After ANT: complexity, naming and topology

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Abstract

What is a theory? Or, more broadly, what is a good way of addressing intellectual problems? This paper explores the tension central to the notion of an 'actor' – 'network' which is an intentionally oxymoronic term that combines—and elides the distinction between—structure and agency. It then notes that this tension has been lost as 'actor-network' has been converted into a smooth and consistent 'theory' that has been (too) simply and easily displaced, criticised or applied. It recalls another term important to the actor-network approach—that of *translation*—which is another term in tension, since (the play of words works best in the romance languages) to translate is to also betray (*traductore, tradittore*). It is suggested that in social theory simplicity should not displace the complexities of tension. The chapter concludes by exploring a series of metaphors for grappling with tensions rather than wishing these away, and in particular considers the importance of topological complexity, and the notion of fractionality.

> 'Today we have naming of parts. Yesterday,
> We had daily cleaning. And tomorrow morning,
> We shall have what to do after firing. But today,
> Today we have naming of parts. Japonica
> Glistens like coral in all of the neighbouring gardens,
> And today we have naming of parts.'
>   (Henry Reed, *Lessons of the War*: 1)

The naming of parts

Notoriously, Michel Foucault said of his early work (was it *Histoire de la Folie*?) that it took them fifteen years to find a way of reducing it to a single sentence, whereas in the case of *Volonté de Savoir*, the

History of Sexuality, it took them only fifteen days. Perhaps, then, we are lucky. The naming of what we now call in English 'actor-network theory' took more than fifteen days. And its contraction to the status of 'ANT' took even longer. For the accolade of the three letter acronym is surely a mixed blessing. Yes, it is the contemporary academic equivalent of the Imperial Triumph, the glorious return to Rome. Yes, it is a good moment to rest, to bask in the glory. Perhaps it is a good moment return to the Paris chart-rooms and plan the subjugation of the next barbarian province. For the naming of the theory, its conversion into acronym, its rapid displacement into the textbooks, the little descriptive accolades—or for that matter the equally quick rubbishings—all of these are a sign of its respectability. Of its diffusion. Or, perhaps better, of its translation.

But if it is possible to build reputations this way, then the naming and the easy transportability of 'ANT' surely also sets alarm bells ringing. For the act of naming suggests that its centre has been fixed, pinned down, rendered definite. That it has been turned into a specific strategy with an obligatory point of passage, a definite intellectual place within an equally definite intellectual space.

There are many metaphors for telling of this tension between centring and displacement. One thinks, for instance, of Deleuze's and Guattari's distinction between arborescence and rhizome.[1] Or of some of their other metaphors, for instance: territoriality versus nomadism; or the difference between desire as lack and desire as intensity which grows from within. No doubt we need to be wary of their romanticism, to avoid the idea that freedoms and productivities are located in boundlessness and boundlessness alone. In the breaking of names and fixed places.[2] Yes, there are dangers in lionizing that which cannot be fixed.

But then again. The naming, the fixity and the triumphalism—I want to argue that in current circumstances these pose the larger danger to productive thinking—the larger danger to the chance to make a difference, intellectually and politically. My desire—and what I take to be the purpose of this volume—is to escape the multinational monster, 'actor-network theory', not because it is 'wrong', but because labelling doesn't help. This means that there are several reasons why I do not wish to defend it against its critics. First, and quite simply, because this is not an interesting thing to do. Second, because it is not productive to defend a more or less fixed theoretical location, a location which is performed, in part, by the *fact* of its naming. And third, because it is not a good way of making a difference. Under current circumstances intellectual inquiry is not,

should not be, like that. And, of course, actor-network theory was never *really* like that itself.

But this is, to be sure, the performance of an irony. The paradox is upon us. By putting it in this way I have made a fixed point in order to argue *against* fixity and singularity. I also turn myself into a spokesperson for this name, the 'theory of the actor network', 'ANT'. I seek to tell you how it really is.

Well, in this introduction I am going to have to live with this paradox because I want (as they say) to make progress, and I need to make it quickly. I want to make some claims about actor-network theory, what it really is, because I also want to commend some possibilities that don't have to do with triumphalism and expansion. That don't have to do with fixed points. That rather have to do with displacement, movement, dissolution, and fractionality.

Actor-Network theory was . . .

Some stories about actor network theory.

First story. Actor network theory is a ruthless application of *semiotics*. It tells that entities take their form and acquire their attributes as a result of their relations with other entities. In this scheme of things entities have no inherent qualities: essentialist divisions are thrown on the bonfire of the dualisms. Truth and falsehood. Large and small. Agency and structure. Human and non-human. Before and after. Knowledge and power. Context and content. Materiality and sociality. Activity and passivity. In one way or another all of these divides have been rubbished in work undertaken in the name of actor-network theory.

Of course the theory is not alone. There are cognate movements in feminist theory, cultural studies, social and cultural anthropology, and other branches of post-structuralism. But even so, we shouldn't underestimate the shock value, nor indeed the potential for scandal. Sacred divisions and distinctions have been tossed into the flames. Fixed points have been pulled down and abandoned. Humanist and political attachments have been torn up. Though, of course, it is also a little more complicated, and the scandal may sometimes be more metaphysical than practical. For this precise reason: it is not, in this semiotic world-view, that there *are* no divisions. It is rather that such divisions or distinctions are understood as *effects or outcomes*. They are not given in the order of things.

3

There is much that might be said about this. To take the notorious human/non-human divide, much ink has indeed been spilled over the importance or otherwise of the distinction between human and non-human.[3] Or, for that matter, the machinic and the corporeal. But this is not the place to reproduce such set-piece debates. Instead, I simply want to note that actor-network theory may be understood as a *semiotics of materiality*. It takes the semiotic insight, that of the relationality of entities, the notion that they are produced in relations, and applies this ruthlessly to all materials—and not simply to those that are linguistic. This suggests: first that it shares something important with Michel Foucault's work; second, that it may be usefully distinguished from those versions of post-structuralism that attend to language and language alone; and third (if one likes this kind of grand narrative) that it expresses the ruthlessness that has often been associated with the march of modernity, at least since Karl Marx described the way in which 'all that is solid melts into air.'

Relational materiality: this catches, this names, the point of the first story.

The second story has to do with *performativity*. For the semiotic approach tells us that entities achieve their form as a consequence of the relations in which they are located. But this means that it also tells us that they are *performed* in, by, and through those relations. A consequence is that everything is uncertain and reversible, at least in principle. It is never given in the order of things. And here, though actor-network studies have sometimes slipped towards a centred and no-doubt gendered managerialism (more on this below), there has been much effort to understand *how it is* that durability is achieved. How it is that things get performed (and perform themselves) into relations that are relatively stable and stay in place. How it is that they make distributions between high and low, big and small, or human and non-human. Performativity, then, this is the second name, the second story about actor-network theory. Performativity which (sometimes) makes durability and fixity.

Actor-Network theory became . . .

So that is two stories, two forms of naming, stories which tell of *relational materiality* on the one hand, and *performativity* on the other. The two, of course, go together. If relations do not hold fast by themselves, then they have to be performed.

But what of the naming of 'actor-network theory'? The term started in French as *'acteur reseau'*. Translated into 'actor-network', the term took on a life of its own. And other vocabularies also associated with the approach—'enrolment' or 'traduction' or 'translation' got displaced. For, like some kind of monster, the term 'actor-network' grew, and it started, like a theoretical cuckoo, to throw the other terms out of the nest. Which, with the privilege of hindsight, seems both significant and ominous.

'Actor-network'. This is a name, a term which embodies a *tension*. It is *intentionally oxymoronic*, a tension which lies between the centred 'actor' on the one hand and the decentred 'network' on the other. In one sense the word is thus a way of performing both an elision and a difference between what Anglophones distinguish by calling 'agency' and 'structure'. A difference, then, but a difference which is, at the same time a form of identity.

There is much to be said about this, about this notion of the *'actor . . . network'*. Yes, actors are network effects. They take the attributes of the entities which they include. They are, of course, precarious. But how is the network assembled? Here there are answers, but many of them lead us into well-rehearsed machiavellian or managerialist difficulties. Or they are posed in a language of strategy. No doubt the sacred texts of ANT are more complex and oxymoronic than this quick naming suggests.[4] However, if we draw on a set of discourses that have to do with strategy, then the gravitational pull of those discourses is primarily about the struggle to centre—and the struggle to centre and order *from* a centre. And as we know, this brings problems that may be told in a number of ways.

- One: as Leigh Star notes, yes we are all heterogeneous engineers, but heterogeneity is quite different for those that are privileged and those that are not.[5] The point is a little like Rosi Braidotti's in relation to Deleuze: to celebrate a body without organs is all very well, but less than attractive if life has always been about organs without a body.[6]
- Two: we may talk of 'heterogeneous strategies' or 'heterogeneous engineering'. But what about *non*-strategic orderings? What about relations that take the shape or form that they do for other reasons?[7]
- Three: materials may be heterogeneous, but what of heterogeneity in the sense intended by a writer like Jean-François Lyotard? Heterogeneity, in one way or another, as Otherness, that which is unassimilable? As difference? Whatever has happened to this?[8]

Perhaps then, the ordering of 'actor . . . networks' tends to ignore the hierarchies of distribution, it is excessively strategic, and it colonizes what Nick Lee and Steve Brown call the 'undiscovered continent' of the Other.[9] Perhaps it tends to suck the tension out of the term 'actor . . . network', to defuse its oxymoronic charge. All this is well known. But there are other problems, for instance to do with the term 'network'. For this is deceptively easy to think. We live, or so they tell us, in 'social networks'. We travel using the 'railway network'. And, as historians of technology remind us, we are surrounded by 'networks of power'.[10] But what are we doing when we use such a vocabulary? What metaphorical bag and baggage does it carry?

No doubt there are various possibilities. Marilyn Strathern asks us to attend to the links between notions of network and the assumptions build into Euroamerican notions of relatedness.[11] Another (indeed linked) way of tackling the issue is to think topologically. Topology concerns itself with spatiality, and in particular with the attributes of the spatial which secure continuity for objects as they are displaced through a space. The important point here is that spatiality is not given. It is not fixed, a part of the order of things. Instead it comes in various *forms*. We are most familiar with Euclideanism. Objects with three dimensions are imagined to exist precisely within a conformable three dimensional space. They may be transported within that space without violence so long as they don't seek to occupy the same position as some other object. And, so long as their co-ordinates are sustained, they also retain their spatial integrity. In addition they may be measured or scaled. They may be piled on top of one another. All of this is intuitively obvious.

Another version of Euclideanism is that of regionalism. Here (and again the point is obvious) the idea is that the world takes the form of a flat surface which may then be broken up into principalities of varying sizes. Regionalism, then, is a world of areas with its own topological rules about areal integrity and change.

Arguably, these topological understandings underpin many of the discourses and practices of the socio-technical. But studies of exotic societies suggest that there are other spatial possibilities[12]—and so too does actor-network theory. Indeed, the notion of 'network' is itself an alternative topological system. Thus in a network, elements retain their spatial integrity *by virtue of their position in a set of links or relations*. Object integrity, then, is not about a volume within a larger Euclidean volume. It is rather about holding patterns of links

stable—a point explored by Bruno Latour in his work on immutable mobiles.[13]

So, and I thank Annemarie Mol for this observation, we may imagine actor-network theory as a machine for waging war on Euclideanism: as a way of showing, *inter alia*, that regions are constituted by networks. That, for instance, nation states are made by telephone systems, paperwork, and geographical triangulation points. It isn't the only literature that does this: one thinks, for instance, of writing in the new area between geography and cultural studies.[14] However, posing the point generally, actor-network theory articulates some of the possibilities which are opened up if we try to imagine that the sociotechnical world is *topologically non-conformable*; if we try to imagine that it is topologically complex, a location where regions intersect with networks.

Of course it is not the only such attempt.[15] When Deleuze and Guattari talk of 'the fold' they are also wrestling with the idea that relations perform or express different and non-conformable spatialities. But—big but—*this sensibility for complexity is only possible to the extent that we can avoid naturalizing a single spatial form, a single topology*.

How does all this relate to the notion of the network? Perhaps there are two possibilities. One is to insist, robustly, that the term is indeed relatively neutral, a descriptive vocabulary which makes possible the analysis of different patterns of connection which embody or represent different topological possibilities. This is indeed a perfectly sustainable position, and no doubt one that underpins the co-word approach to scientometrics. The alternative is to say, as I have above, that the notion of the network is itself a form—or perhaps a family of forms—of spatiality: that it imposes strong restrictions on the conditions of topological possibility. And that, accordingly, it tends to limit and homogenize the character of links, the character of invariant connection, the character of possible relations, and so the character of possible entities.

Indeed, this is the position that I want to press. Let me express this carefully. Actor-network is, has been, a semiotic machine for waging war on essential differences. It has insisted on the performative character of relations and the objects constituted in those relations. It has insisted on the possibility, at least in principle, that they might be otherwise. Some, perhaps many, of the essentialisms that it has sought to erode are strongly linked to topology, to a logic of space, to spatiality. They are linked, that is, to volumetric or regional performances of space. Examples here would include many

versions of scale, of big and small, and (again in their many regional versions) such alternates as human and non-human, or material and social. So actor-network theory has indeed helped to destabilize Euclideanism: it has shown that what appears to be topographically natural, given in the order of the world, is in fact produced in networks which perform a quite different kind of spatiality.

But the problem is this: it has been incredibly successful. Successful to the point where *its own topological assumptions have been naturalized.* Which, if you take the position that I'm pressing, has had the effect of limiting the conditions of spatial and relational possibility. And, in particular, of *tending to homogenize them.*

So this is the sceptical diagnosis. When it started to think about relations, actor-network theory set off with a notion of translation—as I noted above, one of the terms that later tended to become submerged. For translation is the process or the work of making two things that are not the same, equivalent.[16] But this term translation tells us *nothing at all about how it is that links are made.* And, in particular, it assumes nothing at all about the similarity of different links. Back at the beginning of actor-network theory the character of semiotic relations was thus left open. The nature of similarity and difference was left undefined, topologically—or in any other respect. Which means, no doubt, that it might come in many forms. Or, to put it differently, there was *no assumption that an assemblage of relations would occupy a homogeneous, conformable and singularly tellable space.*

So my suggestion is that the naming has done harm as well as good. The desire for quick moves and quick solutions, the desire to know clearly what we are talking about, the desire to point and name, to turn what we now call ANT into a 'theory', all of these things have done harm as well as good. 'Have theory, will travel.' Easy use of the term 'actor-network' has tended to defuse the power and the tension originally and oxymoronically built into the expression. And the further abbreviation, ANT, removes this productive non-coherence even further from view. The blackboxing and punctualizing that we have witnessed as we have named it have made it easily transportable. They have made a simple space through which it may be transported. But the cost has been heavy. We have *lost the capacity to apprehend complexity*, Lyotardian heterogeneity.

What I am trying to do is to attack simplicity—and a notion of theory that says that it is or should necessarily be simple, clear, transparent. Marilyn Strathern has talked about audit in the context of British university teaching and research.[17] One of the things

8

that she says was that transparency is not necessarily a good. She says of teaching students (I paraphrase): 'Sometimes it is good to leave them puzzled, uncertain about what is being said. Even confused.' She is, I think, questioning the assumption which is embedded in the practice of teaching audit, at least in the United Kingdom, that clarity about aims and objectives is a good in and of itself. That it is possible to make explicit, in as many words, what one is on about, what a topic is all about. This assumption means, of course, that one way of failing in (British) university teaching is to be unclear about the purpose of what one is doing. Or to leave students with undefined questions in their minds.

No doubt teaching audit is a peculiarly British disease. But the point is more general. It applies, or so I am arguing, to *thinking theory*, or *thinking research*, just as much as it does to thinking teaching. For as we practise our trade as intellectuals, the premiums we place on transportability, on naming, on clarity, on formulating and rendering explicit what it is that we know—this premium, though doubtless often enough appropriate, also imposes costs. And I am concerned about those costs. I believe that they render complex thinking—thinking that is not strategically ordered, tellable in a simple way, thinking that is lumpy or heterogeneous—difficult or impossible.[18]

Fractionality

The title of this book is 'Actor Network Theory and After'. The concern is neither with arguments 'for' nor 'against' actor-network theory. These are not necessarily very interesting in and of themselves. What *is* interesting are matters, questions, and issues arising out of, or in relation to, actor-network and the various approaches to thinking materiality, ordering, distribution and hierarchy with which it interacts. The book, then, is not a balance sheet: it is a report of heterogeneous work in progress.

One of the most important matters arising has, as I've been suggesting, to do with complexity. It has to do with complexities that are lost in the process of labelling. A simple and matter-of-fact way of making the point is to revisit, once again, the question of naming—of what it is that we are doing when we talk of a theory like 'actor network theory', when we make a label in this way.

So, yes, we have a name. So to speak, a fixed tag. The theory has been reduced to a few aphorisms that can be quickly passed on. But

9

there is also a diaspora. Thus actor-network theory (and here, no doubt, it is like everything else) is diasporic.[19] It has spread, and as it has spread it has translated itself into something new, indeed into many things that are new and different from one another. It has converted itself into a range of different practices which (for this is the point of talking of translation) have also absorbed and reflected other points of origin: from cultural studies; social geography; organizational analysis; feminist STS. So actor-network theory is diasporic. Its parts are different from one another. But they are also (here is the point) *partially connected.* And this, of course, is another way of talking of the problem of naming, the problem of trying to discern or impose the 'ANT'-ness of ANT. Or, indeed, any of the single-line versions of actor-network theory, the 'have theory, will travels' which have proliferated.

The point, then, is both practical and theoretical. For these attempts to convert actor-network theory into a fixed point, a specific series of claims, of rules, a creed, or a territory with fixed attributes also strain to turn it into a single location. Into a strongpoint, a fortress, which has achieved the double satisfactions of clarity and self-identity. But all of this is a nonsense for, to the extent that it is actually alive, to the extent that it does work, to the extent to which it is inserted in intellectual practice, this thing we call actor-network theory also transforms itself. This means that there is no *credo.* Only dead theories and dead practices celebrate their self-identity. Only dead theories and dead practices hang on to their names, insist upon their perfect reproduction. Only dead theories and dead practices seek to reflect, in every detail, the practices which came before.

So there is, there should be, no identity, no fixed point. Like other approaches, actor-network theory is not something in particular. But then again (and this is the point of talking about complexity) neither is it simply a random set of bits and pieces, wreckage spread along the hard shoulder of the superhighway of theory. But how to *say* this? How to *talk* about something, how to name it, without reducing it to the fixity of singularity? Or imagining, as if we were talking of the Roman Empire in the sixth century, that something that used to be coherent has simply fallen apart? How to talk about objects (like theories) that are more than one and less than many? How to *talk about* complexity, to *appreciate* complexity, and to *practice* complexity?

I want to suggest that these are the most important theoretical and practical questions which we confront: how to deal with and fend off the simplicities, the simplifications, implicit in an academic

world in which: 'Have theory, will travel' makes for easy progress. How to resist the singularities that are usually performed in the act of naming. How to defy the overwhelming pressures on academic production to render knowing simple, transparent, singular, formulaic. How to resisting the pressure of playing the God-trick. How to make a difference in ways that go against the grain of singularity, simplicity, or centring.

Well, the 'after' in the actor network and after holds out promise. In other places Donna Haraway and Marilyn Strathern talk of *partial connections*.[20] Donna Haraway also tells stories about cyborgs and prostheses, about internal but irreducible connections which perform oxymoronic tensions. Marilyn Strathern, in a contribution to this volume, considers the ways in which asymmetries grow, again, within the symmetries of the networks. Bruno Latour wishes to recall the theory in order to rid it of some of the common-sense divisions implied in talking of 'actors', 'networks' and 'theories'. Michael Callon shows us how the making of economic simplicity is indeed a complex task. Steve Brown and Rose Capdevila explore some of the philosophical moves—and circulations—implied in actor network theory. Annemarie Mol starts to explore some of the questions arising in the ontological politics opened up by complex semiotics and Kevin Hetherington find ways of recovering the non-conformability of heterogeneity. Nick Lee and Paul Stenner talk of the necessary tension between the continuities and discontinuities implied in belonging. Emilie Gomart and Antoine Hennion talk in a related way of movement between agency and passivity—or between agency and 'structure'. Ingunn Moser and John Law are similarly concerned with movements between continuity and discontinuity, and Anni Dugdale again explores oscillations, this time between the single and the multiple implied in decision-making, while Helen Verran considers the tensions implied in thinking non-reductively about the encounter of different knowledge traditions. The sense of theory in tension runs through all these contributions and suggests a power-house of difficult and irreducible metaphors, metaphors which make complexity and resist simplicity. Metaphors which resist the call to turn themselves into theories which may be summarised and travel easily. But—and again I borrow from Marilyn Strathern—the metaphor with which I would like to conclude is that of the *fractal*.

For here is the problem. The objects we study, the objects in which we are caught up, the objects which we perform, are always *more than one and less than many*. Actor-network theory is merely

an example. Yes, it is more than one. It is not a single thing. It is not singular. But neither is it simply a random heap of bits and pieces. Which means that it is not a *multiplicity*. But neither—as Annemarie Mol shows—is it a *plurality*. The single on the one hand and the plural on the other, this is the dualism that we need to try to avoid, a dualism which is written into and helps to perform vicious limits to the conditions of intellectual and practical possibility. A dualism which, of course, also helps to define what will count as simple, and what is taken to be impossibly complex. Irreducible.

.Which is why it is interesting to work with the metaphor of the fractal. The relevant and lay part of the mathematics is straightforward. A fractal is a line which occupies more than one dimension but less than two. So a fractional object? Well, this is something that is indeed *more than one and less than many*. Somewhere in between. Which is difficult to think because it defies the simplicities of the single—but also the corresponding simplicities of pluralism of laissez faire, of a single universe inhabited by separate objects. So the thinking is difficult—no, it is not transparent—precisely because it *cannot* be summed up and reduced to a point, rendered conformable and docile. It is difficult because what we study cannot be arrayed in a topologically homogeneous manner either as a single object or as a plurality within a single space. It is difficult because the act of naming does not simplify—it does not substitute the assemblage with a neat label.

Is it too dramatic to say that, despite the best efforts of many of its practitioners, actor-network theory has been broken on the altar of transparency and simplicity? Of rapid transportability? I don't know. The God eye is alive and well and seemingly incurable in its greed for that which is flat and may be easily brought to the point. But, or so I firmly believe, the real chance to make differences lies elsewhere. It lies in the irreducible. In the oxymoronic. In the topologically discontinuous. In that which is heterogeneous. It lies in a modest willingness to live, to know, and to practise in the complexities of tension.

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Notes

1 Developed, in particular, in Deleuze and Guattari (1988).
2 A point which Ingunn Moser and I explore through empirical materials about disability in this volume.
3 See, for instance, the acrimonious exchange in Picking (1992).
4 This would, for example, be the case for Latour's study of Pasteur. See Latour (1988).
5 See Star (1991).
6 See Braidotti (1994).
7 Although she presents this in somewhat different terms, this is one of the concerns of Annemarie Mol in her work on the problem of difference. See Mol (1999). It has also been addressed in a different mode by Bruno Latour (1996).
8 This was one of the objects of the ethnography of managers reported in Law (1994). On heterogeneity see Lyotard (1991).
9 See Lee and Brown (1994).
10 The term is Thomas Hughes'. See Hughes (1983).
11 See Strathern (1996).
12 See Strathern (1991).
13 As discussed in Latour (1987).
14 Three rather different examples here would be Harvey (1989), Jameson (1991) and Thrift (1996).
15 See the papers by Steve Brown and Rose Capdevila, and Nick Lee and Paul Stenner, in this volume. See also Cussins (1997), Hetherington (1997), Mol and Law (1994) and Strathern (1991).
16 Perhaps this is in certain respects a little too limiting. Equivalence? Why equivalence?
17 See Strathern (1997).
18 For further discussion of the indirection of allegory see Law and Hetherington (1998).
19 I explore this point in greater detail in Law (1997).
20 The term appears in Donna Haraway's important but often misunderstood essay (Haraway, 1991), and is explored in Strathern (1991).

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