Of Parts and Wholes: International Relations Beyond the Human

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Abstract
While some theorists in International Relations have engaged with thinking about complexity we would argue that few have thought it through to its logical conclusion – the interconnectedness of systems, and the implications for agency and structure. This paper examines the structure/agency question using the framework of 'posthuman international relations'. This draws on recent thinking in complexity and argues for an approach to the study of global politics that is post-Newtonian and non-anthropocentric. Key elements of a complexity based approach are examined, and it is argued that these provide a novel way of considering issues of agency and structure. They also raise issues for the analysis of agency and the link between actions and outcomes. Complex systems can present problems of analysis related to unpredictability, causality, and non-linearity.

Having laid out a framework for thinking about action and context in international politics, the paper turns to questions of agency and practice within complex systems. Perhaps the most significant claim here is that it is possible to conceive of agency beyond the human. Drawing upon Margaret Archer's discussions of primary and corporate agency, a three-fold approach to thinking about structure and agency is developed, which allows us to think about agency beyond the human. Finally, an explanation is given as to why a complex approach to thinking about international relations ultimately implies a posthuman perspective.

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The agent-structure question in International Relations ranks alongside the so-called 'great debates' within the discipline. In terms of its duration it probably far outlives any of the other debates. At one level it can appear to be arcane and irrelevant to the study of the world politics. We would concur with Colin Wight that there is no answer.[1] For there to be one answer would assume that structures and agents are invariant. Any piece of research will have come to an answer to the structure-agency problem even if implicitly. The answer to the question will depend on the particular circumstances being investigated.

Despite the rather abstract quality of the debate, and the probability that it can never be resolved, the questions raised go to the heart of the discipline, both in terms of what is the object of study, and crucially, what are the possibilities for agency. The structure agency question is significant in terms of ontology because it focuses on the question of who the actors might be in international politics. Are we discussing individuals; some form of institution, whether states, international organisations, transnational organisations, and criminal gangs; or, as we will argue subsequently, agency beyond the human? Additionally, what are the circumstances in which they act – what contexts limit or enable certain actions – the international system, the capitalist system, patriarchy? What then are we studying when we study international relations? The structure agency question also prompts a second and crucial line of inquiry – what space is there for agency? While the ontological question asked what makes up international relations, and what the circumstances in which they might operate are, the second question prompts us to consider what potential is there for action. Based on the assumption that we study international politics in the hope of contributing to the fostering of an alternate world rather than rubbernecking the horrors of the present one, then this question becomes vital. If we are simply the playthings of structures then we should consider retiring to our allotments now. Yet clearly practice is more than simply wishing for a more just social order, and if that is what we wish to promote then we need an analysis of those social forces that impede practice.

We have recently made a call for a *Posthuman International Relations*.[2] This draws on recent thinking in complexity leading to the intention of developing an approach to the study of global politics that is post-Newtonian and non-anthropcentric. In this paper we examine the structure agency question using this framework. In the next section we examine key elements of a complexity based approach. These we argue provide a novel way of considering issues of agency and structure. Having laid out a framework for thinking about action and context in international politics we turn to questions of agency and practice within complex systems. Finally we explain our claim about why a complex approach to thinking about international relations ultimately implies a posthuman perspective.

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[1] Colin Wight, *Agents, Structures and International Relations* (Cambridge University Press, 2006), 4.
[2] Erika Cudworth and Stephen Hobden, *Posthuman International Relations: Complexity, Ecologism and Global Politics* (London: Zed, 2011).

Complexity Theory and Complex Adaptive Systems

Any discussion of complexity theory needs to be prefaced by some contextualizing remarks. There is 'no unified theory of complexity'.[3] The term can be used to describe a variety of theoretical positions which draw upon a similar conceptual lexicon while having radically different epistemological and ontological perspectives. Elsewhere we have identified four different ways in which complexity theory has been applied in the social sciences.[4] Oversimplifying the situation slightly, a distinction can be drawn between 'number crunchers' and 'philosophers'. This distinction aligns approximately, though not absolutely, with an Atlantic divide, thus we have the 'number crunchers' primarily operating from the US, and the 'philosophical' position primarily being a European perspective.

The character of this divide has been summarized by Edgar Morin as a distinction between 'restricted' and 'general' complexity.[5] From a 'restricted' perspective, complexity exists but can be tamed, in the sense that given enough mathematical and computer capacity law-like statements can be generated with regard to its effects. For example, Mark Buchanan argues that despite the presence of complexity 'it may be possible to discover mathematical laws and meaningful patterns in the human world.'[6] As far as Morin is concerned this reflects a 'restricted' view of complexity which while it 'recognises complexity' seeks to go about 'decomplexifying it' and 'remains within the epistemology of classical science.'[7] The restricted approach overlooks the inherent characteristics of complexity. For Morin the analysis of complexity requires a complete reconsideration of how we think about the world. We would regard our particular understanding of complexity to be much closer to Morin's concept of 'general complexity', one which cannot be tamed mathematically and perceives a broad unpredictability to existence and a hard to determine relationship between causes and effects. This is not to say that meaningful statements cannot be made about the world and, crucially, about the possibilities for change, but they do have to made within the context of a 'general complexity' – the implications of which will become clearer as we proceed.

Having stated our broad epistemological position, we will outline the key concepts of our particular perspective, and relate these to questions of structure and agency in international relations. Here we discuss three overlapping and interdependent concepts – complex adaptive systems, self-organization and emergence, which all

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[3] Cristoforo Sergio Bertuglia, and Franco Vaio, *Nonlinearity, Chaos & Complexity: The Dynamics of Natural and Social Systems* (Oxford University Press, 2005), 315.

[4] Erika Cudworth and Stephen Hobden, 'More than a Metaphor? Complexity in the Social Sciences', *International Journal of Interdisciplinary Social Sciences* 4, no. 4 (1999): 59-70; *Posthuman International Relations*, ch. 2.

[5] Edgar Morin, 'Restricted Complexity, General Complexity', in *Worldviews, Science and Us: Philosophy and Complexity*, eds Carlos Gershenson *et al.* (Singapore: World Scientific Publishing 2007), 5–29.

[6] Mark Buchanan, *Small World: Uncovering Nature's Hidden Networks* (London: Phoenix Books, 2003), 2.

[7] Morin 'Restricted Complexity', 10.

represent ways of considering the relationships between actors and between actors and system.

Complex Adaptive Systems

We live, as Mario Bunge has indicated in a 'world of systems.'[8] Everything above the level of the most elementary particles is a system of one form or another. This extends from atoms, through molecules, cells, bodies and upwards into social systems, solar systems, galaxies to finally, perhaps, the universe. From a complexity perspective these systems share certain common features, and all systems provide the environment for all other systems – in that sense we exist in a totally (to whatever minimal extent) interconnected universe.

A system in this sense indicates the possibility of drawing a notional boundary around a certain group of elements that indicates a certain degree of autonomy.[9] Systems overlap and intersect with other systems, but can be distinguished from the remainder of the environment. One human body (itself made up of multiple systems) can be distinguished from its environment, but interacts with its environment in multiple ways – it takes on other systems in the form of food (plant and animal systems), is constantly invaded by other systems (in the form of viruses), its actions are contribute to and are constrained by social, political and economic systems, and ultimately it will be dissipated into a range of other systems. A global economic system intersects and overlaps with a system of states, local economic and social systems, corporations and individuals. In this sense, complex systems are said to be 'open' rather than closed.

A second feature of complex adaptive systems is that rather than being fixed, they are inherently dynamic, and react to their environment. They are 'adaptive'. Central to this dynamism is the notion of feedback. Much traditional systems analysis has focused on the idea of feedback as leading towards equilibrium – described as negative feedback. Complexity thinking suggests that in addition to negative feedback we also need to consider positive feedback – forces which take a system further away from equilibrium and to greater instability. Systems can adapt to internal disturbance, for example ways in which the human body deals with its internal deterioration, or external influences – the global economic systems will be affected by events in the political system.

Robert Ulanowicz argues that we can draw distinctions between a conventional or Newtonian notion of systems and complex, or ecological systems.[10] Newtonian

[8] Mario Bunge, *Treatise on Basic Philosophy, Volume 4: A World of Systems* (Dordrecht: D. Reidel, 1979).

[9] Edgar Morin *Method: Towards a Study of Mankind, Vol. 1, The Nature of Nature,* trans. J.L. Roland Bélanger (New York: Peter Lang, 1992 [1977]).

[10] Robert E Ulanowicz, (2007) 'Ecology: A Dialogue between the Quick and the Dead' in *Reframing Complexity: Perspectives from North and South Capra*, eds. Fritjof Capra *et al* (Mansfield MA: ISCE Publishing, 2007).

systems are causally closed in the sense that developments in the system can only be explained with reference to the elements of the system. They are deterministic, implying that it is possible to predict future events. Newtonian systems are also reversible, in that the laws governing behaviour operate in both ways. In other words there are no historical developments within such systems. These systems are atomistic in that there is a mechanical relationship between the parts and the whole. The system can be dis-assembled and then reconstructed.

By contrast complex systems are open. Changes in the system can potentially be explained by internal or external features, or both. Events within a complex system are contingent rather than deterministic. They are irreversible, because the character of the system and the elements within in it are constantly changing. Complex systems are historical in that 'irregularities often take the form of discontinuities, which degrade predictability into the future and obscure hindcasting.'[11] Finally complex systems are organic rather than atomistic, and as a result are not easily decomposed and re-assembled. Consider, for example taking a rain forest apart and re-assembling it.

Self-Organisation

Underlying the notion of self-organization is the idea that there are patterns of behaviour in the interactions of matter. Rather than matter being solely involved in chaotic behaviour, there are regularities which emerge even if they are contingent and temporary. For Morin, organization is more than simple interactions and self-organization is crucial in understanding the driving forces behind the emergence of systems.[12] In other words organization isn't just the process of interactions which create the system. It is an on-going process which maintains the system as an autonomous within its environment. It is what maintains the system as a system and involves a certain degree of differentiating it from the systems around it.[13]

An underlying assumption of complexity thinking in the study of the social world is that these processes are also a feature of human interaction. Self-organization is seen as a spontaneous and non-directed process. This implies continuity between human and non-human nature. Our perspective is that features such as self-organization do manifest themselves in human systems in addition to non-human systems. However there are specific characteristics of human systems. Westley *et al* point to some specific features of human systems, in particular the human capacity for abstract thought, which actually increases self-organisation.[14]

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[11] Ibid. 42.

[12] Morin, *Method*, 127.

[13] Ibid., 132.

[14] Frances Westley et al, 'Why Systems of People and Nature are not just Social and Ecological Systems' in *Panarchy: Understanding Transformations in Human and Natural Systems*, eds Lance H. Gunderson and C.S. Holling (Washington DC: Island Press, 2002), 108.

Emergence

If complex adaptive systems mark the cornerstone of complex thinking, and self-organization indicates an inherent tendency for matter to interact in dynamic patterns, then the concept of emergence provides the link between the two.

The character of the system that emerges from the interaction at the unit level is unpredictable. For complexity thinkers the form that any system will take is not predictable in advance. There is also some doubt in complex systems as to whether the form that a complex system takes can be causally traced back to its original features with any degree of certainty. A classic example of this would be consciousness. From a complexity perspective consciousness is an emergent feature of the interactions of the brain. Consciousness could not be predicted from an examination of the parts of the brain, or the way in which they function.

Complexity thinkers argue that the emergent features of a complex adaptive system always represent something more than the sum of the parts. The character of complex system cannot be understood by simply combining the component parts.[15] There are new features which in some way constitute an added element which is only perceptible at the system level. These features although a characteristic of the interactions of the component parts cannot be understood simply as the interactions of the parts, but have to be studied at a systemic level.[16] The idea of emergence also implies that systems are less than the sum of their parts. For Morin systems, in addition to the new features that they exhibit, also place constraints on the actions of the components.[17] In other words an emergent feature of complex adaptive systems is the restrictions that complex systems place on the elements. Hence systems as well as being more than the sum of the parts, are also 'less' in the sense that they remove some of the freedom of action of the component parts in the way of constraints.

Emergence is also a transformative process. As Morin puts it '*everything which forms transforms.*'[18] This points to the dynamism of a complex adaptive system as changes at the unit level will also imply new forms of emergence at the systemic level. If we take the European Union as an example of a complex system, then we would expect the member states to have been transformed by their membership. They are not the same states that formed the organization, and the organization itself has also changed as a result of transformations at the unit level.

The concept of emergence is inherent then in understanding complexity thinking as an alternative perspective because it provides the explanation for why emergent features are 'logically undeducible and physically irreducible' to the component

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[15] Mario Bunge, *Matter and Mind*: *A Philosophical Inquiry* (Dordrecht: Springer, 2010), 75.
[16] Neil E. Harrison, and David J. Singer (2006) 'Complexity is More than Systems Theory' in *Complexity in World Politics*, ed. Neil E Harrison (Albany: State University of New York Press, 2006), 33.
[17] Morin, *Method*, 110.
[18] Ibid., 112, emphasis in original.

parts.[19] So what does this imply for thinking about structure and agency in international relations?

Agents and Structures in the Study of International Relations

Any analysis of the social world provides an implicit answer to the structure agency problem in that it discusses agents and the context in which they operate. David Dessler sums this up clearly when he observes, that there are 'two uncontentious truths about social life: first, that human agency is the only moving force behind the actions, events, and outcomes of the social world; and second, that human agency can be realized only in concrete historical circumstances that condition the possibilities for action and influence its course.'[20] That agency and structure has been viewed as a *problem* in International Relations indicates that there are issues and implications in the choice of what or who acts in international politics and the possible constraints within which action occurs. A number of articles have referred specifically to issues of agency and structure. Although not specifically focused on agents and structures as a *problem*, David Singer's 1961 article 'The Level of Analysis Problem in International Relations' is probably one of the most cited articles in the discipline.[21] Singer's argument concerns state action and the levels at which it might be studied.

By contrast Waltz had argued that there were three levels of analysis - human, state and system.[22] Waltz's *Theory of International Politics* is often taken as the definitive systemic statement of IR.[23] While often depicted as being determinist at the systems level, another interpretation is to see the international system as enabling and constraining. The degree that states are structural dupes fluctuates in Waltz's work, so that while he regards theoretical approaches that operate at the state level as reductionist and unable to tell the whole story.[24] For Waltz states are not the dupes of structural forces, but are liable to pay the costs of not conforming to structural priorities. For a really system orientated account of IR we need to look to Wallerstein's World System theory. For Wallerstein the international system was completely determining and the source of all unit level phenomena.[25] Not only are these features products of the system, their room for action is fundamentally constrained as 'within a functioning historical system there is no genuine free will.'[26]

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[19] Ibid., 107.

[20] David Dessler, 'What's at Stake in the Agent-Structure Debate?', *International Organization* 43, no. 3 (1989), pp. 443.

[21] J. David Singer, 'The Level-of-Analysis Problem in International Relations', *World Politics*, 14, no. 1 (1961): 77-92.

[22] Kenneth Waltz, *Man, the State and War: A Theoretical Analysis*, (New York, Columbia University Press, 1959).

[23] Kenneth Waltz, *Theory of International Politics*, (Boston: McGraw-Hill, 1979).

[24] Waltz, *Theory*, 18, emphasis added.

[25] Immanuel Wallerstein, *The Politics of the World Economy: The States, the Movements and the Civilisations* (Cambridge University Press, 1984), 150.

[26] Immanuel Wallerstein, *Unthinking Social Science: The Limits of Nineteeth Century Paradigms*, (Cambridge: Polity Press), 235.

Waltz's systemic approach was the catalyst for agency/structure discussions in the late 1980s and 1990s in particular drawing on a Critical or Scientific Realist perspective.[27] Wendt criticised both Waltz and Wallerstein for being 'ontologically primitive', though in different ways – Waltzian Structural Realism found its ontological focus at the state level, whilst Wallerstinian world-system theory found its ontological focus at the system level. The problem was that both confronted 'an inability to explain the properties and causal powers of their primary units of analysis.[28]' The answer, for Wendt, was structuration. His critique of Waltz prompted a debate carried out in the pages of *Review of International Studies* over the extent to which Waltz's theory could be described as structuralist.[29]

In the late 1990s Roxanne Lyn Doty entered the discussion with a contribution from a poststructuralist perspective.[30] Lyn Doty made some significant criticisms of the discussions thus far, in particular the view that the structure agency debate had emphasized a dualism in ideas about agency and structure. Lyn Doty suggested as an alternative focus on practice.

The most comprehensive discussion on this topic is to be found in Colin Wight's book *Agents Structures and International Relations: Politics as Ontology*. As well as providing a comprehensive survey of all the contributions to date, the book outlines his critical/scientific perspective on the question, drawing in particular on the works of Ray Bhasker. The book is a series of 'ontological investigations' into how questions of agency and structure have played out within international relations.[31] Wight argues for a view of structures and agents drawing on the work of Bhasker and Margaret Archer:

> Structure… binds the various planes [of which there are four: material; intersubjective; social; subjectivity] of the social world together… it links them and provides a way to integrate agents and structures in one account… agents and social structure are neither contradictory nor complementary terms, but rather represent two poles which stand in a relation of tension with one another… social structure is reproduced and transformed through the actions of agents, it is also the case that the range of possibilities available to individuals and groups is differentially distributed and structurally circumscribed.[32]

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[27] Alexander Wendt, 'The Agent-Structure Problem in International Relations Theory', *International Organization* 41, no. 3 (1987), 335-370.

[28] Wendt, 'The Agent-Structure Problem', 337.

[29] Alexander Wendt 'Bridging the Theory/Meta-Theory Gap in International Relations', *Review of International Studies* 17, no. 4 (1991), 383-392; 'Levels of Analysis vs. Agents and Structures: Part III, *Review of International Studies* 18, no. 2 (1992), 181-185; Martin Hollis and Steve Smith, 'Beware of Gurus: Structure and Action in International Relations', *Review of International Studies* 17, no. 4 (1991), 393-410; 'Structure and Action: Further Comment', *Review of International Studies* 18, no. 2 (1992), 187-188; 'Two Stories about Structure and Agency', *Review of International Studies*, 20, no. 3 (1994), 241-251.

[30] Roxanne Lyn Doty, 'Aporia: A Critical Exploration of the Agent-Structure Problematique in International Relations Theory', *European Journal of International Relations*, 3 no. 3 (1997), 365-392.

[31] Wight, *Agents, Structures*, 13.

[32] Ibid., 175-6.

What is perhaps quite remarkable about the structure-agency debate in international relations is its incredibly limited focus. Certainly the introduction of scientific/critical realist contributions from Bhaskar and Archer has contributed to a much more comprehensive account of the relationship between structures and agents. In particular the notion of emergent systems is central to this perspective. An engagement with complexity thinking draws our attention to a number of additional features of systems.

Firstly no system is isolated in the way that structure agency discussions appear to imply. The environment for any system is provided by all other systems. Hence the international system will be affected by interactions with other systems, for example, the global food production system.[33] Systems for complexity thinking can also be composed of heterogeneous units. Hence thinking about an international system might lead to the consideration of a variety of units – individuals, states, international organisations, INGOs, and so on. Complexity thinking also draws our attention to the embedded character of systems. Human systems are likewise additionally embedded in a range of non-human systems – this has implications for the development of each. The international system is not only impacted by developments within the system, but also though interactions with a number of non-human systems, for example the weather.

Differentiated Agency in Complex World

In this section we want to use complexity ideas and conceptions from posthumanism to further problematise the structure-agency debate in international relations and its incredibly limited focus. As we have seen, the central claim of complexity thinking is that we live in a world of systems, each potentially involved in interaction with any other system. However, we clearly need to differentiate between systems, and social systems, in particular human social systems exhibit specific characteristics. Mario Bunge has usefully distinguished between 'biologism' which views human society as 'just one more animal society', and 'spiritualism' which views human society as 'nothing of the sort because it is guided by ideas and values'. Rather 'human society is an animal society with many and remarkable properties', the human 'is neither an animal at the mercy of its genetic makeup and its environment, nor a free spiritual being akin to divinity.'[34]

For us however, whilst this problematizes the notion of the human (as above and beyond the 'animal') it retains the basic divide between human animals (with their special features) and all other animals. This underplays the essentially Darwinian notion of species as a process of differentiation rather than difference, and the complexity conception of evolution as a multiple process – co-evolution. Here, we are going to focus directly on posthumanist ideas and consider what questions these raise first, for agency in general, and second, for understanding the possibilities of

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[33] See discussion in Cudworth and Hobden, *Posthuman International Relations*, 97-109.

[34] Bunge, *Treatise*, 186.

agency in international politics. We are going to suggest that we need a differentiated account of agency which both broadens and specifies our conceptual repertoire. The first step in this task is to consider why agency is considered an exclusively human property.

From evolution to revolution

> Now, comrades, what is the nature of this life of ours? Let us face it: our lives are miserable, laborious and short. We are born, we are given so much food as will keep the breath in our bodies, and those of us who are capable of it are forced to work to the last atom of our strength; and the very instant that our usefulness has come to an end we are slaughtered with hideous cruelty.…
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> Why do we then continue in our miserable condition? Because nearly the whole of the produce of our labour is stolen from us by human beings. There, comrades, is the answer to all our problems. It is summed up in a single word – Man. Man is the only real enemy we have. (Major the pig, exhorting the animals of Manor Farm to 'rebellion', from George Orwell *Animal Farm* 1949: 11-12)

And inspired by the ideas of Major, pigs lead farmed animals in the revolutionary overthrow of their human oppressors and institute a new regime for a new world – 'Animal Farm'. Orwell's book is read as a satire because it would be ludicrous to read it any other way – pigs are pigs and human beings remake their worlds. That, is just 'the way things are' as the malevolent cat informs the pig who would be a sheepdog, in Dick King-Smith's children's novel. The concept of agency has almost always been understood as applying to beings with wills, desires and intentions. It has been seen as a capacity for action which (usually) is a product of social relations, a relationally generated capacity. This capacity is what makes us human. Agency is concerned with the ways in which our world is reproduced and recast. Whilst non-human beings and things evolve, we humans, we political animals, go about planning and changing our world.

At least, this is our common understanding. In the US sci-fi film, the *Rise of the Planet of the Apes* (Dir. Rupert Wyatt, 2011) however, we see non-human Great Apes become revolutionary subjects. The film's main protagonist, Caesar, has enhanced intelligence passed on from his mother, a laboratory chimpanzee tested with gene therapy drugs intended to cure Alzheimer's disease in humans. When the research companies' laboratory chimps are culled after a false alarm about drug side-effects, Caesar is taken home and raised by one of the scientists. In the house, Caesar occupies various roles - a very well-cared for laboratory subject, a child and a pet. Outside the home, he is viewed by strangers as a dangerous addition to the suburban idyll. After an incident with a neighbour in which Caesar displays aggression, thereby behaving too much like a chimpanzee, he is handed over to a primate 'sanctuary' in which human keepers abuse the non-human Great Apes in their care and where Caesar finds himself isolated from, and bullied by, his own 'kind'. Caesars advanced intelligence however, enables him to make alliances and subdue enemies and incite other non-human Great Apes to rebellion. He orchestrates their exposure to Alzheimer treatment, their escape from the primate centre and the liberation of other Great Apes from a laboratory and a zoo, to the

sanctuary of a redwood forest nature reserve. Misanthropy is a key theme of the film, which ends with the hint that whilst new Alzheimer drugs enhance intelligence in other Great Apes, in humans they have terrible and contagious side effects.

Certainly, in a context of abuse by medical testing and incarceration, and of vulnerability in a human centred system of social relations, Caesar and his comrades have much to be angry about. But this is not a posthumanist film. Rather, it is a transhumanist one – non-humans are enhanced by the incorporation of human qualities. *The Rise of the Planet of the Apes* is an old fashioned tale of revolution in which non-human Great Apes have agency to the extent that they can become human, or are subject to 'uplift'. There are two indicators of the possibilities for ape rebellion: reflexivity and a particular kind of communication, language. Caesar demonstrates both these qualities and at this point it seems only polite to bring him into conversation with Margaret Archer. Luckily for Margaret, Caesar's awakening as an uplifted subject does not mean that he fully embraces enlightened chimpdom. He keeps his trousers on.

Archer, agency and the uplifted chimpanzee

In much posthumanist work, whether in Science Technology and Society (STS), political geography, animal studies or elsewhere, the term 'agency' is broadly defined and used in different ways. For example, agency is often used to refer to a being with the capacity for action. Action is usually defined as the ability to make decisions, choose options and thereby act. Agency is seen as a causal power invested in singular entities – persons, beings or 'things'. In some cases it is implied that agency is a universal property of sentient beings. Leslie Irvine, for example, identifies dogs as 'agentic beings'[35] with agency defined as 'the capacity for self-willed action'.[36]

For Archer, this commits the sin of conflation. What people like Irvine do is to muddle the capacity for action, which dogs or chimpanzees clearly have, with agency. Archer makes a distinction between 'actors' who are singular, and 'agents' who are plural.[37] Agents are collectivities formed by those who share the same life chances. This position is involuntary because the social relations within which we may find ourselves, and the advantages or disadvantages they imply, predate our arrival. So, agents come into being in historically and geographically specific and contingent locations in society's distribution of resources. From birth, we are enmeshed with the structural relations of society and relations of social power. The extent to which we can exercise choice and act on the decisions we make is linked to these structural relations. Born into a captive life as a research tool for human gain, Caesar does not have the best start in life, nor would any other chimpanzee so placed. Non-human animal being and lives are shaped by their locations within a

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[35] Leslie Irvine, *If You Tame Me: Understanding our Connection with Animals* Philadelphia: Temple University Press, 2004), 6.

[36] Irvine, *If You Tame Me,* 128.

[37] Margaret Archer, *Being Human: The Problem of Agency* (Cambridge University Press, 2000), 261.

distribution of resources where their habitats and their bodies are subject to human interests and depredation. Their lives are subordinated to the desires and whims of humans and the material conditions for their survival are frequently disregarded. Archer calls this involuntary placement in social relations 'primary agency', and there is no reason other than religious belief or humanist prejudice perhaps, why this cannot be extended beyond the boundaries of the human to other species. This placement however, is insufficient for either Major the pig or Caesar the chimp to rebel against their oppression by social structures which privilege the human.

After hours free in the trees of a nature reserve, Caesar is called back 'home' and taken to the car on a leash. On seeing a dog similarly tethered, is troubled by the multiple identities of pet and almost-human companion he is expected to occupy. Later, in his cage in the primate centre, he shares his experiences of frustration in sign language with a fellow-signing orang-utan. Here, Caesar the individual is reflecting upon the involuntary and oppressive situation in which he finds himself and the arbitrary and unjust nature of human power. He recognises what he shares in common with the other primates and orchestrates collective action to challenge human power and change the life situation of some of his fellows. For Archer, this would be an illustration of the move from primary agency to corporate agency, albeit Archer's discussion of corporate agency is on the firmly humanist territory of the emergence of social movements.

Whilst Archer herself would have no truck with animals, Bob Carter and Nickie Charles use Archer to inject some rigour into discussions of agency in sociological animal studies. For them, animals can possess primary agency but are unable to move from this to corporate agency. This is because they lack:

> The recognition of shared life chances, an assessment of their possible causes and judgements about possible political remedies requires the mobilisation of political, cultural and linguistic resources...[38]

Carter and Charles allow that the sociality and sociability of many animal species is well established including recognition of hierarchies, socialisation of infants and struggles over resources. Indeed, they suggest that forms of sociality amongst human and non-human animals are perhaps best viewed as a continuum, extending from those animals for which sociality is meaningless, through to those with extensive sociality, such as dogs, horses and higher primates. However, for them the development of syntactical language amongst humans marks a qualitative break with this continuum.

Here Carter and Charles effectively reproduce the distinction between 'first' and 'second' nature found in Jonathan Balcome's work. Balcome warns us that science is rapidly revealing evidence that all kinds of animal species 'are more aware and more

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[38] Bob Carter and Nickie Charles, 'Human–Animal Connections: An Introduction', in *Human and Other Animals: Critical Perspectives*, eds. Bob Carter and Nickie Charles (Basingstoke: Palgrave, 2011), 12.

sophisticated than we thought'.[39] However, language enables further cultural emergent properties, setting humans on a qualitatively different evolutionary course to other animals. The distinction between first and second nature underpins earlier work by the social ecologist Murry Bookchin to describe human exceptionalism, in terms of community diversity, language and use of technology.[40] A further distinction is institutionalized hierarchy, an 'exclusive characteristic of second nature.'[41] Carter and Charles similarly suggest that the symbol-laden nature of human social life means that the struggles over resources are political for humans whereas for animals 'the struggles over who gets what, when and how take a different form'.[42] To substantiate this claim, Carter and Charles use Frans de Waal's work on chimpanzees, yet it is uncertain that de Waal's research supports their argument. De Waal explicitly argues that chimpanzees *do* have politics and that 'the social organization of chimpanzees is almost too human to be true'.[43] De Waal argues chimpanzee politics operates at two levels: the formal hierarchical system of rank (which is negotiated and socially formalised); and the networks of influence through which chimpanzees build coalitions, engage in exchange and maintain the balance of power. De Waal's chimpanzees may be rather feudal in their politicking for contemporary democratic tastes, but political animals they are.

We would concur with Ted Benton that syntactical language is part of the 'mode of life' which is 'peculiar' to human beings and 'the outcome of [a] unique evolutionary history'.[44] We would not accept however, that without this specific kind of communication all kinds of non-human species are excluded from what Archer calls corporate agency. Benton argues that many species have overlapping forms of 'species life' with humans and that we should think about 'differentiations' rather than differences.[45] Differentiations of species, and particular social, economic and ecological contexts give rise to different categories of human animal relationship. In addition, there are non-lingual forms of communication which species may share.[46] So Caesar can plot and plan, scheme and manipulate, without the uplifting effects of intelligence enhancing drugs. De Waal's chimpanzees indeed managed to orchestrate a group escape from their enclosure. But unlike Caesar, they did not challenge their domination by humans. There are two questions to be asked here. First, is it because, not having been subjected to 'uplift', they cannot know that they are dominated? Or, second, is it because they chose not so to act in the circumstances in which they found themselves.

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[39] Johnathan Balcome, *Second Nature: The Inner Lives of Animals* (Basingstoke: Palgrave, 2010), 5.

[40] Murry Bookchin, *The Philosophy of Social Ecology* (Montreal: Black Rose Books 1990), 162.

[41] Murry Bookchin, *The Ecology of Freedom: The Emergence and Dissolution of Hierarchy* (Edinburgh: AK Press, 2005), 26.

[42] Carter and Charles, 'Human–Animal Connections', 14

[43] Frans de Waal, *Chimpanzee Politics: Power and Sex Among Apes* (Baltimore, Md.: Johns Hopkins University Press, 2007), 4.

[44] Ted Benton, 'Conclusion: Philosophy, Materialism, and Nature – Comments and Reflections' in *Nature, Social Relations and Human Needs: Essays in Honour of Ted Benton*, eds. Sandra Moog and Rob Stones (Basingstoke: Palgrave Macmillan, 2009), 230.

[45] Ted Benton, *Natural Relations: Ecology, Animal Rights and Social Justice* (London: Verso, 1993), 45-57.

[46] Donna Haraway, *When Species Meet* (Minneapolis: University of Minnesota Press, 2008)

For Archer, Carter and Charles the answer is straightforward – chimpanzees cannot know they are dominated. Language is necessary for reflexivity and this is 'critically dependent on the linguistic ability to hold an "internal conversation" with oneself'.[47] For Archer, the 'internal conversation' is the ability to order our concerns, to consider judgments and make decisions on the basis of them, leading to increased self-knowledge.[48] Carter and Charles argue that language capacity is what enables the capacity to have awareness of one's own consciousness. This is why, they might argue, Caesar needed the drugs. The work of animal beviouralists however increasingly suggests that some non-humans, despite being without language, seem able to think about the future and engage in forward planning. Those like Bekoff would err on the side of caution when it comes to claims about what animals might or might not be able to do. We would concur. It is possible for some non-human species to be reflexive? It would not surprise us if they were but we do not know. We would suggest that critical realists like Archer, Carter and Charles do not 'know' that this is impossible, either. In response to the second question, we would pose another. What might it mean to be reflexive when you are a chimpanzee born into captivity in a society in which species relations overwhelmingly privilege the human and non-humans are exploited and depredated? As Carol Adams and Marjorie Proctor (1993) have remarked, a lack of contestation must not be interpreted as a sign of complicity when it comes to those species over which we exercise overwhelming power and control.[49] What animals may or may not reflect on, and what their possible actions might be a given situation, is extraordinarily difficult to ascertain. To assume that animals are unaware of, are complicit in, or benefit from, the oppressive institutions and practices into which we place them is an assumption easily made and conveniently undisruptive for human interests.

So, what might we draw thus far from placing Caesar in the room with Margaret? Margaret Archer, Caesar and the chimpanzees in de Waals' study are all agential beings and we would suggest that in addition, they all have agency. It is of different *kinds* however, and this is the important intervention that Archer makes. Archer's differentiation between 'primary' and 'corporate' agency is useful. The idea that agential beings emerge into a pre-existent web of social relations is vital to understanding the possibilities of agency. We prefer to talk about this placement in a situation of unequally distributed power and resources as **'reproductive agency'**. Herein, agential beings are placed in a context of social institutions and social relations and their practices over time reproduce those institutions and relations, with relatively minor alterations. Placement in contexts of inequality means that relations are not always apparent and the behaviour of agential beings often reproduces such patterns. Both humans and non-human agential beings and things have this reproductive agency. We also suggest a secondary form of agency which draws on Archer's notion of corporate agency. **'Transformative agency'** is a term we

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[47] Carter and Charles, 'Human–Animal Connections', 13.
[48] Margaret Archer, *Structure, Agency and the Internal Conversation* (Cambridge University Press, 2003), 26.
[49] Carol J. Adams and Marjorie Proctor-Smith, 'Taking Life or Taking on Life? Table Talk and Animals', in Carol J. Adams (ed.) Ecofeminism and the Sacred (New York: Continuum, 1993), 295-310.

would use to describe the cultural struggle over resources and social organization to effect differences in that distribution. Whilst this is very much associated with humans, some species of non-humans have this capacity for social action and may even in Archer's terms have a relationally generated capacity for such action. We have focused thus far on humans and non-humans who are relatively close to them. What of the agential powers of distant beings and things? What of the effects of natural systems – these have causal powers and emergent properties, but might they also have agency? In order to discuss these questions we need to look at some the perspectives on agency more commonly associated with 'posthumanist' approaches, and here we develop a third concept of agency, **'affective agency'**.

Posthumanism and accounts of agency

The history of political theory has ascribed political will and agency to humans alone. Even those contemporary thinkers with challenging and radical notions of the nature of decision making in democratic political institutions, consider that (human) speech is the medium of politics.[50] Those political theorists with environmental credentials have also cast both technologies and 'natures' as outside of political life – as the objects of political attention rather than political agents with affect and causality.[51] Those experimenting with radical notions of 'environmental democracy' have only experimented so far, and tend to conceive of politics as a human-exclusive sphere of activity and democratic decision-making that is separate from the objects over which democratic deliberation takes place.[52] Posthumanism can be broadly understood to be the decentering of human beings and human interests, and raises fundamental questions for our human-exclusive conceptions of the political, including political actors and the constitution of agency.[53]

Posthumanism has been influential in disrupting the binary categories of western philosophy such as nature/culture or human/animal and there are various strands and projects. Particularly influential has been science, technology and society (STS) approaches.[54] Enter stage left, Bruno Latour, whose work has consistently problematized our humancentric ways of seeing the 'social' world, albeit that he does not approve of the term posthumanism itself. Latour's influential Actor Network Theory holds that agency may be attributed to any object or 'actant',

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[50] Jürgen Habermas, 'Three Normative Models of Democracy', in *Democracy and Difference: Contesting the Boundaries of the Political*, ed. Seyla Benhabib *(*New York: Columbia University Press, 1996), pp. 21–30. Also see Andrew Linklater, *The Transformation of Political Community: Ethical Foundations of the Post-Westphalian Order* (Oxford: Polity, 1998); 'Dialogic Politics and the Civilising Process', *Review of International Studies* 31, no. 1(2005), 141-154.

[51] Nikolas Rose, *Powers of Freedom: Reframing Political Theory* (Cambridge University Press, 1999); Andrew Dobson and Derek Bell (2005) 'Introduction', in *Environmental Citizenship*, eds. Andrew Dobson and Derek Bell (Cambridge, MA: MIT Press, 2005), 1–20.

[52] Andrew Dobson and Robyn Eckersley, eds., *Political Theory and the Ecological Challenge* (Cambridge University Press, 2006).

[53] Cudworth and Hobden, *Posthuman International Relations*, 140-168.

[54] Bruno Latour and Steve Woolgar, *Laboratory Life: The Construction of Scientific Facts* (Princeton, NJ.: Princeton University Press, 1986).

temporarily constituted by the emergent web of 'materially heterogeneous relations'.[55] Here, agency is inflated conceptually (so that it becomes simply a capacity for action) and extensively (so that anything that has an effect on something else is seen as an actor or actant, from fishermen to scallops).[56] In the networks of ANT, any material entity can have agency, including all non-human animal species and inanimate objects. Other posthumanist positions lend themselves to progressive political projects such as those characterising critical animal studies, political ecologism, feminism and others.[57] It has been suggested that exploitative and oppressive relations exist and must be taken seriously, and that their challenge has seen the emergence of a post-humanist, non-anthropocentric way of understanding and relating to other animals and the natural world more generally.[58] These developments are more congruent with our own position because in such accounts, the binaries can also be understood in terms of systemic relations of social power that we would see challenged.

John Law's version of ANT focuses on the practices and performances which create realities as material.[59] Different realities are created by different kinds of practices. This however, is problematic when applied to Law's example of cattle, which exist together with farmers in a web of relations which 'produces them as different'.[60] This is problematic in two ways. First, as Ted Benton points out, cattle are creatures with a specific material existence and powers and properties which are not context dependent.[61] Second, how we understand the web of relations which brings cattle into being, depends on how we conceptualize the web – whether cattle and farmers are co-producers of human food and of a specific spatial configuration by their use of land, or whether cattle are living commodities, embedded in relations of exploitation in the local, regional and global networks of the industrial production of the human resources of milk and meat. Law's web of productive relations is both simple (it is understood in a singular, local or regional dimension) and flat (non-hierarchical). Cattle breeds have certainly been brought into existence a web of relations, literally and materially, for they would not exist without the dairy and meat industries, but this is not Law's main concern. The flat, non-hierarchical networks for ANT cannot deal with power because it cannot make distinctions between nature and society, or for that matter, between humans, other animals, plants and objects. In theorizing power, we need such distinctions. As Benton argues, the categories of species, however problematic, retain some saliency because there are distinct features of

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[55] John Law, 'Practising Nature and Culture: An Essay for Ted Benton' in *Nature, Social Relations and Human Needs: Essays in Honour of Ted Benton*, eds. Sandra Moog and Rob Stones (Basingstoke: Palgrave Macmillan, 2009), 71.
[56] Michael Callon, 'Some Elements of a Sociology of Translation: Domestication of the Scallops and the Fishermen of St Brieue Bay', in *Power. Action and Belief: A New Sociology of Knowledge?*, ed. John Law (London: Routledge and Kegan Paul, 1986), 196-233; Karen Barad, 'Posthumanist Performativity: Toward an Understanding of how Matter Comes to Matter' in *Signs: Journal of Women in Culture and Society* 28, no. 3 (2003): 801-831
[57] Val Plumwood, *Feminism and the Mastery of Nature* (London: Routledge, 1993; Reference removed for reasons of anonymity.
[58] See Cary Wolfe, *What is Posthumanism?* (Minneapolis, MN: University of Minnesota Press, 2010).
[59] Law, 'Practising Nature and Culture', 68.
[60] Ibid., 70.
[61] Benton, 'Conclusion', 217.

species life which some 'species' possess in relation to others. This means that our ideas of agency must vary with species. In addition, we need to acknowledge the systemic relations shaping collective agency and agential power. We argued above for a conception of differentiated agency in which the agential being of non-human animals, particularly mammals is countenanced, and the possibilities for agency very much depends on the relational systems which produce such being. What, then, of far more distant beings and even 'things'?

Jane Bennett argues for a 'vital materialism' in order to recognize the role of apparently inanimate matter affecting and configuring situations and events.[62] Bennett's argument about the animism of all things resonates in different ways with the complexity understandings of Capra (1996) and of neuroscientists Humberto Maturana and Francisco Varela.[63] However, in Spinozist vital materialism there is a tendency to minimize the differences between subjects and objects with this notion of a vitality which runs through both human and non-human matter. The end in view is the development of a more environmentally aware and cautious politics, but the elevation of the 'shared materiality of all things' is a rather blunt instrument in securing this end.[64] Bennett's (2004) notion of 'thing power' understands agentic capacity as distributed 'across a range of ontological types.'[65] In describing an electric grid as an assemblage of vital material and in her use of the term emergent properties, Bennett is actually close to the notion of a complex system.[66] For Bennett, non-human assemblages, can act. However, what she actually means is that assemblages can have an impact or effect on humans and non-humans. Herein lays a version of the problem which we found with both Latour and Law – a conflation between the idea of the properties and powers of beings and things, and the notion of action and the idea of agency. The retort of those such as Bennett, or Latour or Haraway, might be that unless we allow for the agency of things, and unless we decentre human language as an enabler of agency, we cannot decentre the human in political analysis. Bennett has rightly argued that the human/non-human dichotomy in political thought has not helped many of the political demands of humanism. Conversely however, there are serious questions to be raised about Bennett's assumption that a distributed concept of agency will be effective in unsettling humanocentric politics.[67]

Latour however, is more careful than Bennett. He wants non-human agency as a counter to humancentric prejudice and as a reflection of our reality as one of the

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[62] Jane Bennett, *Vibrant Matter: A Political Ecology of Things*, (Durham, NC: Duke University Press, 2010).

[63] Fritjof Capra, *The Web of Life: A New Synthesis of Mind and Matter* (New York: HarperCollins, 1996). Humberto Maturana and Francisco Varela , *Autopoiesis and Cognition: The Realization of the Living* (Dordrecht: Kluwer Academic, 1980); *The Tree of Knowledge: The Biological Roots of Human Understanding* (Boston, MA: Shambhala, 1987).

[64] Bennett, *Vibrant Matter*, 13.

[65] Jane Bennett, 'The force of things', *Political Theory* 32, no. 3 (2004): 347–72.

[66] Bennett, *Vibrant Matter*, 24-28.

[67] Ibid., 36-37.

multitude of species situated in a range of 'attachments' on planet earth.[68] This is necessary to accurately capture the immense causal powers of the non-human in our current political world. Complexity biologists with concepts of species co-evolution and fitness landscapes and earth systems scientists encouraging humility by humans in the face of the powerful forces of self-regulation exerted by complex systems of the natural world would agree.[69] However, the difficulty with Latour is that in his broad sweep, all agency is understood as of the same quality. In addition, it is a property of 'things' rather than, as complexity thinking suggests, of systems in relation. Like Latour, we want to be able to discuss the ways that all kinds of creatures, beings and things, bound up in relations of complex systems and relations with their system environments, are able to, in the words of Antony Giddens 'make a difference in the world.'[70] We would use a notion of agency to discuss the significant effects of natural systems and the beings and things caught up in them in their relations with other systems. We consider this to be a third kind of agency, **'affective agency'**. This is not simply the causal powers of a being or thing but a systemic impact that is collective and significant. By significant, we mean that it 'makes a difference in the world', that is, it alters the systemic conditions, the agential landscape, for other beings and things. The impact of global warming, or the effects of a viral pandemic would be examples here.

We need a posthumanist account of agency that problematises rather than rejects outright, dualist ontologies, in the hope of shifting those binaries and challenging their effects on humans, non-human creatures and 'the environment' more broadly. Whereas ANT considers agency simply as a quality of material existence, we need a conception of agency which incorporates the idea that non-human life and non-human animals are social actors able to exercise agency without seeing agency simply as a capacity that material beings can exercise. We argue therefore for a situated and differentiated notion of agency that understands the ability of creatures and things to 'make a difference in the world' as a question of *situated relations* rather than *intrinsic capacity* alone.

Conclusion: International Relations Beyond the Human

The core element of our argument is that International Relations remains dominated by humanocentric approaches. This places limits on what it is possible to say about international relations and on the ethical issues raised by human actions with regard to non-human nature. While some theorists have engaged with thinking about complexity we would argue that few have thought it through to its logical conclusion – the interconnectedness of systems, and the implications for agency and structure.

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[68] Bruno Latour, 'A Plea for Earthly Sciences', in *New Social Connections: Sociology's Subjects and Objects*, eds Judith Burnett *et al*. (Basingstoke: Palgrave, 2009), 72–84.

[69] Stuart Kauffman, *The Origins of Order: Self Organization and Selection in Evolution* (Oxford: Oxford University Press, 1993); James Lovelock, *The Vanishing Face of Gaia: A Final Warning* (London: Allen Lane, 2009).

[70] Anthony Giddens, *The Constitution of Society*, (Cambridge University Press, 1984).

Perhaps our most significant claim is that it is possible to conceive of agency beyond the human. While at some level this may appear to be a controversial claim, it is not an unprecedented one. Fernand Braudel, for example pointed to geographic and climatic factors in *la longue durée* as being influential in the development of societies around the Mediterranean.[71] Drawing upon Margaret Archer's discussions of primary and corporate agency, we have developed a three-fold approach to thinking about structure and agency that allows us to think about agency beyond the human. First, reproductive agency acknowledges the way in which agential beings, both human and non-human, emerge into a pre-existent web of social relations and unequally distributed power and resources and their practices over time reproduce those situational constraints with relatively minor alterations. Second, there is transformative agency where humans and possibly some other creatures engage in a struggle over resources and social organization to effect differences in that distribution. The human world overlaps with innumerable non-human systems, both animate and inanimate, which can impact and influence, and indeed radically change the structures of the human world. We have described this third form as affective agency. Certainly the agency of non-human species is constricted in the extreme. Human institutions and social practices have effectively remade the world and our conditions of existence on this planet. Privileged groups of humans exercise considerable power over the lives of both human and non-human animals and intervene dramatically and often disastrously in non-human lifeworlds. But if we look to viruses then perhaps there is another potentially devastating story to be told.[72] Hence we would argue that, if the definition of agency is the potential to alter structures, then this exists beyond the human.

Our second point relates to issues of the analysis of agency. Complex systems can present problems of analysis related to unpredictability, causality, and non-linearity. A central feature of complex systems is the tendency for their characteristics to change suddenly and unexpectedly. This is not to say that patterns don't exist. Sequences of behaviour and regularities can persist, but are liable to sudden changes without warning.[73] Furthermore the element of unpredictability extends to questions of agency, as agents confront considerable problems in terms of foreseeing the outcomes of their actions. In other words in considering agency we need to be aware that the outcomes of certain actions may well be (and probably are!) rather different from what the actor intended. In Morin's words, 'action escapes the will of the actor.'[74]

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[71] With reference to the Mediterranean Braudel discusses 'a climate which has imposed its uniformity on both landscape and way of life'. See Fernand Braudel, The Mediterranean and the Mediterranean World in the Age of Philip II, Volume 1 (Berkley CA, University of California Press, 1995 [1949]), 231.

[72] There have been recent panics over various viruses, for example, SARs, which so far have come to little. However the Influenza outbreak following World War 1 is thought to have resulted in the deaths of somewhere between 50-100 million people. The black death in Europe in the 14th century wiped out approximately 30% of the population, with implications, some argue, for the development of social structures, including capitalism.

[73] Patrick Baker, 'Chaos, Order and Sociological Theory', *Sociological Inquiry*, 63 no. 2 (1993), 133.

[74] Edgar Morin, *On Complexity* (Cresskill, NJ: Hampton Press, 2008), 96.

Likewise interactions within complex systems are non-linear – meaning that very small actions can create large outcomes, while very large actions can result in minimal change within systems. The implication of this is that that very small actions by agents can potentially have rather far reaching effects. This does not mean that agents are not constricted by the structures within which they find themselves immersed. Nor does it mean that small actions can predictably be expected to have large outcomes. It does mean however that in thinking through issues of structures and agencies the link between action and outcome is undeterminable.

Ultimately, in a complex world, discussion of causality is problematic. Inherent in complexity influenced discussions of the social world is the rejection of Newtonian models.[75] In complex systems cause and the resultant effect can be non-local, but can also be simultaneous. Complex systems operate in a 'tangle of actions, interactions, and feedback'[76] meaning that discussions of ultimate causality are somewhat closer to guesswork. It's not that there is no causality at work, it is just that the analysis of causality confronts possibly overwhelming difficulties.

Finally, we would like to comment on posthumanism as an approach to thinking about international relations. Our version of posthumanism is built on a foundation of thinking about complexity. Complexity we have suggested is phenomena that can be observed in a variety of systems, human and non-human, animate and non-animate. Complexity is neither necessarily progressive, nor teleological. Complex systems can collapse. The study of complexity can tell us things about the character of interactions, but it is not ultimately a normative account of the world. It is, rather, a meta-theoretical framework, within which various ontologies might be developed. This is why thinkers from such a wide range of perspectives have been able to engage with the approach.[77] That said, we have argued elsewhere that complexity thinking provides clear support for anarchist positions.[78] Certainly the posthumanism advocated here is a normative position which, in highlighting hierarchies of power both within human systems and particularly between human and non-human systems, advocates the consideration of alternative forms of organising relations both within the species and across species' boundaries. In particular in thinking about policy issues we have suggested that a precautionary principle should dominate, a greater humility in terms of our embeddedness (rather than separateness) in non-human nature, and a priority towards the building of resilience within systems rather than the undermining of resilience.[79]

There are, we think, big questions raised by a posthumanist approach to

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[75] Thomas Homer-Dixon, 'The Newest Science: Replacing Physics, Ecology will be the Master Science of the 21st Century', *Alternatives Journal*, 35 no. 4 (2009), 8–38.

[76] Morin, *On Complexity*, 84.

[77] Complexity thinking is perhaps the one area of thinking that links business studies, poststructuralism and Marxism. See, John Sterman, (London : Irwin/McGraw-Hill, 2000); Paul Cilliers, *Complexity and Post-modernism: Understanding Complex Systems* (London: Routledge, 1998); David Byrne, *Complexity Theory and the Social Sciences* (London: Routledge, 1998).

[78] Reference removed for reasons of anonymity.

[79] Reference removed for reasons of anonymity.

international relations and the structures and agents with which scholarship might be pre-occupied. Posthumanism offers an embarrassment of riches in response to the question of what we might be studying when we study international relations. The non-human world becomes more than the stuff about which political man (most usually) makes decisions and acts upon. Rather, the nonhuman forms the landscape of decision making and human endeavour. A posthuman international relations will be attuned to the possibilities of a fuller range of actors and constraints in any given context. We have argued that the impact of powerful relational human systems on the nonhuman lifeworld, and on vulnerable groups of humans, is deeply problematic and inherently unsustainable for many species, including our own. We have remade the conditions of life on this planet such that to speak of 'the human' in an exclusive way is untenable, and our embedded condition in what is often referred to as the 'environment' must undergird our efforts in international relations scholarship. Yet this paper has also suggested that 'we' also have never been a 'part' and our world was ever more than human. Thus even the staple subject matter of international relations requires recasting, such as the nature of the military-industrial complex and the practice of war. A human soldier is a transhumanant, an uplifted human. The physical capacity of British troops for example, is enhanced by binoculars, gun sights and amphetamines. The practice of conventional warfare has long been more than human with the use of dogs, camels, donkeys, horses, pigeons, sea lions, dolphins as tools, weapons and devices for the enhancement of human capability, and the mass killing of nonhuman animals and degradation of vegetation is strategically common. The language of virus (both organic and technic) and contagion infuses debates on security. Even the simple broadening of the subject matter to include nonhuman systems and their structures and agents will result in a more comprehensive disciplinary frame. We would hope, however, that more critical scholarship might grasp the nettle of a more than human emancipatory project.