it by socialists. The current welfare state "isn't geared up to cover new-style risks such as those concerning technological change, social exclusion or the accelerating proportion of one-parent households" (Giddens 1998: 116). It needs to adopt a "positive welfare" approach and transform itself into "social investment state". A positive welfare approach implies that the welfare state needs to help combat the classical external risks and promote society's ability to adapt to manufactured risks. In order to do this it needs to become "dynamic and responsive to wider social trends", "promote risk-taking by individuals" and "invest in human capital wherever possible" (Giddens 1998: 117). Consequently, according to Giddens:

> Positive welfare would replace each of Beveridge's negatives with a positive: in place of Want, autonomy; not Disease but active health; instead of Ignorance, education, as a continuing part of life; rather than Squalor, well-being; and in place of Idleness, initiative"(Giddens 1998: 128).

As is well know, the third way generated an enormous amount of comment and criticism. Some argued that it was, "an amorphous political project, difficult to pin down and lacking direction" (Giddens 2000: 22), others (Ryan 1999 and Driver and Martell 2000) that it was merely the reassertion of an earlier British tradition of New Liberalism. The traditional left (Hall 1998 and Lafointaine 1998) argued that it was a rationalization for a shift to the right while academics and politicians in Continental Europe (Levy 1999 and Lightfoot 1999) argued that it was fundamentally an Anglo-Saxon project that "was of little use to societies that are further along the road to social justice and more comprehensive welfare provision" (Giddens 2000: 24).

Basically, all of these critics wanted the third way to be more specific, linear and predictive. Whether arguing that the third way was not distinctive enough from historical precedents, was too vague, was a rationalisation and/or did not fit their particular models, all of these critics were trying to force Giddens to justify his more post-modern, contingent and reflexive framework. Giddens responded to these criticisms from a predominantly linear position, i.e. that the third way was a new type of order that could be opposed to earlier forms of order.

For example, in responding to his continental critics he argued that in spite of the distinctiveness of most European socialist parties and welfare state regimes there is 'a single broad stream of third way thinking, to which the various parties and governments are contributing' (Giddens 2000, 31). Hence, despite their differences they are all part of a similar linear trend or process. The third way developed so early and clearly in the US and UK because both "experienced neoliberal government in

'full-blooded form'" (Giddens 2000, 32). This made the left in the US and UK more willing to question traditional orthodoxies and shift towards the third way. Moreover, argued Giddens, those social democratic countries which appear to be the most traditional, particularly Scandinavia, "are likely to be more vulnerable to the changes now happening than countries 'further back' on the welfare scale" (Giddens 2000, 34).

On the other hand, a number of critics from different perspectives argued that, fundamentally, the third way was primarily an attempt to reassert a new linear order. As Nikolas Rose pointed out, the third way 'describes the present in epochal terms, implying that there is only one right way to understand and respond to the real changes occurring our world' (Rose 1999, 490). Consequently, they (referring to Giddens and Will Hutton):

> draw a diagram of history in which a single axis of time catches up all corners of the globe into its current and drags all along its wake… (all must) become modern or face the destiny of the obsolete – the scrap heap of history (Rose 1999, 471)

Ted Benton further clarifies this point by stressing that, 'despite his disclaimers, Giddens himself remains committed to key elements of a linear, developmental view of history' (Benton 1999, 44). Most influentially, Ralf Dahrendorf attacked the 'authoritarian streak' in the third way:

> The great liberation of the revolution of 1989 was that it ended the dominance of ideological thought systems. There are no longer even first, second and third worlds, only varieties of attempts to cope with economic, social and political needs. The Third Way presupposes a more Hegelian view of the world. It forces its adherents to define themselves in relation to others, rather than by their own peculiar combination of ideas; and other the others have to be invented, even caricatured for the purpose. The point about an open world is that there are not just two or three ways. There are… 101 ways, which is to say, an indefinite number. (Dahrendorf, 1999).

Interestingly, despite mentioning Dahrendorf's intimations of an 'authoritarian streak' in the third way, Giddens did not reply to the criticism in Giddens (2000). This is very telling because it is the most fundamental criticism from a complexity perspective. Giddens' entire theory rests on an understanding of manufactured uncertainty/risk. This implies that no individual or elite actor is capable of understanding the path of history in a linear sense. However, despite his protestations, the third way implies that it understands the next phase of human development and thus can and should control that development. Thus, if the world has changed (due to globalisation, reflexivity, *etc*.) and the third way is capable of understanding that shift, then the third way can become the new "radical" historical order which saves the left and restores it to its position at the forefront of history.

Given this combination of policy openness and underlying order and control, one can easily see why the third way would be so appealing to New Labour. In political terms it allowed the party to justify its abandoning of unpopular traditional strategies under the veneer of a new vaguely defined order. In policy areas, it legitimated the ability of the Blair government to pursue seemingly decentralising policies in a context of centralised audit and control. The most blaring examples occurring with the welfare state, particularly in the education and health sectors, where the calls for local control and autonomy have been strangled by the centralising

flurry of continued 'new managerialism' (Walsh 1995) and an intensified audit culture (Rouse and Smith 1999).

HOW DOES COMPLEXITY REINTERPRET THE BRITISH WELFARE STATE?

As discussed above, the foundation of the third way rests on Giddens' interpretation of manufactured risk/uncertainty, the nature of social reflexivity, the desire to "go beyond left and right" and his longing to be radical. For Giddens, as human actions have increasingly come to dominate the natural world and humans have increasingly replaced external orderly risks with human manufactured disorderly risks (global warning, nuclear devastation, etc.), the interface between humans and nature has become increasingly complex. This new manufactured uncertainty is further complicated by the increasing social reflexivity of individuals in the post-modern world. Not only do they have to confront manufactured uncertainty, but they are no long willing to believe in or submit to traditional authorities or ideologies. Hence, traditional ideologies of left and right are increasingly outdated and useless in the current age.

On all of these aspects, complexity theory would agree, but go a step further. Yes, traditional ideologies are outdated, manufactured risks have increased and individuals have become more socially reflexive. However, complexity theory would stress that the natural world and external risks were never completely orderly. In fact they have always been complex interaction between humans and nature with unpredictable consequences. Human interaction with the weather and plants and animals, to take just two obvious examples, has led to a multitude of complex outcomes throughout the history of humanity, from the plague to the potato famine. Consequently, there has always been a degree of manufactured risk and human beings have attempted to deal with it in a similar ways. Even in pre-modern societies, human beings attempted to deal with manufactured risks by promoting strategies of social order. Countertendencies to these strategies emerged and even reconciling "third ways".[xx] Thus, when critics of the third way complain that it is "nothing new", they are more correct than they know.

What is unique about the Newtonian linear framework of the 18th, 19th and 20th centuries was the degree to which humans believed that they could order their societies. Flushed with the heady success of mechanistic and industrial achievement no problem seemed beyond the grasp of humanity. Social scientists merely wedded this vision to the social realm and produced the fundamental visions of social order, communism and capitalism, which structured the history of the 20th century. From a complexity perspective, both visions of order were never possible. Full-blown communism where the state dominated every economic transaction and full-blown capitalism where the market determined all social interactions were equally unsustainable within the complex interaction between humans and nature. Generally, it was the pursuit of these extreme forms of order which brought about extreme forms of human suffering: the repression, death and suffering which the Soviet peoples experienced, particularly during the 1930s is mirrored in the repression, death and suffering brought on the Third World by World Bank/IMF structural adjustment programmes implementing extreme forms of marketisation on their societies.

At first glance, Giddens' third way seems to pursue a similar strategy regarding left and right. He is critical of both market and state extremes and produces a raft of policies proposals that blend elements of both. However, he also wants to recapture, for the left, the "future-oriented radicalism which was once the hallmark of

the bolder forms of socialist thinking" (Giddens 1994: 73). Here we see the fundamental contradiction at the heart of Giddens' third way. On the one hand, he wants to break with the "providentialism" (Giddens 1994: 249) of the left that argued that capitalism led to socialism, proletarians were the humanity's saviours and history had a clear direction. A complexity perspective would certainly agree with this position. On the other hand, his desire to find a radical "new way" that gives the left back its position at the forefront of historical development has clear overtones of earlier 20th century attempts to create a linear order. Hence, by not recognising the full implications of complexity he opens up the third way to criticisms that it is both "amorphous" and "authoritarian" at the same time.

Giddens' reply to these critics was telling. For his "amorphous" critics, he provides a bigger list of policies, desperately trying to reassert their newness and importance, while ignoring the charges of authoritarianism. A complexity perspective would agree with most of his flexible policy proposals, but argue that there is no clear policy answer to all situations. Beyond creating a stable fundamental order within which individuals can learn, interact and adapt, there is little a state can do. Moreover, complexity does not provide a moral framework for choosing between the different forms of social organisation. From a complexity perspective, one can argue that a society that is stable, open, democratic and encourages complex interaction is likely to be much more successful than a closed strictly ordered society, or a destabilised chaotic one. However, complexity can not predict which type of similar societal organisation (the more market-oriented British, corporatistic Germans, socialistic Scandinavians, etc.) will be more successful than another. From a complexity framework, there are no certain strategies other than the most fundamental ones and as Dahrendorf stressed there are not 3 ways, but 100.

Regarding Giddens continental critics who said they were already pursuing the third way, they are more correct than they know. From a complexity perspective, since there are so many possible "ways", there is no particular reason why the US/UK, or any other state, should be seen as the leader of the third way. A particular set of strategies may work in one case, but not in another. One can make moral arguments over which system one may prefer, Scandinavian or British, but no state can claim to have the one and only "way". More fundamentally, there is no reason for the third way to be an inherently leftist strategy. A complexity framework implies uncertainty for both left and right. The two political movements have distinctive values that imply particular policy strategies. Nevertheless, they are both caught within the emerging complexity paradigm. Giddens' "radical" desire to bring the left back to the "forefront of history", betrays his inability to break with the earlier Newtonian framework. It may be politically appealing to the left, but is theoretically and practically unsustainable.

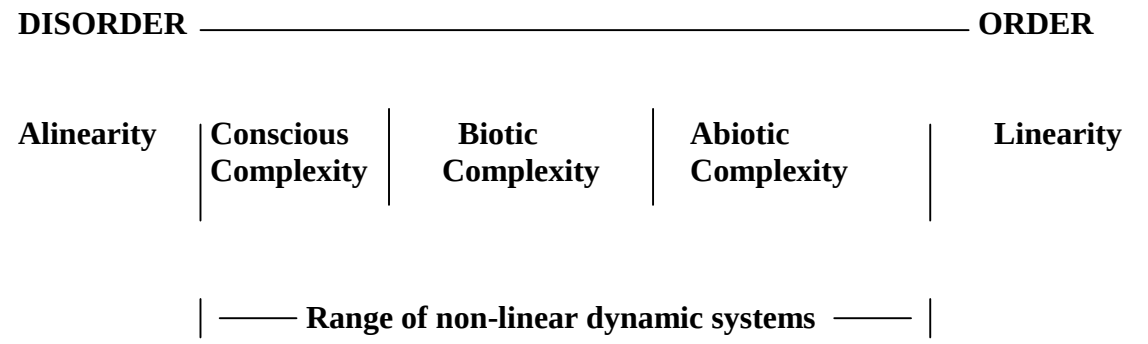
More specifically, in relation to the British welfare state, complexity theorists would be very sceptical of the audit and control culture that has emerged in response to the third way thinking of New Labour. In large and complex policy arenas, health, education and social policy New Labour has striven to increase overall policy efficiency through a plethora of centrally driven targets that were designed to increase the effectiveness, responsiveness and oversight of policy provision. In essence, New Labour was treating these highly complex policy arenas as fundamentally linear mechanisms that could be controlled by centrally directed, hierarchical, command and control procedures. This position relied on the belief that political and administrative elites were in control of the policy arena and that negative policy outcomes were

merely a result of their lack of knowledge and control. Increase those and the policy should improve!

The clear problem, and a number of critics and commissions have made this point (Clarke et al. 2000), is that as the targets multiply they become increasingly detailed and increasingly difficult for the local actors to achieve. This is not due to local actor intransigence. In the NHS in 2003, hospital human resource managers are supposed to be responsible for over 330 targets! As one manager told us, because the targets influence each other (more resources to child related diseases, influences waiting lists, staffing, maintenance, and so on) the most targets he could balance at one time were around 10! So, the obvious answer from an orderly linear perspective would be to hire more managers and give each of them 10 targets each. To a degree this is what New Labour has done in certain sectors of the health profession. The problem with this is that you cannot easily separate the targets into distinctive groups. The managers would still be stuck trying to co-ordinate 330 targets. And yet, despite these nearly impossible co-ordination tasks the NHS continues to function on a daily basis providing a reasonable service for the 55 million British citizens. How can this be?

The answer is that the NHS (and education, economic and social policy arenas) is not a linear hierarchical structure, but an evolving complex adaptive one. As such, it easily fits within our complexity framework as demonstrated in FIGURE 3.

Figure 3: The Range of NHS Phenomena

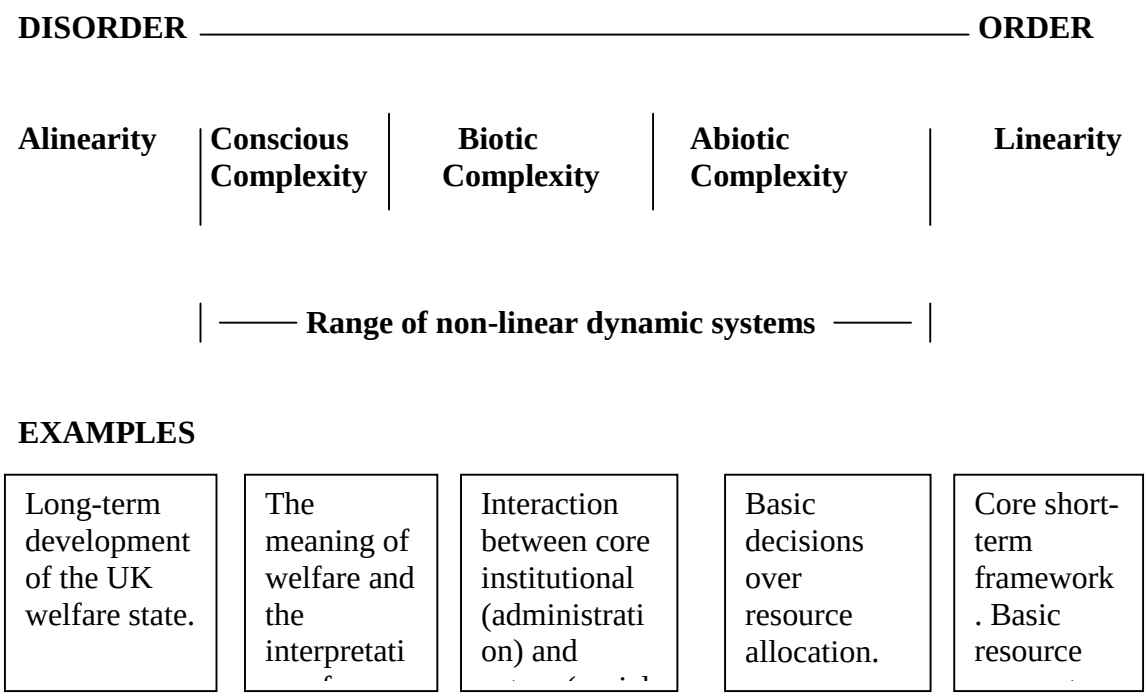


As we saw with the international system and EU, the NHS can easily be interpreted as a complex system composed of interacting orderly, disorderly and complex elements. Its core short-term framework, particularly its current basic resource parameters or allocations, rigidly determines the fundamental structure of the NHS. However, basic decisions over resource allocation already begin to introduce variation and unpredictability into the basic framework. Like grains of sand falling on

a table shaping a generally stable, but constantly varying cone, the basic resource decisions to the various UK regions creates a generally stable, but constantly varying output of health outcomes. Combine this with the continually evolving relationships between doctors, managers, consultants, nurses, etc. and the debates over the very meaning of health and the health service and you have a fundamentally complex adaptive system.

Likewise, a similar framework can be used for the British welfare state in general as seen in Figure 4.

Figure 4: The Range of UK Welfare state Phenomena



Again, it is the core short-term framework and basic resource parameters that set the most linear elements of the welfare state. This is then complicated by the complex dynamics of decisions over basic resources allocations, whether in relation to regional dynamics, struggles between different policy arenas or other aspects. Institutional struggles mirror the evolutionary dynamics of plant and animal life, while the narrative debates over the meaning of welfare and the nature of the welfare state are clear indications of conscious complexity. Finally, the long-term development of the welfare state, where it will be, what it will look like, how it will be debated, is clearly one of its most unpredictable and disorderly aspects.

Overall, as with Europeanisation the UK welfare state can be conceived of as an evolving complex adaptive system. Once one makes this shift in thinking, the limits and dangers of more orderly linear thinking become increasingly apparent.

COMPLEXITY AND THE EU-UK WELFARE STATE RELATIONSHIP

Clearly, the implications of the above discussion are that the Europeanisation-British welfare state relationship is a prime site from complex and contingent processes and outcomes. Both Europeanisation and the British welfare state are composed of evolving complex institutions adapting, learning and adjusting to a

contingent multi-tiered political-economic arena: multi-level governance meets the third way.

Academic works that attempt to explore this relationship, or other EU-memberstate policy relationships, often fall back on a very thick descriptive type of analysis. It isn't that this type of methodological approach is wrong given the problems of complexity and interdependent contingency. However, one is always left with a sense of incompleteness or even failure, seen from the perspective of a linear framework. Detailed studies are created, great effort is made, but the results are only partially relevant to other areas/cases and will certainly change over time. Rather than creating general rules with predictive capabilities, the researcher gains only a sense of the continually evolving process and recognises that this is only partially relevant to other areas and the future direction of the policy. From an orderly linear perspective, the researcher is stuck like Sisyphus, doomed to endlessly describe a process that never reaches its goal.

Not surprisingly, few theoreticians are willing to delve into this mire of contingency and uncertainty. One notable exception is the work of policy transfer theorists. Policy transfer theory emerged in the mid-1990s particularly in relation to the study of policy transfer between the USA and UK (Bennett 1997; Dolowitz and Marsh 1996; Rose 1993; Stone 1999). Policy transfer (PT) theorists concentrated on examining the processes through which policies were transferred and/or learned from one policy, institutional, political arena to another. In general, these works concentrated on policy transfer as a voluntary "learning" process between independent states. However, PT theory could be applied to learning between different levels of government and in coercive situations as well. PT theorists argued that policy transfer could lead to policy convergence, but that the transfer of policies was not a simple linear process and that it often led to unintended results and consequences due to the different nature of the national policy arenas.

Interestingly, despite its obvious implications, PT theorists only recently (with the early exception of Rose 1993) began using their concepts to describe EU policy dynamics (Bomberg and Peterson 2000; Radaelli 2000). For these theorists, recent development of EU policy transfers have been driven by:

> *exchanges between national authorities who share a common concern to solve policy problems, as well as causal understandings and technical expertise. In essence EU policy transfer is a pro-active – and only rarely coercive – approach to the Europeanization of public policy (Bomberg and Peterson 2000: 7).*

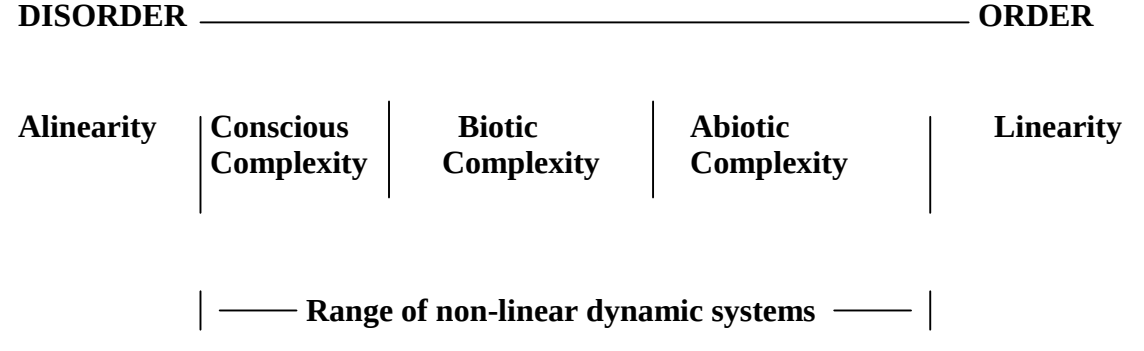
From this perspective, policy transfer strategies have evolved because memberstates have become increasingly dissatisfied with traditional EU policy methods. The growth of open methods of coordination, mainstreaming, etc. are clear indicators of the success of this new approach which provides a range of substantial political and policy benefits, such elite learning and depoliticised policy interaction. It may also promote convergence. However, PT theorists are quick to emphasis, the growth of EU policy transfer does not imply convergence. As mentioned above, learning can have both convergent and divergent outcomes. Moreover, policy transfer does not replace all policy dynamics. It is a growing area, but one which interacts with rather than dominates traditional policy methods.

In general, policy transfer theory is not dissimilar from multi-level governance (MLG) theory or the general theoretical concepts of Anthony Gidden's "third way", particularly in terms of their emphasis on the complexity and openness of the evolution of policies. Moreover, I would argue very strongly that MLG and PT based

researchers have produced very good descriptions of the EU policy process. However, are they really scientific theories in the traditional sense? They are not very parsimonious, admitting as they do that many other factors are at play in EU policy development. They do not explain causality very well, seeing multiple influences on particular outcomes. They are not predictive, emphasising historical openness. Moreover, they do not lead to universal rules, each case has its own dynamics.

Here is where we must turn to the complexity framework. For complexity, the EU-UK welfare state contains an obvious combination of orderly, complex and disorderly elements. See Figure 5

Figure 5: The Range of EU-UK Welfare state interaction Phenomena



As before, despite all of its contingency and disorder, there are basic elements of order in the EU-UK welfare state relationship such as the foundation of core legal and social rights and the general norms of administrative and social discourse. Aspects of abiotic complexity can be found in the interaction of EU social policy resources with existing UK welfare state resources. Biotic complexity is easily seen in the interdependent connections between EU and UK social institutions and actors while the debates over the role of social policy in the EU-UK relationship has clear parallels with conscious complexity. Finally, the long-term development of this arena is particularly fraught with uncertainty, unpredictability and disorder.

What does this conclusion imply? First, in the context of our core question, the relationship between the EU and UK welfare state, linear, order-based and positivist methods can only tell part of the story as would a purely disorderly post-modernist approach. Second, general qualitative methods including historical pathways, institutional analyses, ideal-type modelling, semi-structured interviews, etc. are central to capturing the complexity of most human phenomena. However, from a complexity perspective, the researcher must realise that he/she is viewing and part of a constantly evolving process and that their “failure” to find the “laws” of this relationship is a necessary outcome.

[i] *Epitaph intended for Sir Isaac Newton Oxford Dictionary of Quotations* (251:26).

[ii] Introduction to Quantum theory, 2000 p.159.

[iii] Horgan, *The End of Science* 1996, p.19. It is rumoured that he later regretted the now famous quote.

[iv] Cited in The Concise Oxford Dictionary of Quotations p.265.

[v] For a philosophical discussion of the process of transformation, including the switch from linear to nonlinear thinking, see Ferguson (1983). Hawking 1988: 1-14), on the other hand, provides an insightful technical analysis of the way scientific beliefs and methods changed through the ages. The Uncertainty Principle advanced by Heisenberg had a particularly pivotal impact on the future course of scientific research. For a review of developments in physics see Davies (1987) and Peat (1991).

[vi] A similar review of complexity can be found in Geyer 2002. Major works on complexity include: Bar-Yam (1997), Capra (1991), Coveney and Highfield (1995), Gell-Mann (1994), Gleick (1988), Kauffman (1993 and 1995) and Waldrop (1992).

[vii]The literature on the complexity paradigm and abiotic complex systems has now become quite large. Key works include: Nicolis (1989), Coveney (1996) and Kauffman (1993, 1996). In addition, Waldrop (1994) and Lwein (1997) present an excellent general introduction to Complexity.

[viii] We need references to these guys and gals…

[ix] Fukuyama's "End of History" thesis continues to resonate with elite and mass opinion particularly after the events of September 11. See Fukuyama's article "How the West Has Won" *The Guardian* 11 October 2001.

[x] For a discussion of the simple-complex dichotomy in ancient Greek philosophy see: Heinz Herrmann, From Biology to Sociopolitics: Conceptual Continuity in Complex Systems, New Haven: Yale University Press, 1998.

[xi] Mainzer, *Thinking in Complexity* p,.83. This led Kant to conclude that "The Newton (for) explaining a blade of grass cannot be found".

[xii] For a review of the role of laws in the social sciences see: Martin and McIntyre (1996).

[xiii]This model is adopted from Hay 2002: 227

[xiv] For discussions of the development of the debate between these two sides see: Bevir (1999), Bhaskar (1986), Byrne (1998) and Cilliers (1998), Delanty (1997) and Rasch and Wolfe (2000).

[xv] Non-linear systems theory (complexity theory) has established footholds in all of the major areas of social science. In philosophy and social theory see: Byrne (1998) and Cilliers (1998). In economics see: Barnett *et al.* (1989), Day and Samuelson (1994), Hodgson (1997), Mirowski (1994), Ormerod (1994 and 1998). In organisational and management theory see Stacey (1999) and Stacey *et al*. (2000). In sociology and politics see: Cioffi-Revilla (1998), Eve *et al.* (1997), Kiel and Elliott (1997), Rycroft and Kash (1999). In development theory see: Rihani and Geyer (2001) and Rihani (2002). In political theory see: Geyer (2002) and Scott (1998). In international relations see: Jervis, R. (1998). For an excellent overview of the spread of complexity theory and a critical review of its popularisers see: Thrift (1999).

[xvi] Keil and Elliot p.307

[xvii] Axelrod 1997, Axelrod and Cohen 2000, Kiel and Elliot 1997. Celso Grebogi and James A. Yorke (eds.) *The Impact of Chaos on Science and Society,* Tokyo: United Nations University Press, 1997. Saul Krasner, (ed.) The Ubiquity of Chaos, Washington DC: The American Association for the Advancement of Science, 1990.

[xviii] Tennyson, *Ulysses*, 1842. L.67

[xix]Recognising the confusing which surrounded the term, Giddens stated that, "the term third way is of no particular significance… I make use of it here to refer to social democratic renewal" (Giddens 1998: VII).

[xx] An early example would come from China. Confucianism, which envisioned a strict social and moral code for society and the state, emerged out of an orderly period of Chinese dynastic history in the 6th century B.C. Subsequent challengers, Buddhism and Taoism, thrived during periods of civil unrest and war during the 3-6th centuries A.D. Unsurprisingly, "various attempts were made to harmonize the three schools of thought and to promulgate the idea that they were simply different ways by which to reach the same ultimate goal" (Smith, 1973: 134). Consequently, one could argue that *san chiao* (the three religions or teachings) was the original third way.