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Working Together: Collective Action, the Commons, and Multiple Methods in Practice
(NJ: Princeton University Press, 2010)

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Working Together: Collective Action, the Commons, and Multiple Methods in Practice
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The prosaic style of this book belies the thoroughness of its scholarship and the immediacy of its relevance to political policy in New Zealand and elsewhere. At one level, it may be read as an account of both small-'n' case studies and large-'N' comparative studies that have looked at the manner in which common resources are managed and exploited around the world. These studies show that the tragedy of the commons is not inevitable, and that neither nationalisation nor privatisation is necessary to ensure sustainability of common resources. At a metalevel, the authors discuss the accessibility and availability of data for various kinds of research, ultimately making a convincing case in favour of mixed methods in social science research.

The phrase 'mixed methods' is shorthand for an inclusive methodological stance that sees a place for qualitative as well as quantitative methods, and considers it a virtue to look at a given problem from several perspectives. This is a pragmatic stance, recognising the variety of kinds of data that investigation might yield. Case studies involving a small population, for example, may not yield the sort of data that is amenable to statistical treatment, but may yield comprehensible narratives or life scripts from which fertile insights may be gained. Computer simulations may be devised to test hypotheses cheaply before embarking on fieldwork. Among the multiple approaches surveyed in the book, I was particularly struck by the lucid explanation of agent-based modelling.

In what follows I shall not argue the case for mixed methods. When the Department of Sociology at the local university already offers a third-year paper on mixed methods, one realises that the battle has been decided in favour of methodological pluralism. Nor will I analyse the many disparate studies reported in the book; that is what the book is for. Instead, I shall pluck at the agent-based modelling thread and splice in some thoughts about ways to address the limitations of current agent models.

HOMO AVARUS

When John von Neumann published the first paper on game theory in 1928, he focused on zero-sum games – games like chess or ludo or rock-paper-scissors, in which one player can win only at the cost of the other player losing. To model a player in such a game is a simple matter: not much of a personality is needed, merely an overriding desire to win and a lack of any empathy with the loser. Some games afford a range of payoffs, in which case the model includes the intention to win as much as possible. The terminology applied in game theory does not advertise the underlying avarice of the model: players are said to maximise their expected utility, which sounds both learned and morally neutral.

During the Second World War, while trapped in the USA by Hitler's Anschluss, the Austrian economist Oscar Morgenstern collaborated with von Neumann on a book that became a classic text in game theory: *Theory of Games and Economic Behavior*.¹ The over-simplified behaviour of a child playing a parlour game somehow grew to be regarded as a model of rational decision-making in the marketplace and, by virtue of the pervasive metaphor that politics is business, became a model used to guide both foreign and domestic political policy.

The name 'rational choice theory' came to be applied to the model, thereby elevating its use from moral neutrality to a normative ideal: not only was the theory used to predict real political behaviour such as Krushchev's response to Kennedy's ultimatum during the Cuban crisis, but it became the paradigm in microeconomics. The books of Ayn Rand became popular, and several generations of commerce students were duly indoctrinated with

the bizarre notion that, as Michael Douglas put it in the film about Wall Street, "Greed is good."² It was an item of faith among economists that if everyone acted self-interestedly to maximise their personal gain then a benevolent supernatural entity known as the 'invisible hand' of the 'market' would magically ensure that everyone benefitted from a good outcome. Having committed to this assumption, those realists who observed the growth of an economic underclass could take comfort in the inference that being wealthy was evidence of being superior (since there was natural justice in the better player winning the game of the marketplace), while the poor and the unfortunate must have deserved their misfortune by being somehow unfit for success.³ The inherent contradiction between the assumption that everyone would benefit and the observation that many did not, had the usual effect on believers – as with any ideology based on a contradiction, the believers became missionaries, because every soul converted to their cause reassured them that they couldn't, after all, be wrong.

In counterpoint to this intellectual fashion, Herbert Simon pointed out during the 1950s that being rational in real life would typically entail satisficing rather than optimizing – being satisfied with enough rather than trying for as large a profit as possible.⁴ A thought experiment will illustrate the idea of satisficing. Imagine going to the supermarket to buy your visiting Aunt Maud a box of breakfast cereal. Confronted by shelves with a hundred different kinds of cereal, an optimising agent would study each kind in order to evaluate which one is the very best value for money. A satisficing agent would simply decide on an 'aspiration level,' in other words what sort of price the agent would like to pay, whether the cereal should contain raisins, and so on, and then would take the first box of cereal that satisfied these criteria. The satisficing agent would typically be home pouring milk into the bowl of cereal for a grateful Aunt Maud while the optimising agent was still standing in front of the shelves obsessively scribbling notes and trying to decide whether more vitamin K is better than more zinc.

Simon's notion of an agent having bounded resources (limited memory, processing ability, time) and using a strategy of satisficing instead of maximising personal gain was, for four decades,

drowned out by the Wall Street hymn to greed, although recent times have seen a revival of Simon's ideas in the research of Gerd Gigerenzer and others.⁵

THE COMMONS

Consider the problem of managing a shared resource. Conventional analyses based on rational choice theory predict that the only way to prevent individuals from maximising their short-term returns to self and thereby overusing a common resource (the 'tragedy of the commons') is to have an external authority impose rules, requiring either privatisation or state management. Case studies spanning the globe from Mexico to Tanzania have tested this prediction, in some cases corroborating it but in literally hundreds of cases providing counterexamples in the form of local users who self-organised to collectively manage common-pool resources in a successful manner. The research reported in *Working Together* addresses such questions as: What are the variables that distinguish the success or failure of such collective action? Why is one forest in Southern Indiana successfully managed by the local community while a nearby forest is over-exploited and the source of serious conflict between members of the community who wish to use forest products as a source of income?

It seems clear that co-operation is facilitated by the ideal of satisficing rather than maximising. Two agents sharing a common resource such as firewood can either be content to share or fight it out so that the winner takes all. How does the former option enter into game theory?

One way to think about successful co-operation among individuals managing a common resource is that they have played a game that allows a win-win solution, rather than the zero-sum games with which game theory originated. An example of such a non-zero-sum game is the 'prisoner's dilemma,' invented by Anatol Rapoport. We are to imagine two individuals who are held as prisoners in separate cells, unable to communicate, and accused of being partners in a crime. Each agent has to decide whether to 'co-operate' with the other agent in protesting innocence or to 'defect' by betraying the other agent. An agent would gain the maximum pay-off (say, five tokens) by defecting while the

other agent loyally co-operated (and for this loyalty received zero tokens). On the other hand, if both agents co-operated, they would achieve a win-win outcome in which each got three tokens. Finally, if both agents simultaneously defected, each would gain a single token. The win-win outcome would be sufficient for a satisficing agent, whereas an optimising agent would play for a maximum gain. Indeed, according to rational choice theory each player should defect, hypnotised by the prospect of gaining a maximal payoff if the other agent turned out to be a sucker, and in reality gaining one token because all the agents are equally selfish (or so the theory supposes).

During the 1980s Robert Axelrod organised a tournament in which computer programs implementing various strategies competed against one another, playing a finitely repeated form of the 'prisoner's dilemma' game. The winning program was that submitted by none other than Anatol Rapoport, and it did not cynically defect at every opportunity. Instead the program implemented a simple tit-for-tat strategy, which began by attempting to co-operate and thereafter mimicked the decision made by the opponent in the previous round. If the tit-for-tat strategy is pitted against an opponent who begins by co-operating, it continues to co-operate in the next round. If it plays against an opponent who defects, it defects in the next round, and continues to do so until the opponent co-operates. The winning strategy, therefore, was not the greedy strategy of maximising personal gain but a strategy that was prepared to co-operate as long as the other agent also co-operated and that punished a failure to co-operate. The tit-for-tat strategy may be viewed as an agent content to satisfy but not content to be a sucker.

In a game played with an inveterate defector, both tit-for-tat and the defecting agent come off poorly. It is only when a population has enough agents willing to co-operate, at least provisionally, that the benefits of satisficing and co-operation can be felt. This invites the question: How can we improve the agent model to represent agents that are prepared to co-operate? The tit-for-tat strategy is all right as far as it goes, but it doesn't explain why the agent is prepared to co-operate in the first place, nor the mechanisms by which co-operation may be facilitated in a community.

BEYOND AUTISTIC AGENTS

My dictionary defines 'autism' as a disorder characterised by abnormal self-absorption, deficits in social interaction and communication, a limited range of interests, and repetitive behaviour. It seems to me that one could with some justice describe the avaricious agent model that has for so long dominated economic theory as autistic. The model has been shown inadequate both in laboratory trials such as Axelrod's competitions and in real-life case studies of successfully co-operating communities. Surely it's time for a change?

Those teaching and studying economics themselves realised the need for change a decade ago. In 2000, students of economics at the École Normale Supérieure in Paris circulated a petition calling for an end to autistic economics (*Autisme-Economie*). Their action was soon followed by a similar petition from their professors. A year later twenty seven PhD students in economics at the University of Cambridge followed suit, protesting against "the uncritical application of mainstream methods."⁶ (In passing, we may note a paradox: despite the growing discontent among academic economists, the global economic difficulties of 2008 were not seized upon as an opportunity to change the prevailing economic model; instead, governments in New Zealand and the UK came to power on a platform of intensifying the dogmatic narrowmindedness with which they would apply conventional economic solutions to the hard times suffered by their voters.)

Laboratory experiments based on prisoners' dilemma games and simulations of the commons dilemma have shown that a major factor contributing to co-operation is contact between agents. In *Working Together* Poteete et al. write:

In the lab, once subjects are enabled to talk about their puzzle in a face-to-face group, most develop joint strategies as well as the trust and reciprocity needed to carry out these strategies, contrary to the conventional theory. Within a few rounds, they reduce overharvesting substantially and improve their individual and joint outcomes. These findings echo behavior in the field where ... many groups that use inshore fisheries, forests, irrigation systems, and pastures have used communication to develop a diversity of norms and rules to enable them to reduce overharvesting.⁷

Attempts to improve the agent model have focused on the learning of norms and have implemented this in a fairly simple-minded way. A positive or negative value is attached to particular types of action in specific situations, and this value is then added to or subtracted from the objective costs of an action. Changes in the magnitude of the value reflect varying degrees of commitment to the norm. The principal defect of this approach, it seems to me, is that it ignores the social scaffolding that underpins the interactions in laboratories and field studies. Norms develop out of agent interaction rather than being built-in. Agent interactions are guided by social scaffolding. This social scaffolding arises from a rich architecture of emotion in individual agents.

EMOTIONS

What are emotions? One of the surprising conclusions to emerge from psychological research is that emotions do not all belong to a single uniform category. To put it succinctly, emotions do not constitute a natural kind.⁸ Some emotions play the roles of internal officers who marshal the troops, the troops in this case being a variety of physiological and mental processes inside the agent. The apprehension you feel when you hear a noise in the night causes a narrowing of your momentary thought-action repertoire: you hear more clearly sounds that normally would not be attended to, such as creaks or rustling; goals that pertain to safety are activated while other goals are deactivated – you no longer feel hungry, you lose interest in practising a new skill, you set aside thoughts of seduction; conceptual frames shift so that the geography of your immediate environment contains mental tags labelling an open corridor ‘dangerous’ and a closet ‘safe;’ memory processes are diverted to seek explanations for the possible danger, specialised learning systems involving the amygdalae are activated, and so on.⁹

Other emotions have evolved to function in a social context by delivering a social signal. Consider the ‘Duchenne smile’ – the hard-to-fake smile in which small muscles around the eyes take part. This expression is not an automatic outer manifestation of an inner feeling of happiness. Soccer fans who are happy after a goal has been scored produce this facial signal only if they are

facing one another. The same has been observed of Olympic athletes who won gold medals and who express their evident excitement in this way exclusively when interacting with officials or an audience.¹⁰ People do smile when they are alone, but far less often than would be predicted if a smile were merely the outward manifestation of an inner state – and even then experimental subjects who have smiled in solitude have reported visualising an audience in their heads. The smile is less an expression of an internal feeling than a strategic move in an ongoing interaction between organisms. More generally, all emotions that are identifiable from facial expressions deliver social signals that influence the evolving social context.

Such ongoing interactions between individuals are crucial for the development of mutual trust, norms, and a sense of community. A variety of emotions are specifically concerned with moral behaviour: not only negative emotions such as embarrassment and shame but also positive emotions such as elevation, which is the feeling of upliftment one gets from doing a good deed.¹¹ In order to model the prisoner’s dilemma or the more complex problem of sharing a common resource in a psychologically realistic fashion, emotions need to be included in the model, particularly the emotions that act in a strategic fashion to reconfigure relationships – because that’s what people are doing all the time. Normal people seek opportunities to interact with other people, to build relationships, to co-operate. One could not have built a less accurate model of *Homo sapiens* than game theory’s *Homo avarus*. *Working Together* helps to drive this point home.

- 1 John von Neumann and Oscar Morgenstern, *Theory of Games and Economic Behavior* (New Jersey: Princeton University Press, 1944).
- 2 Oliver Stone dir., *Wall Street* (1987) Twentieth Century Fox.
- 3 The main reason for the controversy surrounding the publication of Richard Herrnstein and Charles Murray’s *The Bell Curve* (NY: Free Press, 1994) was that it appeared to be an attempt to justify this social Darwinism by demonstrating that socioeconomic status correlated with IQ.
- 4 Herbert Simon, “Rational choice and the structure of the environment,” *Psychological Review* 63 (No. 2, 1956): 129-138.

- 5 Gerd Gigerenzer and Reinhardt Selten, eds., *Bounded Rationality: The Adaptive Toolbox* (Cambridge, MA: MIT Press, 2001).
- 6 See "A Brief History of the Post-Autistic Economics Movement," <http://www.paecon.net/HistoryPAE.htm> accessed 7 April 2011.
- 7 Amy R. Poteete, Marco A. Janssen and Elinor Ostrom, *Working Together: Collective Action, the Commons, and Multiple Methods in Practice* (NJ: Princeton University Press, 2010), 219.
- 8 Paul Griffiths and Andrea Scarantino, "Emotions in the Wild: The situated perspective on emotion" in *The Cambridge Handbook of Situated Cognition*, Philip Robbins and Murat Aydede, eds., (Cambridge, UK: Cambridge University Press, 2009), 437-453.
- 9 John Tooby and Leah Cosmides, "The Evolutionary Psychology of the Emotions and Their Relationship to Internal Regulatory Variables" in *Handbook of Emotions*, Michael Lewis et al., eds., (3rd edition) (NY: The Guilford Press, 2008), 114-137.
- 10 Griffiths and Scarantino, "Emotions in the Wild."
- 11 Jon Haidt, "Elevation and the positive psychology of morality" in *Flourishing: Positive psychology and the life well-lived*, C. L. M. Keyes & J. Haidt, eds., (Washington, DC: American Psychological Association, 2003), 275-289.