International Organisations as Complex Systems: Implications for Independence

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There is considerable debate in the academic literature regarding the agency of international organisations. Opinions diverge sharply, from complete autonomy posited by some social constructivists to total IO subservience to states as posited by hardline realists. I identify the state/organisation divergence as a false dichotomy. Using the epistemological foundations of Karl Popper, I demarcate both the social constructivist and rationalist reductionist models as non-falsifiable theoretical frameworks. In their place, I propose a meta-theory based on the tenets of systems research as applied to the characteristics of human social ecologies (political communities and networks). In the lexicon of mainstream theory, my argument mirrors ideas of constrained independence on the part of international organisations, although typified by scalable power loci and constraints operating within and without IOs. I offer examples of such behaviour in two case studies involving the United Nations.

Epistemological Foundations

The logical progression of my argument is necessarily dependent upon a sceptical empiricist viewpoint regarding what can be known. Therefore I must return to first principles before commencing analysis of the subject matter. I adhere to Karl Popper's formulation of advancement of knowledge as espoused in *The Logic of Scientific Discovery*. I will now (in a borderline criminal simplification) outline its tenets. First, assume all data is reliable[1]. Second, posit that reality exists. Society has developed theoretical framework Society believes because data is predicted by theory. However, event occurs such that but. One can never be certain that because data is an 'unknown unknown' and by definition unpredictable. Even *if* reality can be perfectly predicted by theoretical framework , one can never know that our theoretical framework because the temporal frame required for proof is infinite. Event can occur at any point from now until the end of time. So, how does one advance knowledge? If but then one has derived that. Furthermore, one knows *with certainty* that. One can optimize *approximation to* by reference to. It is the conceptual equivalent of colouring outside the lines to find a shape. Consequently, falsifiability becomes the central criteria by which a theory is judged[2].

Evaluating Rationalism, Constructivism, Systems

Using this epistemological foundation I criticise both rational choice institutionalism and social constructivism on the grounds of non-falsifiability. In their stead I propose a complex systems framework of international relations. Rationalist institutional theory I critique on its tautological approach to the substantive constitution of 'rational choice', based in contentious assumptions of human behaviour. Social constructivism is weak in the amorphous ontology of its terms and limited explanatory flexibility.

Rational choice theories derive their underlying assumptions and methodologies chiefly from microeconomic modelling and game theory[3]. This antecedent discipline holds several strong assumptions about human behaviour, which are often justified using circular logic. Orthodox economists posit the existence of a homogeneous autonomous agent in economic activity, "*homo oeconomicus"*. This hypothetical everyman is a rational[4], self-interested being seeking to maximise outcome utility at lowest cost. Furthermore, often economists posit perfect and common knowledge across all actors[5]. Such provisions often lead economists to postulate markets or bargains between

actors as tending towards equilibrium. In terms of rational institutionalist theory, game theoretic bargaining leads to optimisation of cooperation levels through international organisations, i.e. a stable equilibrium.

Cederman highlights several weaknesses with this model. Firstly, actors are static; their interests are external and fixed. This does not mirror the realities of IOs, which are comprised of actors above and below the state level, and do not function wholly as structures representative of 'autonomous' state actors. Furthermore, interests often adapt to the changing environment, be it through negotiations, the creation of transaction-cost reducing mechanisms, or the emergence of new actors.[6] Secondly, perfect information is empirically unviable, and more significantly considerably distorts predictions such that they are contradictory to observed behaviour. Information asymmetries are central to an understanding of institutions[7] [8]. Thirdly, the stipulation that international organisations arrive at an equilibrium which is then perturbed by shocks does not mirror reality. Organisations are continually in a state of flux[9].

The arguments against equilibrium are the most compelling from an epistemological viewpoint. Proponents of this viewpoint utilize circular logic to lend the notion of equilibrium legitimacy. Posit an institution in a state of being. I hypothetically argue that this state of being is an organisational equilibrium. Why? Because international organisations tend towards equilibrium. How do I know this? Because state is an equilibrium. The 'existence' of equilibrium is 'proven' through manipulations of definitions, not rigorous analysis of data. Bernett and Finnimore cite a similar criticism as applied to IOs:

*"IOs exist, in this view, only because they are Pareto improving and solve problems for states. Consequently, if an IO exists, it must be because it is more useful than other alternatives since, by theoretical axiom, states will pull the plug on any IO that does not perform."**[10]***

This fallacy is repeatedly observed in the more stringently reductionist literature[11]. Similar charges may be levied on the 'rational actor' stipulation, although falsifiability criteria does exist (for 'perfect information' also). The rationalist community chooses to ignore empirical evidence disproving the hypotheses, citing the benefits of increased parsimony as outweighing the costs incurred in the divergence from observed phenomena. I argue against this proposition, stating that this conceptual simplification induces neglect of central properties of international organisations. Even for moderate liberal institutionalists such as Abbott and Snidal,

IOs exist within defined limits set by the state[12]. Positing the state as an external actor is a false dichotomy. I will elaborate on this notion during my explanation of systems theory.

Social constructivism offers an enhanced theoretical perspective in that it views IOs not only as dependent *and* independent variables (as integrative rationalist theories do) but as agents with capacity for action external to principles espoused by their constitutive states. Indeed the theory has progressed explanatory power. However, it is limited vis-à-vis deeper causative processes in the constitution of institutions. This is due to the amorphous terms used in constructivist analysis which preclude closer examination of these factors. IOs 'define meanings'. In the context of an explicit constitution this phrase is clear. But how do IOs 'define meanings' in informal institutions? Barnett and Finnemore state that they "Nam[e] or [label] the social context" and establish "the parameters, the very boundaries, of acceptable action"[13]. How can one test this proposition? Where are the clear delineations of these boundaries? Constructivism offers no explicit hypothesis to test. This issue glares across the constructivist vocabulary[14]. Furthermore, this framework leads to an imperialism of the social, much as reductionist discourse leads to the imperialism of the mechanical. Linguistic ambiguity necessarily limits the analytical depth of constructivism's account of IOs as independent actors, but also constrains such analysis in the breadth of its explanatory power.

Social constructivism and rational institutionalism both suffer in their strict demarcation between 'state' and 'IO' as separate actors. Certainly social constructivism views IOs as comprised of bureaucracies with distinct power loci, but this view nevertheless entails separation between bodies. The state is an 'other' to the IO and vice-versa. As I will elaborate on in the case studies, In order to fully elucidate this contention I must outline the tenets of systems theory as applicable to IOs.

I define IOs as complex adaptive networks[15]. These are systems typified by a high number of connected components (individuals) and global structure of complexity greater than the sum of its parts. Homer-Dixon offers a succinct encapsulation of complex systems:

"[Complex Systems] have a high degree of connectivity between [many] components. Additionally, complex systems are thermodynamically open. By this I mean that they're very difficult to bound: we can't draw a line around them and say certain things are inside the system while everything else is outside. As a result, in terms of their causal relationships with the surrounding world, complex systems tend to bleed out – or ramify or concatenate out – into the larger systems around them. And ultimately the boundary that we draw demarcating what is inside and what is outside is largely arbitrary.

*[Their behaviour also carries] the characteristic of emergence…We have emergence when a system as a whole exhibits novel properties that we can't understand – and maybe can't even predict – simply by reference to the properties of the system's individual components."**[16]***

The phenomenon of emergence is fundamental to understanding IOs from a systems perspective. Emergence is "the arising of novel and coherent structures, patterns and properties during the process of self-organization in complex systems[17]" The many actors which constitute the nodes in such a system obey simple local rules regarding adjacent actors in the network. A simple representation of this concept is explicated below.

The above is a 'cellular automaton', a holistically ordered structure built on the basis of each pixel following local rules. In this example the ruleset is binary. If a cell is 'on' in one generation, it will be 'off' in the next. If a cell is 'off' in one generation, but has exactly one 'on' neighbour cell, it will be 'on' in the next generation[18]. The image is the

simplest of representations of this concept. Goldstein defines emergence in greater detail:

*"The common characteristics are: (1) radical novelty (features not previously observed in systems); (2) … integrated wholes that maintain themselves over some period of time, (3) A global or macro "level" (i.e. there is some property of "wholeness"); (4) it is the product of a dynamical process (it evolves); and (5) it is "ostensive" (it can be perceived). [6]…supervenience — downward causation."**[19]***

This concept of emergent order can be generalized to social interactions, and carries many advantages. The agent/structure problem of IR is greatly simplified by the principle of emergence. Agent-based modelling can yield highly structured and dynamically evolving systems; the institutionalist additive mechanistic view is not hegemonic of agent-based approaches. Supervenience satisfies the explanatory power of structural imperatives in social constructivism without the messiness of requiring mutually constituted constitutional foundations[20]. The 'local rules' obeyed can be rationalistic or socially based; the importance of the system lies in the linkages created.

Emergent order in systems often exhibits a fractal nature, or self-similarity with scale[21]. In terms of IOs, one should observe systems-in-systems as one scales analysis from organization-level observation to the departmental and/or group plane. Mandelbrot's original fractal geometry, the Mandelbrot set typifies the concept[22]:

Each image from left to right is a 'zoom in' on the previous image. The shape is infinitely complex and self –similar (shapes are repeated across scales). The image is created on the two-dimensional number plane from the nonlinear equation,

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where is arbitrary, is an imaginary number and is the iteration of the equation[23]. Many complex systems exhibit

scale independent self-similarity, as shall be explored in the case studies.

I frame IOs as complex adaptive systems embedded in the larger system of the global political ecology. Because such systems concatenate outwards, and because connections in the network are scalable, debating the independence of an IO is near a moot point. The agent in question in an IO network is an individual, who may be motivated entirely by career advancement, or may alternate between acting in state and IO interests. The IO itself is simply a series of connections between agents, which extends outwards to state bureaucracies with their myriad of conflicting networks[24]. However, one may frame the tightly coupled hubs in IO networks as signifiers of constrained independence. Observe the below figures:

The above is a representation of two simple networks between autonomous states and IOs. However, analogies may be drawn with more complex examples. In the first scheme, IOs do not share information but send and receive data through intermediate states. States in this example have control over information flows. In the second case, the position is reversed. IOs pool resources significantly; states rely on two nodes for information and organisations have significant leeway in independent functioning.

The above example is not valid or an approximation to the system I posit for IOs[25]. Rather, it highlights degrees of independence possible under an open system. The systems-in-systems[26] which describe bureaucratic behaviour may be approximated to the constrained independence in liberal institutional theory, except instead of implicit bargaining between actors resulting in 'independence equilibrium', I posit this constrained independence as an emergent order based on hubs in information pathways clustered in the tightly coupled networks within the organisations. This may seem similar to constructivism's 'hoarding of expertise' but I do not require an explicitly social cause for the clustering. That is a special case in a broader spectrum of possibilities.

The falsifiability of systems theory lies in the predictions behaviour of systems under different topologies. The nature of 'strange attractors', broad limits to the behaviour of systems, entails broad demarcations of system behaviour which may be tested against evidence[27].

The above function is a Lorenz attractor, stipulating the global range of behaviours for a water wheel. Whilst one cannot predict its point within the 'phase space' with any success, one does know the broad bounds of action. Similarly, 'networks' are limited in behaviours they exhibit. Agents are separated but distinguishable, and subject to inverse proportionality of resilience with complexity (see below[28]). A systematic study beyond the bounds of this essay may explore this further.

Geographically-Based Hiring in the Secretariat

There has been a long history of political turmoil surrounding the hiring of UN personnel. The UN Charter states that employees must come from "as wide a geographical margin as possible"[29]. This stipulation was implemented to allay fears from second-tier countries that a Western-dominated secretariat would function with bias. Geographical considerations were originally to assume secondary status to questions of merit[30]. However, due to crises galvanised by member states the reverse is often true. The ideal candidate may be American, but geographical-quota considerations mean that an under-qualified New Zealander is hired instead[31]. Similar practices apply to promotion. Ambassadors have supplementary occupations as recruiters for intermediate posts. Junior bureaucrats seek out their respective nationality's ambassador "mentor", who will speak for them behind a veneer of "equalising employee opportunity"[32].

The UN finds a voice for geographical quotas in the G77. The G77 is concerned that Secretariat empowerment is equal to empowerment of influential donors, such as the USA[33]. Consequently the culture of low productivity and waste within the organisation continues unmolested[34]. Whilst the UN Charter places the Secretary General at the nexus of all information flows in the Secretariat, this does not mirror reality. Williams states that "Crosshatching the U.N.'s official organizational hierarchy are spiders' webs of patronage that have grown in and around the organization." Ban-Ki Moon's attempts at improving management practices have failed. In an interview with the Wall Street Journal, he admitted that staff training has had negligible impact and procurement debates have stalled[35]. The new Appeal Tribunal may improve staff rights, but it must be noted that political pressures castrated similar attempts in 1952[36].

The practices described to not conform under the aegis of bureaucratic rule constitution. Where a constructivist posits process-based rules development within a bureaucracy based on socially constructed identity, the surveyed behaviour is quite opposite. Employees within the Secretariat wrangle with patrons for positions. Both "Identity" and adherence to "bounds of acceptable action" is absent. Similarly, whilst liberal institutionalists find solace in G77[37] support for quotas (state-originated perpetuation), they are stifled by the evolution of staff allegiances beyond initial conditions. Whilst states were architects of the geographical quota, from this platform a hierarchy has self-organised within the context of the Secretariat.

This is evidence of emergent actors building networks within an established system. Jervis[38] identified avenues for individuals and mutually coupled system entities to carve independence within a hierarchically superior network. First, constraining can limit system divergences from those desirable by the 'agent[39]'. An example is that during mediation between an ally and enemy inform the enemy not to assume neutrality, the ally participation[40]. Secondly, an actor may anticipate reputation (collective memory in system nodes) and act against it with knowledge the action will be interpreted anomalously. Extending this, one may 'do things in twos': send opposite signals along the network to paralyse a coordinated systemic response. Lastly, in what Jervis termed the Lijphart effect, an agent may anticipate some negative consequence resulting from its expected response, altering its response.[41]

In terms of organisational independence, one may cite *both* the Secretary's General and the geographical hiring patronage network as examples of independent actors and constraining factors. The SG office is suppressed by dispersed nodes in the network; both the system-in-system corrupted element and its supporting state base. The nodes within the Secretariat co-opted the system but are reliant upon the GA for support.

Bureaucratic Failure in Rwanda

During the Rwandan debacle of 1993-4, administrative rigidity strangled information flow to the Security Council (SC). UNAMIR Commander Dallaire was only able to communicate with the Secretary-General through his Special Representative, Booh-Booh. Booh-Booh, through incompetence or ulterior motives, downplayed the significance of Hutu aggression in the weeks prior to the genocide. Dallaire, operating contra to Secretariat procedures, issued a personal report expressing the full gravity of the situation. DPKO officials, confronted with the procedural legitimacy of the Booh-Booh report, favoured it over the informational relevance of Dallaire's. The Security Council was never alerted to Dallaire's communication, similarly never setting eyes on early warnings from a Hutu official predicting genocide. Both correspondences were lost due to the unreceptive and inflexible bureaucratic environment[42]. Today improvements have been rare, and informational velocity remains low. The process for firing even the most insubordinate employee can take years[43].

This seems an unorthodox example in proposing organisational independence, but it highlights the analytical importance of self-similar scaling in bureaucratic networks and the nonrequirement of concrete boundaries between 'actors' in an institutional sense. Furthermore, it highlights the false dichotomy of the State as constraining factor and IO as embattled survivor. One observes first that the UNDPKO acted unilaterally and independently in discerning the legitimacy of information. However, it did not act as unified body with the UN or even Secretariat as a whole. UNDPKO regulated information to flow within the bounds of its subsystem. A black box was kept of Dallaire's correspondence by a member of UNDPKO staff which through negative feedback effects never entered the systemic flow[44] [45]. Secondly, the actions of staff actually served to constrain *states* by limiting information available to them. Perhaps states would have maintained apathy in the face of information but the denial in itself is a strong indictment against 'hollow shell' models of IOs. That such repercussions emanated from a subsidiary network of the Secretariat highlights the false dichotomy between IO and State independence and offers a strong example in favour of modelling IOs as complex systems. The observed phenomenon fits the definition of emergent behaviour admirably.

Conclusion

Both rational choice theory and social constructivism, though uncovering insights which cannot be ignored, ignore key elements of IOs which are essential to understanding the nature of their independence. Using a systems framework, I posit that IO independence can be conceived of as a property of networked information flows. Though borders are open, I posit a constrained independence on the part of IOs, due to the existence of emergent actors within and co-opting state nodes without the system that house divergent interests to those held by the central hubs of the IO network, i.e. the Secretary's General office.

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[1] There are substantive issues of causation vs correlation addressed in the text which are not relevant to the essay and have been omitted.

[2] Popper, K. 2002 (1959). *The Logic of Scientific Discovery.* Routledge Classics: New York

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[4] The requirement of rationality is a detailed stipulation formed under the umbrella of expected utility theory. There are several criteria that a "rational" must fulfill. Firstly, if there is A and B, the agent is able to ascertain that A<B or A>B or A=B and do so consistently. The agent can always choose the more desirable from at least two options and preferences remain constant. Secondly, if A>B and B>C, then A>C. One cannot prefer apples to oranges, oranges to pears, and pears to apples. Third, of mathematical necessity if A>B, then pA + (1-p)C > pB + (1-p)C. Lastly, if A>B>C, then again out of mathematical necessity there exists B such that B=pA+(1-p)C if (Taken from Varian, Hal. R. 2005. *Intermediate Microeconomics: A Modern Approach.* Norton Publishing, Berkley, p. 223). Essentially, economists assume that humans function as pocket calculators, calculating probabilities and rankings of payoffs in Bayesian probability matrices and absolute terms. A substantial psychology-based economics literature exists offering contrary evidence: Kahneman, Daniel. *Maps of Bounded Rationality: A Perspective on Intuitive Judgement and Choice.* American Economic Review, December 2003, p. 465, Akerlof, George A.; Yellen, Janet L. *Rational Modelling of Irrational Behaviour.* The American Economic Review, 1987; 77; 2, pg. 139, Kahneman, Daniel. *Reference Points, Anchors, Norms and Mixed Feelings.* Organisational Behaviour and Human Decision Processes, 1992;51, p. 308., Ariely, Dan. *Predictably Irrational : The Hidden Forces That Shape Our Decisions*. New York, HarperCollins, 2008, p. 29-30, Kahneman, Daniel. *A Psychological Perspective on Economics.* The American Economic Review, 2003; 93; 2, p. 164, Finucane, M. L., Alhakami, A., Slovic, P., & Johnson, S. M. *The Affect Heuristic in Judgments of Risks and Benefits*, Journal of Behavioral Decision Making, 2000; 13, p. 3, Harrison, Mark. Discussant, Productivity Commission 2008. *Behavioural Economics and Public Policy*, Roundtable Proceedings, Productivity Commission, Canberra, 2008, p. 58, Krugman, Paul. *How Could Economists Get it So Wrong?* The New York Times, September 2 2009 Issue, URL:http://www.nytimes.com/2009/09/06/magazine/06Economict.html?_r=5&partner=rss&emc=rss&pagewanted=all (Date Viewed: 14 September 2009), Dayp, Richard H. *Behavioral Economics: Implications for Economic Theory and Policy.* The Journal of Socio-Economics, 2004;33, p. 718.

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[7] Ibid, p. 33

[8] There are theories such as Haas' neofunctionalism which incorporate imperfect information into rational choice (though that framework is itself limited and tangential to the question of independence). However, I am criticising the reductionist vein of the rational choice institutionalism as propagated by Waltz, K. 1979. *Theory of International Politics*. New York: McGraw-Hill

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[14] To be fair, social constructivist epistemology espouses the validity of multiple methodologies, and is descended from post-rationalist critical epistemologies oppositional to Popper's naturally selected 'fitness'-determined appraisal of theoretical utility. However, my argument is conditional on acceptance of Popper's construct and its implications. I consider the criticism relevant.

[15] To further investigate the particularities of a social network, see Mol, A., & Law, J. 1994. *Regions, Networks, and Fluids: Anaemia and Social Topology.* Social Studies of Science. 24, 4, p. 641. The region/network/fluid separation of social systems offers a convincing framework for reappraisal of current mainstream theories. Unfortunately, word limitations prevent unpacking of the terms.

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[25] For one, the actors are autonomous.

[26] Goodburn, D.P.J., et al. 1999. *Integrated Visualisation and Description of Complex Systems.* Australian Department of Defence. p. 3

[27] Graph taken from Gleick, J. Gleick, J. 2008 (1987). *Chaos: Making a New Science.* Penguin Books: New York. p. 28

[28] Image taken from Homer-Dixon, T. 2010. *Complexity Science and Public Policy.* Speech to the National Arts Centre, Ontario. URL:http://www.homerdixon.com/download/complexity_science_and_public_policy.pdf

[29] The United Nations. 1947. *The United Nations Charter.* Article 100, para. 3, p. 25

[30] Meron, T. 1976. *Staff of the United Nations Secretariat: Problems and Directions.* The American Journal of International Law. 70, 4. p. 659

[31] Sanoo, B. P. 1999. *HR Reform at the United Nations.* WorkForce, p. 92

[32] Williams, I. 2006. *What's Meant by "Reform" of the UN Depends on Who's Calling for It.* Washington Report, July Issue, p. 27

[33] Balint, T., et al. 2009. *Performence Accountability in the UN-the Conflictual Way Toward More* Public Administration and Development, Vol. 27, p. 352

[34] Lauria, J. 2009. *The UN's 'Invisible Man'.* The Wall Street Journal. July 14 Issue. URL:http://www.globalpolicy.org/un-reform/un-reform-topics/general-analysis-on-un-reform/47925.html

[35] Ibid.

[36] Swift, R. N. 1957. *Personel Problems and the United Nations Secretariat.* International Organisation, 11, 2, p. 244

[37] Balint, T., et al. 2009. *Performence Accountability in the UN-the Conflictual Way Toward More* Public Administration and Development, Vol. 27, p. 352

[38] Jervis, R. 1999. *System Effects: Complexity in Political and Social Life*. Princeton University Press: Princeton.

[39] Whilst the relevant unit of action is not necessarily an individual, one term is convenient. I maintain that the 'agent' may be a network of related individuals.

[40] Jervis, R. 1999. *System Effects: Complexity in Political and Social Life*. Princeton University Press: Princeton. p. 261

[41]Ibid, p. 263

[42] Piiparinen, T. 2008. *The Rise and Fall of Bureaucratic Rationalisation: Exploring the Possibilities and Limitations of the UN Secretariat in Conflict Prevention.* European Journal of International Relations, Volume 14, p. 713

[43] Ross, C. 2008. *Decline and Fall?* The New Statesman, September Issue. p. 13

[44] Piiparinen, T. 2008. *The Rise and Fall of Bureaucratic Rationalisation: Exploring the Possibilities and Limitations of the UN Secretariat in Conflict Prevention.* European Journal of International Relations, Volume 14, p. 709

[45] To anticipate the consternation of social constructivist retorts, I will state that local rules obeyed by actors in this context may be modeled socially. I hope I have shown satisfactorily in my previous example that this is not the universal account.

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