Mute

ARTICLES

CATALYSING DISSENT

By Andrew Osborne and Inigo Wilkins , 1 November 2012

Democracy / Government / State / Technology / Theory / Continental / Posthumanist

Image: Illustration from Maurice Sendak's Where the Wild Things Are, 1963

The 2011 UK Riots were the inspiration for this article, although what can be said of the riots also holds for the sequential outbreak of protests and revolts that erupted globally last year. Inigo Wilkins and Andrew Osborne discuss the irreversible noise and computational immanence of 21st century crowds

The conceptual ground for our analysis follows the non-standard philosophy of François Laruelle and engages with the computational modelling of emergence on this basis.[i] Within humanities discourse there has been a generally negative reception of computational modelling and especially game theory due to its objectification of the real according to contestable presuppositions, like the idea of the 'rational individual agent' within classical economics. The cogency of modelling cannot be effectively conceptualised by standard philosophical analyses, which posit the co-constitutive relation of being and thought and maintain their reversibility.[ii] However, Laruelle's procedure of unilateralisation allows models to be understood as the discovery of intelligible structures within the real following the suspension of the correspondence theory of truth in favour of the concept of 'adequation-without-correspondence'.[iii] The unilateral unbinding of the reciprocity of thought and being is of key importance to our assessment of the phenomena of the riots and the heuristic decision-making of those engaged in rioting.

'Adequation-without-correspondence' presupposes the foreclosure of the real to thought, and the real's incomputable randomness or radical contingency with regard to any model. Any object or event displays an ontic finitude in the sense that it withdraws from all relations, without this finitude being constitutively related to thought or modelling – Laruelle calls this non-thetic transcendence, i.e. a transcendence not posited by thought, or without thesis. However, since any model is a fully immanent part of the real it can discover real tendencies, abstract truths or 'stylised facts'.[iv] A model is therefore adequate for a certain instrumental purpose without exhaustively describing the situation. Models can and do fail. The adequation of any model is determined in the last instance by material occurrences.

As such, the immanent real is algorithmically incompressible noise; composed of multiple trajectories of non-linear

dynamics, or orders of complexity, which cannot be predicted in advance. These dynamics can be probabilistically modelled according to past performance, and the contemporary explosion in data collection and computational processing power means that forecasting accuracy has increased in many domains. However, it must be kept in mind that the model cannot account for the radical contingency of the real. The model is distinct from what it models, instead it organises a particular field of action.[v] A model is adequate for definite purposes but does not enter into the philosophical problematics of correspondence relations – i.e. generative science presupposes a unilateral separation between the model and its matrix of affordances and constraints.[vi]

Computational immanence is the thesis that all aspects of the real without exception may be understood as both inputs and outputs of a purposeless and non-problematic computation – computational immanence is non-problematic because it eschews the quasi-Hegelian extension of dialectical resolution to conflicts within the real.[vii] Non-standard philosophy presupposes the unilateral and irreversible identity of cause and effect, because of the *relative* autonomy of the event in its non-thetic transcendence, and its *absolute* autonomy as fractal part of the radically immanent real. That is, an event such as the riots is retroactively determinable when taken as *effect* or finite product according to the adequation-without-correspondence of its causal matrix. However, it is also underdetermined as (fractal) *cause* or unbound productivity of the irreversible trajectory of the real.

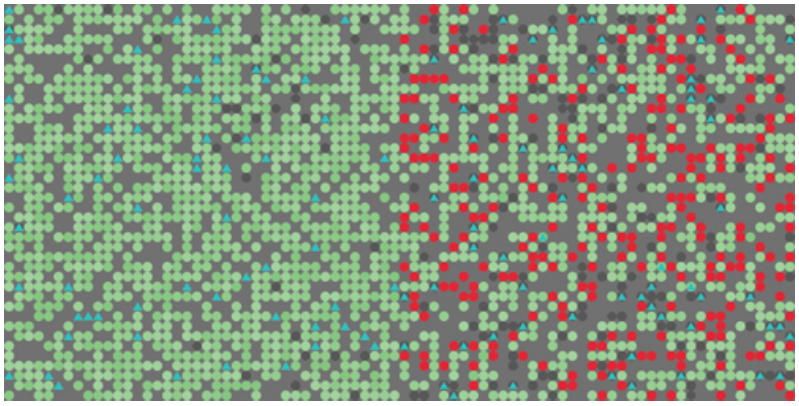

Image: J.M. Epstein's Sugarscape matrix simulating civil violence

This irreversibility – the unilateral cut between thought and thing – is present in the caesura between private grievance and the public manifestation of disorder in Joshua M. Epstein's modelling of civil disobedience (which we'll soon come to).

Now, a year on from the riots, what are the various models, or explanatory schemas that have been offered for these events? Many of these schemas offered by politicians and the media in response to the rioting were deployed to shore up state control and ward off the cascading outbreak of further social unrest – i.e. the entropic degradation of the system. We find such explanatory schemas to be moralistic and incapable of grasping the tumultuous character of this emergent, mass insubordination.

For us, all explanatory schemas are models that instrumentalise a section of the real for specific purposes, and may be understood as performative. Therefore all politico-ideological narratives aimed at explaining the riots as based in moral breakdown are also models, and highly cynical ones, based on the hypocritical sophistry of political spin. These explanations place a distressing double bind on those with legitimate grievances: rioters are reprimanded both for taking autonomous individual rational decisions and for the mindless automatism of their supposedly herd-like replication of gangster culture. They are accused of both a wilful destructiveness at the same time as they are condemned for their putative incapacity to think through the social effects of their actions. The application of these specious abstract models to real subjects has damaging and lasting concrete material consequences – i.e. as moral justifications for the imposition of longer prison sentences – with the resulting suffering and ruin for young people.

For the most part these politico-ideological narratives aim to explain away the riots by trying to reduce them to a single causal operator, or by claiming (often at the same time) that such events are irreducible to causal pressures such as relative deprivation or police harassment. Yet, despite the unforeseeably contingent nature of the unrest, it

is better understood as a causally accountable manifestation of social grievance, and is fundamentally misunderstood when framed as an anomalous outburst expressing a crisis of integrity in a subsection of unthinking (or 'mindless') youth.

Contrary to the assumption of acephalic anarchy, we take rioting as a computation immanent to the materiality of the social fabric. We claim that such social unrest is best understood as an objective, non-thetic form of 'distributed cognition' effected within the structure of the social matrix. The outbreak of violence in social systems is never completely reducible to the sovereign decision of those who appear to instigate unrest. Instead, such behaviour is often the result of changes in the constraints and affordances of the socio-economic landscape. People do not riot just because they fancy it or wish to avail themselves of some new trainers. Extensive sociological studies have shown the correlation between downturns in the economy, food price spikes and the eruption of civil unrest.[viii] This is not to understand all rioting according to one didactic model – different locales will have differing dynamics. However, we wish to foreground the abstract truths that can be extracted across these situations rather than the subjectivity of individual actors (which we don't deny).

Society* as *Mind* vs. *Society* of *Mind

Within the field of agent-based, generative social science, Joshua M. Epstein, develops the concept of 'Society *as* Mind' (i.e. a computational device) in contradistinction to Marvin Minksy's theoretical postulation of a 'Society *of* Mind'.[ix]

Minsky had previously argued that in any given social field in which multitudinous agents aggregate, a society of mind emerges. These agents operate like sub-processors by representing and controlling the environment. Much like the supposed 'invisible hand' of the market, this assemblage of procedural complexity results in a unified cognitive process or distributed intelligence. For Minsky, large-scale problem solving occurs within a society of 'difference engines' that reduce and eliminate differences between the current state and the desired goal state. However, as both Werner Bonefeld and Kevin Carson argue, behind every invisible hand lies an iron fist.[x] That is, the emergence of order in complex adaptive systems presupposes the violence of an initial situation of inequality and the forceful maintenance of this asymmetry.

Image: Fish exhibiting shoaling behaviour or 'noise-induced alignment'

In contrast, Epstein proceeds, following Herbert Simon, from the supposition of ‘bounded rationality’, whereby agents with limited cognition can operate successfully by exploiting existing structures and regularities in the environment without intentionality with regard to a ‘goal state’.[xi] It should be understood here that agency is not restricted to the decision-making capacities of humans, or even biological organisms, but is inherent in the functional structure or materiality of their milieux.

We could succinctly summarise that ‘Society *as* Mind’ is generative and reducible whereas ‘Society *of* Mind’ is classically emergent and irreducible. The science of computational modelling is neither inductive nor deductive but generative; it is eminently capable of a rigorous explanation of macroscopic regularities since it establishes the invariant set of conditions necessary for their generation. Since output is iteratively modelled, and the truths it establishes are generic rather than determinate, it therefore avoids the apolitical impotence of postmodern affirmations of irreducibility without lapsing into mechanistic determinism.

Epstein’s modelling addresses the generation of artificial societies from the bottom up and the manner in which identifiable group behaviours emerge. He enhances John Conway’s *Game of Life,* itself a spatialised version of the prisoner’s dilemma, to develop Sugarscape, an artificially intelligent agent-based social simulation that models the manner in which agents engage with the spatial environment (represented by a 2D matrix).

Epstein’s background is in emergency medicine and epidemiology (the science of contagion). Whilst we recognise that there is a history of conservative rhetoric employing biological metaphors to describe the swarm-like behaviour of anonymous masses (e.g. references to rioters as ‘feral youth’), this problematic subjectivisation of crowds rests on the opposition of instinctive contagion to more considered modes of thinking. Such distinctions are based on a philosophical decision that separates freedom from automatism and wild from tame.

Most interestingly for us in our examination of the riots, Epstein offers a generative, agent-based computational approach with which to model civil violence. In this study a central authority attempts to suppress decentralised

rebellion. By modelling insurrectionary activity he draws a number of novel empirical conclusions, which lend our argument greater explanatory power. Within this, boundedly rational, utilitarian computation agents assess the potential risk and cost to themselves, yet aren't hyper-rational in their decision-making: that is to say, their rationality is local since they aren't aware of the global facts or how their actions might affect the macroscopic social order.

Epstein is explicit about the distinct 'gap' between the micro-rational private and macro-structural public spheres in his model of civil violence; the unilateral caesura between discrete grievances and the emergence of visible civic revolt. His model is intended to illustrate a crucial outcome of public order research: 'public order may prevail despite tremendous private opposition to, and feelings of grievance toward, a regime.'[xii]

The conceptual basis of Epstein's evidence-based modelling enterprise is that it makes explicit and testable those inferences that are implicit in any analysis of a situation, and 'enforces a scientific habit of mind, which [he] would characterise as one of *militant ignorance* – an iron commitment to "I don't know."'[xiii] Since generative science flattens the field of inquiry and makes all theories models, there's then no reason to choose one model over the other, except on the basis of the model's output and fitness with regard to the situation. Any explanatory model chosen by a particular regime is just one model amongst many and subsequently can be challenged by a more adequate model. Clearly Epstein sees a homology between hierarchical authority in science and in social relations:

> [O]f course, this is a very dangerous idea. It levels the playing field, and permits the lowliest peasant to challenge the most exalted ruler – obviously an intolerable risk.[xiv]

With unhorsing emperors in mind, we can proceed to diagram Epstein's model of civil violence.

Image: Londonders riot, August 2011

The Auto-Generation of Stylised Facts

In order to generate what he calls 'stylized facts', Epstein supplies his model with two categories of actors:

> heterogeneous *agents* with variable impetus to rebellion (A) – these are our rioters
> the forces of central authority, the *cops* (C).

He then writes specifications for these actors:

> His agents (A) are allocated two 'highly stylized' components – hardship (H), and legitimacy (L). Here variable H represents the agents' physical or relative economic privation and is and assumed to be heterogeneous across agents. Variable L is the perceived legitimacy of the regime or central authority.
>
> The functional relationship of these variables produces grievance (G). High hardship and low legitimacy will produce increased levels of grievance.
>
> Mixed with this is the agent's level of risk aversion (R) and, like hardship (H), this is heterogeneous across all agents, implying a continuum of bold to timid actors. Therefore, 'all but the literally risk neutral will estimate the likelihood of arrest before actively joining a rebellion'. [xv]
>
> The ratio of cops to rebels in the agent's vision (v), his spatial locale, is then calculated against risk. This vision is limited and local, and the cop-to-active-ratio allows the agent to compute an estimated arrest probability (P)

Our rioter is asking: 'How likely am I to be arrested if I go active?'

Subsequently, risk aversion and arrest probability are defined by the agent's net risk (N). And proceeding in this manner Epstein is able to demonstrate the threshold (T) over and under which agents go active or remain quiescent, this then allows him to formulate an 'agent rule' for behaviour:

> [*Agent rule A: If G – N > T be active; otherwise, be quiet*]

The agent's risk assessment can be affected by special repressive measures, for example, lengthened jail sentences. However, agents may also rebel knowing that they will suffer negative utility (i.e. serve jail time or worse), since their grievances are such that revolt is unavoidable. The deterrent effect of long jail terms is also an exogenous variable (J), set by the user of the model (presumably to model different levels of judicial repression during states of legal exception). Interestingly, it is assumed in the current model that agents 'leave jail exactly as aggrieved as when they entered'.[xvi]

On the side of order maintenance, the *Cop Specification*, Epstein states that the cops are simply more 'prospective', operating via what he denotes as 'cop vision' (v*), which is also local and bounded. In Epstein's model, cops never defect. The cops also have one simple behavioural rule:

> *Cop rule C: Inspect all sites within v* and arrest a random active agent.*

By running multiple iterations of the model, Epstein discovers a number of unusual and unexpected regularities or generic outputs derived from these seemingly simple rules:

> *Individual Deceptive Behaviour*: Under this phenomenon privately aggrieved agents suddenly act non-rebellious when cops are near, but then turn active the moment that the cops move on. Epstein notes: 'They are reminiscent of Mao's directive that revolutionaries should "swim like fish in the sea," making themselves indistinguishable from the surrounding population.'[xvii]

Free Assembly Catalyses Rebellious Outbursts: Depressed cop-to-agent ratios create a catalytic mechanism so that 'even the mildly aggrieved find it rational to join [in]'.[xviii] Freedom of assembly is therefore a significant policing problem – since the aggregation of agents catalyses even the most timid of actors. However, this effect can be countered by bans on assembly or curfew, as occurred following the re-establishment of order after the August 2011 riots.

Salami Tactics of Corruption: Incremental reductions in legitimacy (L) don't necessarily bring about revolt, even if legitimacy reaches zero, since each newly activated agents can be 'picked off in isolation' before they can catalyse further rebellion. Under such incremental reductions the jailed population rises steadily. However, with sudden step-drops in legitimacy we see a sudden 'explosion in actives'. [xix]

Cop Reductions: A reduction in cops by the central authority – a lessening in repression – can tip society into rebellion (although, in a fundamentally different manner to that in the case of legitimacy reduction). Here, a relaxation in pressure can trigger revolt, since those that are privately opposed to the state can suddenly become emboldened as the shield of invincibility slips.

Examining these regularities, Epstein draws the conclusion that 'surface stability' can prevail for long periods despite agents being privately aggrieved. And outbursts also appear to be episodic or sequential, in which long periods of equilibrium are 'punctuated' by spikes indicating the emergence of macro-structural regularities (i.e. rebellions).

This model also explains why a repressive regime may deploy *agent provocateurs* in order to incite the most aggrieved agents to 'go active' and prematurely tip their hand. 'Triggering events' such as assassinations of rebel leaders might have a similar effect, however this may also come at a cost to legitimacy (the shooting of Mark Duggan was cited as the 'trigger' by BME [black and ethnic persons or groups] participants in the Runnymede report on the riots).[xx] So, whether intentional or accidental, the death of Mark Duggan acted as a spark, rather than a cause of the riots, due to the perceived history of the mistreatment of black and ethnic minorities at the hands of the police.

In light of Epstein's observations on 'cop reductions' we should also ask whether police during the riots withdrew the policing function, as some participants observed in Tottenham (residents suggested there was a 'let it burn policy') in order to exacerbate the rioting and further the police agenda during a time of cuts.[xxi] Again, whether this was intentionally planned by the police or the result of contingent events, doesn't change the truths we can abstract from it.

And lastly, given that flare-ups occur when there is a sudden step-drop in the legitimacy of the governing regimes, Epstein draws an important conclusion for would-be revolutionaries or activists: one-shot legitimacy reduction will have a greater effect than the sum of daily exposés of petty corruption.

In Conclusion

While for the most part modelling is instrumentalised by the contemporary state in order to maintain public order in a highly cynical manner, there is no reason why it cannot be employed to develop common systems of use. In contrast to the social Darwinist or neoliberal dogma of individualist cost-benefit analyses, we propose an ethical use of modelling – such as the game theoretics favoured by Elinor Ostrum for the production of the common good and situations of collective action.

As Ostrum states:

> What makes models so interesting and important is that they capture aspects of different problems that occur in diverse settings in all parts of the world. What makes these models so dangerous – as when used metaphorically as the foundation for policy – is that the constraints that are assumed to be fixed for the purpose of analysis are taken on faith as being fixed empirical settings, unless external authorities change them. The prisoners in the famous dilemma cannot change the constraints placed upon them [by the authorities]; they are in jail […]. [We should] address the question of how to enhance the capabilities of those involved to change the constraining rules of the game to lead to outcomes other than remorseless tragedies.[xxii]

From Epstein's study we can conclude that rioting, occupations and manifestations in public spaces are highly important for situations of revolt – indexing high levels of personal hardship and grievance – and potentially catalysing even timid actors to publicly express their private discontent. The public-private dichotomy that Ostrum examines highlights the poverty of our lived environment, in which public and private property interpenetrate. As such the contemporary city is a sterile space – a concretised abstraction – in which free association is limited and constrained. The rioters were portrayed as selfish miniature-capitalists, yet they were merely reacting to this sterile milieu, within the constraints and affordances provided by an urban environment that is primarily organised around exchange.

Whilst Epstein models spontaneous, horizontal emergence, he doesn't rule out the effectiveness of vertical organisation by a revolutionary party that is willing to intervene in a crisis, stating that it could act as a force amplifier for catalysed agents. However, the development of vertical political organisation requires common spaces and counter-sites that disrupt state-capitalist hegemony and allow for robust forms of political organisation to contest urban space itself.

Ostrum's warning here – if we take the governance of our communities as a truly collective endeavour – is that the fixed parameterisation of a situation leads to what, in the bloodless terminology of game theory, is called a sub-optimal outcome; a defective game for all involved. It is only through democratic feedback and self-policing of our common resources, and the identification of the city as a collective resource itself, that the parameters of the system can be effectively and responsively modulated for our joint benefit.[xxiii] However, since unanswerable hegemonic forces fix the parameters of our situation externally through the state monopoly on violence, our youth are cruelly entreated to play a losing game.[xxiv]

Most commentaries within the humanities tend to object to (evolutionary) game theory and computational modelling for its mindless abstractions, its indifference to lived experience and its lack of sensitivity to real differences. Instead, we maintain that the ICT revolution has afforded the population at large an unprecedented possibility for liberation through the communalisation of information resources and the appropriation of the power of computational modelling for the common good. One example of this kind of modelling for collective benefit is the anti-kettling software 'SUKEY', developed at Goldsmiths College, involving the real-time modulation of the parameters of the policing situation through informational feedback. However it is also indicative of the problems of ICT-based activism, namely that of recuperation by the police. Accordingly, such platforms need to be robust systems of use that preclude appropriation by the authorities – this means designing common resources that are resistant to private or state appropriation.

It is our contention that the belief in the self-sufficiency of the sovereign subject's decision-making capacity, and the moral judgements that proceed from such an assumption, hinders progressive political development and ought to be overcome by a disenchanted reconceptualisation of social order according to generative science. Not only will collective modelling practices reveal the shortcomings of subject-centred narratives, they will also bring about the formation of a self-informed commons (rather than a vectorialised biopolitical mass) that no longer merely reacts to energy gradient dynamics but is capable of contesting and radically reconfiguring the parameters of the socio-economic matrix that distributes such affordances and constraints.[xxv]

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Footnotes

i Following Laruelle's critical exegesis in: François Laruelle, *Philosophies of Difference – A Critical Introduction to Non-Philosophy*, London: Continuum, 2010.

ii By the term reversibility we make reference to Laurelle's identification of the pathological reinsertion of transcendence into immanence by philosophy – this is the invariant structure of transcendental synthesis, the philosophical correlation between being and thought.

iii As Ray Brassier comments: '[…] unilateralization means: […] a surgical intervention on upon the body of transcendental synthesis, severing terms from relations, amputating reciprocity, and sharpening one-sidedness. Every synthesis is double-edged and hence reversible, but to unilateralize synthesis means to means to endow it with a capacity for achieving an irreversible one-sided cut'. Ray Brassier, *Nihil Unbound: Enlightenment and Extinction,* New York: Palgrave, 2007, p.147.

iv By 'stylised facts' we mean generic truths abstracted from the outcomes of multiple iterations of a computational procedure (i.e. contingent rules, regularities or convergences).

v A model is thus 'oraxiomatic' in the terminology of Lauruelle; this is a portmanteau of axiom and oracle, where axiomatics are understood as maintaining the dominance of philosophical Decision over the diverse modeling behaviour found in other disciplines, and where the oracular component testifies to the ethical performativity of the model in its directedness to futurity.

vi This appearance of progressive robustness in computational modeling, and the behavior that follows from exploiting this knowledge, paradoxically leads to an amplification of unpredictability or complexity and to an increased exposure to the risks associated with the model's failure.

vii A dynamic resolution of oppositions that is typified by Engels' 'Dialectics of Nature', and by the problematic field in Deleuze. This is a reversible mode of thinking that posits an initial state (object) which is disrupted and is resolved in its reversal to equilibrium. Irreversible thought rejects all models of resolution to equilibrium due to its presupposition of radical contingency.

viii Damian Carrington, 'Are food prices approaching a violent tipping point?', http://linkme2.net/sz

ix Marvin Minsky, 'The Society of Mind', 1988: http://web.media.mit.edu/~push/ExaminingSOM.html

x Werner Bonefeld, 'The Political Economy of the State', a lecture given at CPGB weekend school on the Fundamentals of Political Economy, http://www.cpgb.org.uk/home/videos/the-nature-of-t... and Kevin Carson, *The Iron Fist Behind The Invisible Hand - Corporate Capitalism As a State-Guaranteed System of Privilege*, http://www.mutualist.org/id4.html/

xi Herbert A. Simon, *Models of Bounded Rationality,* Vol. 3*,* Cambridge MA: MIT Press, 1997.

xii J.M Epstein, 'Modeling Civil Violence: An Agent-Based Computational Approach', PNAS May 14, 2002 vol. 99 suppl. 3, p.7444.

xiii J. M. Epstein, Why Model? (2008), Based on a Bastille Day keynote address to the Second World Congress on Social Simulation, George Mason University, and earlier addresses at the Institute of Medicine, the University of Michigan, and the Santa Fe Institute.

xiv Ibid.

xv J.M Epstein, 'Modeling Civil Violence: An Agent-Based Computational Approach', op. cit., p.7443.

xvi Ibid., p.7244.

xvii Ibid. p.7445.

xviii Ibid., p.7244.

xix Ibid. p. 7447.

[xx] Runnymede Roundtables on Race and the Riots: http://www.runnymedetrust.org/projects-and-publica...

[xxi] Mentioned in the film, *Rebellion in Tottenham 2011,* http://youtu.be/Faysa6h0lR8

[xxii] Elinor Ostrum, *Governing the Commons: The Evolution of Institutions of Collective Action*, Cambridge: Cambridge University Press, 2008.

[xxiii] For a development and critique of the voluntarism inherent in Ostrum's solutions to common-pool resource problems, see Chapter 3, 'The Creation of the Urban Commons', David Harvey, *Rebel Cities,* London: Verso, 2012.

[xxiv] A recent example of the real-time modulation of the parameters of the policing situation through informational feedback, was the attempt by computer programmers to help London student protesters evade police containment: http://www.guardian.co.uk/uk/2011/feb/02/inside-an...

[xxv] Dan Hind, *The Return of the Public,* London: Verso, 2010.