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On the Consequences of Post-ANT

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Since the 1980s the concept of ANT has remained unsettled. ANT has continuously been critiqued and hailed, ridiculed and praised. It is still an open question whether ANT should be considered a theory or a method or whether ANT is better understood as entailing the dissolution of such modern "genres". In this paper the authors engage with some important reflections by John Law and Bruno Latour in order to analyze what it means to "do ANT," and (even worse), doing so after "doing ANT on ANT." In particular the authors examine two post-ANT case studies by Annemarie Mol and Marilyn Strathern and outline the notions of complexity, multiplicity, and fractality. The purpose is to illustrate the analytical consequences of thinking with post-ANT. The analysis offers insights into how it is possible to "go beyond ANT," without leaving it entirely behind.

Keywords: *ANT; post-ANT; complexity; multiplicity; fractality; symmetry; methods*

Introduction

In 1999, John Law and John Hassard published *Actor Network Theory and After*. The successes, influences, meanings, current possibilities, and limits of actor-network theory (ANT) are basic themes of the volume, which explores the question of how to find new intellectual ground "surpassing" "traditional ANT," without simply leaving it behind. At least two questions spring to mind concerning this effort. The first is *why* it is interesting to go beyond ANT. One answer is that ANT has lost some of its fresh

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and challenging nature as it has been named and institutionalized and as several early formulations have been criticized in ways that call for a reconsideration of some basic premises. Second, one can ask *how*, and on which terms, it is possible to go beyond ANT (see Neyland 2006 for a recent discussion). This hope is not likely to be fulfilled by a theoretical improvement only. As ANT teaches, one can never isolate pure concepts from the sociotechnical networks that shape them. For this reason, "improvement" is also a peculiar name for what ANT views as processes of ongoing transformation. In addition, this is also the case for ANT itself, the definition of which is no longer in the hands of its originators, a situation, which is not separable from its successful entry into a broad range of settings.

In this essay, we present some basic concepts and themes from "post-ANT" to examine how one might characterize ANT today. The term "post-ANT" is our abbreviation of a set of discussions within ANT; in other words, it is a short hand for "reflexive" ANT texts. Such work is presented in *Actor Network Theory and After* and also in *Complexities*, another edition published in 2002 by John Law and Anne Marie Mol. First, we describe some of the problems, which arise when ANT reflects on itself, and we then propose some analytic consequences. We engage two examples of post-ANT analysis. The first is Annemarie Mol's study of arteriosclerosis, which we use to discuss three central concepts: complexity, multiplicity, and fractality. Second, we reconsider the symmetrical effort of ANT by discussing the case of intellectual property rights (IPR) in Papua New Guinea (PNG) as described by social anthropologist Marilyn Strathern. Aside from elucidating central concepts for a development of ANT, Mol and Strathern are exemplary in this context also because they explicitly develop a critique of pluralism and perspectivism. This critique allows us, first, to pinpoint some of the crucial differences between ANT's constructivism and social constructivism. Second, it facilitates a characterization of ANT that defines it neither as a theory nor as a method. To be sure, ANT has often commented on both theoretical and methodological issues, and thus, it is hardly surprising that it is usually understood either as a theoretical perspective or a method to "follow the actors." Nevertheless, we find both of these understandings problematic or even seriously misleading in terms of what they lead one to expect to be able to achieve by means of ANT. Below, we develop the notion of ANT as a postplural attitude (Gad 2005) or a nonhumanist disposition (Jensen 2004a).

Although this discussion and the distinctions it engenders may appear at first glance esoteric, we believe it to be important. For those interested in

"learning ANT," the discussion is didactically relevant, and our argument is here rather closely aligned with Latour's formulations in *Reassembling the Social*. For those already working with ANT, it should be obvious that our effort, as any other, is not simply descriptive but also has an integral performative component, which aims to guide further development of ANT in certain directions rather than others. Finally, for science and technology studies (STS) more generally, our argument presents and clarifies an understanding of the theoretical, methodological, practical, and normative consequences of ANT derived from "within," as contrasted with prevailing evaluations and critiques from the "outside," for example, by means of yardsticks provided by critical sociology or philosophy.

What Is ANT?

In "After ANT: Complexity, Naming and Topology" from *Actor Network Theory and After*, John Law observes that ANT has become quite a remarkable actor on the academic stage (Law 1999). The approach has been widely adopted, tempting its spokespersons to sit back and enjoy the triumph. Yet, this temptation relies on the idea that ANT has now stabilized as an easily transferable commodity on the shelf of the intellectual supermarket. The naming of ANT suggests such fixation and definitiveness—that it has become a singular entity. However, because ANT has its point of departure precisely in a view of the world as multiple and complex, one in which all entities, including theories, are displaced and changed from practice to practice, then surely it cannot itself claim to remain the same.

A key concept in ANT is "translation" used by Latour (1986, 1987) to describe processes through which actors relate to one another.[1] According to this view, actors are not quite the same from situation to situation. Rather, they are transformed in their movement between practices. Actors are found in different yet related versions, and networks develop through actors' transformational interactions. Likewise, ANT has also been translated into other settings and is currently used in a variety of possible and (seemingly) impossible ways.

When one therefore considers ANT's history and futures, problems crop up. The movement of ANT to new settings and its attendant translations problematize a notion of ANT as a singular entity. Thus, a paradox seems to be inherent in the self-reflection of post-ANT. This paradox is articulated in posing questions such as "what is ANT" or "what comes after" and believing that unequivocal answers can be given. Yet, such questioning seems to characterize post-ANT.

According to Law, it is very hard to criticize, describe, and diagnose ANT without contributing to its fixation. How could one do so while insisting that ANT is heterogeneous, rather than a frozen intellectual position? This might well be impossible, and Law seems to accept a certain amount of fixation as a necessary evil required for thinking with and about ANT. He describes two characteristics of "traditional" ANT.

ANT is a "ruthless appliance of semiotics," (Law 1999, p. 3). All things are what they are in relation to other things, not because of essential qualities. This means that dualisms dissolve: well-known examples are the distinctions between humans/nonhumans, truth/false and micro/macro. This dissolving tendency, also known as *generalized symmetry* (Callon 1986), comes about because things without inherent qualities cannot belong to predetermined categories. Whether actors are human or nonhumans, statements true or false, they are so as effects of network activity. The categorizations we take most for granted are precisely embedded in our most stable networks. Importantly, this symmetrical stance does not entail that ANT deals only in "meaning," because ANT is a semiotics of materiality, and actor networks are thoroughly material. Or, to be more precise, the supposed difference between content and form is also an instance of a dualism rejected by ANT. Instead, the world is seen as constituted through processes, which can tolerate middle stages, as exemplified by Latour's notion of relatively, or partially, existing objects (Latour 1999a; Jensen 2004b).

Additionally, traditional ANT is about performativity: things are what they are because they are *done* that way by actors relating to other actors. It is only as a result of such performances that fixation, relative stability, and so forth, exists.

The concept of actor network evokes an inherent tension between the centered actor and the decentered network. John Law sees this tension as one reason why ANT in some of its versions has been converted into something like a Machiavellian management theory (or has been accused of it; e.g., Amsterdamska 1990; Elam 1999). When studying networks, it is always easy to focus on the "strong" actor and his or her human and nonhuman allies, and this may lead to an interest in control and management, exemplified by the posing of questions such as "How does one create stronger networks?" ANT has been challenged by feminists for focusing on privileged actors and for its blindness to other possible ways in which networks might develop—without control or force as primary mechanisms. Feminists have also noted that networks appear quite differently for marginalized actors living with multiple borders (Star and Griesemer 1989; Star 1991).

Most sociological theories include a concept of "otherness," which, among other things, handles the limits of theory itself: the fact that there are important conditions that are out of its scope. However, because of the notion of generalized symmetry, ANT can be criticized for wanting to explain *everything*, and therefore for not leaving space for any "other" (Lee and Brown 1994). For example, Susan Leigh Star describes a transsexual person at a time where he or she is waiting for an operation and does not fit the common heterosexual or homosexual networks but is nonetheless intensely confronted with them. She suggests that this example indicates limits to ANT's mode of description (Star 1991).

Perhaps, such critiques are relevant. John Law takes a cautious stance suggesting that "the extent to which these complaints are appropriate to either the early or contemporary work within the tradition is a matter of judgment" (Law 2004, 157). A more upfront response, however, is to suggest that these readings are based on an interpretation of ANT as a *general theoretical perspective*—or even from seeing ANT as a *strong theory*. It is this identification, which enables critics to view ANT as "essentially" a "managerial theory." However, if ANT is an entity under transformation, this is problematic. "Otherness," marginalization, asymmetry, and suppression may certainly be important in relation to specific practices and networks, as Star's case exemplifies. However, just as surely, ANT challenges the assumption that this must *always* be the case. Because ANT is not a comprehensive theory, its potential political problems cannot be solved by enforcing *another* general perspective, even one from the margin.

However, these critiques do support Law's claim that it is important for ANT not to become a rigid and naturalized way of thinking and that the "ruthless application of semiotics" has in some cases made feasible a too simple view of reality. To counter this problem, he proposes that ANT researchers must uphold the sensitivity to complexity, which characterized the approach in the first place. In *After Method*, Law considers these issues in terms of their implications for method. The problem with traditional methods, he argues, is not necessarily the methods themselves but rather that their advocates make "excessively general claims about their status" (2004, 5).

Yet, although Law criticizes methods, for removing the "ontological politics" of research from view, he also appropriates the term methods in his hybrid notion of method assemblages, meant to be able to take into account multiplicity, indefiniteness, and flux (2004, 14). The result is in some sense curious because "method assemblages" share so many characteristics with "actor networks" that it appears at times as if the former term has simply supplanted the latter. As part of the effort to specify such

assemblages, however, Law also proposes that social science might learn to approach the world in some new ways, for example, through bodily affects or emotions, and he suggests that the aim of this endeavour would be to resist the imperialism of traditional method claims. We need to elaborate, he argues, "quiet methods, slow methods, or modest methods" (2004, 15).

No doubt, it is an important task to relieve social science from the grip of overweening methodologists (Jensen and Lauritsen 2005). However, Law's solution seems to replicate certain aspects of earlier critiques of ANT. For example, a generalized aim to develop "quiet methods" in response to methodical imperialism appears analogous to the call for adopting marginal voices into ANT analyses as a generalized response to its managerial tendencies. However, are quiet methods always the solution? Perhaps, "loud" methods might be useful as well; certainly, this would depend on the specific engagement at hand and the network and actors involved. The same objection can be made with respect to the ambition to develop "modest" methods, seemingly sympathetic with perspectives derived from the margin. For where does modesty reside and how is it recognized? After all, Law's own book on slow methods is advertised as "radical, even revolutionary," because of its aim to reinvent practice and politics.

Finally, it is noteworthy that one prominent way in which Law approaches the issue of alternative methods is by way of style. Under the heading "the pleasures of reading," he asks why novels and academic books usually offer such different reading experiences. Law asks "what difference would it make if we were instead to apply criteria that we usually apply to novels (or even more to poetry) to academic writing?" In response, he ventures the following suggestion: "Wouldn't the library shelves empty as the ranks of books disqualified themselves?" (2004, 11), and one may agree with this estimation. Again, though, his call for different kinds of representation provides no general solution to the problems facing social science analysis and, as years of debate on reflexivity in cultural anthropology and STS demonstrates, a turn to poetry or other genres *guarantees* nothing. Hence, our position is closer to Marilyn Strathern, who notes her preference for "complex trajectories to blurred genres" because, she argues, "they give us marginally more purchase for dealing with the unpredictable" (Strathern 1999b, 25). Of course, the question of what "marginally more" entails also remains open.

In *Actor Network Theory and After*, Latour also offers a comment on the future of ANT. He argues that there are really four things wrong with the concept of "ANT": each of the words and the hyphen. What is wrong? Originally,

the network concept in ANT was developed as a means of talking about transformations and translations, which were not captured by traditional terms such as "institution" or "society." The notion of the network was thus deployed as a critical tool in opposition to the conceptual framework of sociology. However, with the advent of WWW, "network" has come to connote exactly the opposite: immediate transportation of, and access to, information.

The notion of the actor is problematic because it has enabled the formulation of critiques, which, according to Latour, are seriously misleading. The critiques of ANT have aimed either at the concept of network or at the concept of actor, because the combination of the terms invites one to see ANT as part of traditional sociology. As noted above, ANT is criticized on the actor side for its Machiavellian focus. Meanwhile, ANT's network concept is attacked for its apparent dissolution of independent actors with morality and intentions in a "play of forces" in which no change through human intervention seems possible.

The symmetry of these critiques is noticeable. As mentioned, Latour suggests that they appear because the concept of actor network is misread as a (bad) comment to the sociological debate about agency and structure. He proposes that this debate, in turn, has its source in two modern dissatisfactions. When sociologists study local practices, they find that many interactions are already stable and ordered. To account for this stability, they therefore search for explanations elsewhere. This *elsewhere* is often located at the so-called macro level, where coherence and order are explained by means of concepts such as structure, cultural norms, class, and gender differences. Yet, these explanatory models are the cause of a new dissatisfaction because such abstractions are too broad to precisely capture the circumstances of local practice. Sociology can then wander in the circles of the micro–macro problem *ad infinitum* (Jensen 2007).

According to Latour, ANT is a way to first grasp and then bypass these two dissatisfactions. ANT turns sociology's own controversies into topics for investigation and suggests that "the social" does not consist in agency *and* structure. Rather, the actor network enables one to ignore this discussion. This is because the concept of network is not abstract like a structure but refers to something very concrete: the summing up of a variety of things, inscriptions, and so on in specific settings. At the same time, the ANT concept of actor does not match the sociological concept of agency because it does not refer to actors with predefined characteristics but rather underscores the many ways in which actors bestow agency on one another, thereby enabling subjectivity, intentionality, and so forth to emerge in network processes.

It follows that the social is not a fraction of reality. Just as is the case with terms such as "micro" and "macro," "culture" and "nature," and "subject" and "object," so the concept of "the social" can be seen as a name, which circulates in local practice and which actors use to identify, mark, and evaluate activities. If we do not maintain that actors must fit a sociological explanatory model, then actors are found neither at the micro level nor at the macro level. Instead, we begin to see how actors are included and excluded in specific places and on specific occasions, and that the very imputation of different "sizes" to different actors is the result of scale-producing activities in different locations. When the micro–macro distinction is turned into a topic instead of an explanation, one ceases to oscillate between local practice and global explanation. Instead, one can examine how people deploy their own scales and values in specific networks (Gad and Jensen 2008).

According to Latour, the third problem with ANT is the concept of theory. ANT is not a theory about what the social is made of but is rather a method that enables one to give actors voice and to learn from them without prejudging their activities. ANT cannot *explain* practices precisely because it is a technique by which one learns not to take the characteristics of any actor for granted. Yet, ANT also recognizes that neutral description is impossible. Latour attempts to turn the problem of the descriptive mode of analysis upside down by arguing that if ANT can be criticized for naivety regarding this problem, this is only because it has not been successful in making its vocabulary "weak" enough. The task is therefore to make ANT's vocabulary even "weaker" to allow actors to be given a stronger voice in research. He proposes that because no general theory, framework, or context is available to explain practice, one has to make a meticulous effort to formulate throwaway explanations (Latour 1988).

The fourth problem is the hyphen. As mentioned, this invites one to view ANT as a comment in the debate about agency and structure in sociology. However, it also points to the more serious problem that ANT has lost some of its original impetus to question a modern way of thinking, which distributes regions of the world among different kinds of theories. Latour lists four such regions: (1) the question of the world "out there"; (2) the question of the "inside" of the subject; (3) the question of politics; and (4) the question of teleology and purpose (Latour 1999b, 22).

The combination of actor and network by means of the hyphen has facilitated a reading of ANT as a very peculiar social theory, but it has also meant that ANT's ambition to simultaneously query all four divisions is forgotten. According to Latour, ANT is neither a theory of nature, subjectivity,

politics, nor of religion. Instead, it is a theory about the fluid transformation of actors in a nonmodern situation.

Obviously, Latour's criticism did not make the term ANT go away. In *Reassembling the Social* (2005), he apologizes for taking exactly the opposite view to the above-defending all elements of the concept *including* the hyphen (2005, footnote 9, p. 9). Thus, he aims to meet the challenge of conceptual "spillover" from traditional social theory to ANT in yet another respecification. In *Reassembling*, he argues that ANT is a resource for *slowing* down the activity of doing social research. According to Latour, traditional sociology often offers a way of traveling light and fast but at the cost of taking too many shortcuts, as when using "the social" to explain phenomena away. This accelerated style of inquiry is exactly what is disallowed by ANT. Instead, the ANT researcher will journey "on the small roads, on foot, and by paying the full cost of any displacement out of its own pocket" (p. 23). ANT researchers are here presented as the backpackers among sociological fellow travelers, those who follow the making and breaking of associations and allow the vocabulary of "locals" to seriously influence the travel report.

In this version, Latour (2005) has certainly shifted to a more offensive stance regarding the capacities of ANT. However, this does not mean that Latour has now, after all, "realized" that it *is* or *ought to* become a strong theoretical perspective. ANT to him still is a way of starting inquiry on the basis of *uncertainty*, for instance about the emergence of groups, action, facts objects, or sociality itself. Following up on the argument that ANT concepts should be weakened to give voice to actors, Latour argues that it is "best to use the most general, the most banal, even the most vulgar repertoire so that there will be no risk of confusing the actors' own prolific idioms" (p. 29-30). The risk is that social scientist easily fall prey to their love for producing sophisticated terms for what they think the actors say, but this does not do justice to the local "elaborate and fully reflexive metalanguage" (p. 30). Therefore, "ANT prefers to use what could be called an *infralanguage*, which remains meaningless except for allowing displacement from one frame of reference to the next," (p. 30). A good ANT account thus allows the concepts of the actors to be stronger than that of the analyst.

The similarities and differences between the "solutions" provided by Law and Latour are here instructive. Both complain about the tendency of most sociological theory to speed things up and urge ANT researchers to take as their task an analytical slowing down (Law 2004, 10, 14-15, passim; Latour 2005, passim). Yet, whereas Law moves away from generality and toward conceptual, methodological, and stylistic experimentation, Latour takes the position that even more extreme generalization is required

to force sociologists to stop up and think anew. Thus, he moves the theoretical vocabulary to the vanishing point of meaninglessness.

We agree with Latour that using "the social" as an explanatory concept is a shortcut, which, in many cases allows the researcher to bypass important relations and issues. We question, however, whether it is really necessary to work with a "banal" or "meaningless" language to give other actors appropriate voice. One could, for instance, imagine cases where actors would like to *learn* from ANT. Indeed, in some cases, this might be of even more concern to those actors than that their "prolific idioms" are faithfully reproduced in sociological accounts. Furthermore, it is, of course, worth remarking that Latour's own texts are *never* articulated in either meaningless terms or a "vulgar repertoire." Indeed, the appeal of Latour's texts is largely attributable to their nuance and sophistication (and we doubt that Latour really feels ashamed of this).

Consequently, although we largely concur with Latour's broad analysis, we nevertheless question whether it is interesting or required to maintain the positivist ideal of an entirely weak or meaningless research vocabulary (even as this requirement is ignored in Latour's own writing practice). Instead of imagining the existence of two metalanguages ("researchers" and "informants"), which are opposed and struggling to get voice in sociological discourse, we suggest that one would do well to see ANT as allowing for the coexistence of *several* infralanguages, including the researchers', which may change and transform precisely because of their partial connection. Indeed, as the cases below indicate, post-ANT authors do not, in fact, refrain from making strong ontological claims. Yet, one may certainly wonder, whether the actors described in these cases would recognize the characterizations provided there as illustrations of "their own idioms" in any obvious sense.

With these considerations in mind, we are now ready to take a look at two cases and their ways of thematizing the post-ANT concepts of complexity, multiplicity, fractality, and generalized symmetry.

Multiplicity in Practice

Our first example is from Anne Marie Mol's article "Cutting Surgeons, Walking Patients: Some Complexities Involved in Comparing" (Mol 2002a, 2002b). Mol analyses health care practices around arteriosclerosis in Dutch hospitals and clinics. She discusses how this seemingly simple phenomenon is *done* in practice in a variety of different ways. Now, a classic ANT tale might be concerned with how certain groups of actors succeed in

constructing a sociotechnical network stronger than their competitors, and thereby gain a monopoly on defining arteriosclerosis. However, Mol approaches the case in a quite different way. She strives to shed light on the practical and local means whereby different actors with different aims handles or *enacts* arteriosclerosis. She uses symmetry as a preparatory methodological arrangement in order not to commit to the understanding any specific actor has of a phenomenon, because, she tells us, such understanding is always generated as a consequence of ontological work and enactment of such phenomena. It is exactly this situation, characterized by a multiplicity of enactments that Mol is trying to elucidate. As in Latour and Callon's argument for generalized symmetry, we are therefore obliged to meticulously follow the efforts of involved actors to establish their relations in the networks of care practices. Mol identifies comparison as a particularly important mode of establishing relations and contrasts in health practice.

> In health care, most facts come as comparative facts. Few conditions or treatments are ever treated as simply good or bad—as if there were absolute standards. Rather, they are better or worse: than they were, than their alternatives, than an agreed threshold, than might be expected. This means that they raise questions about what is similar and different between different situations. When analyzed in detail, similarity and difference are complex rather than simple matters. Comparing is by no means a straightforward activity (Mol 2002a, 218)

In this description, similarities and differences are not simple entities, and the comparisons, which are the grounds for clinical decisions, are therefore complex. Complexity is formulated in relation to two important clinical versions of arteriosclerosis. The first is the arteriosclerosis of surgery, which is handled through a series of tests and through physical interventions in the leg of the patient: "Others will blow balloons inside your arteries; others are capable of making a bypass around an obstruction" (Mol 2002a, 229). The second is the arteriosclerosis of rehabilitative treatment, which is primarily handled in cooperation between a coach and a patient and requires that the patient participates in walking therapy. These versions of arteriosclerosis occur in different places and involve persons with different education making use of a variety of techniques, which involve entities as different as the surgeon's scalpel and the rhetorical strategies of the coach prodding the patient to continued efforts. In practice, the material and the discursive are intertwined:

> If a professor of surgery tells a patient to walk, this is not necessarily effective, but if a trainer puts a lot of effort into it, walking therapy may work. Someone has to explain to patients that the pain in their legs doesn't mean

> that something in their bodies is being destroyed. Someone has to help them work on the numbers of steps that is best for them so that they may stop walking just before they start to feel pain and they start to lose motivation (or, alternatively, in other variants of the treatment, to talk about how to keep going even if its hurts). It is a lot easier for patients to treat themselves if someone is willing and able to answer the questions that arise during all those hours of walking. (Mol 2002a, 229-30)

Here, language—explanation and rhetoric—is an important component in the enactment of arteriosclerosis, as a physiological problem. It is not that a discursive stratum is placed on top of the real disease. Rather arteriosclerosis is articulated in practices, which simultaneously makes manifest which kind of entity it is and propose courses of action for dealing with it.

Yet, the practices of surgery and walking therapy are not independent. Instead, they are partially connected, or fractal. One could say that the complexity of the disease is embedded in tension between its multiplicity (there may be several versions of arteriosclerosis) and its fractality (they may be related but not on all points or in all dimensions).

Mol also indicates how a tension between the arterioscleroses of surgery and walking therapy emerges. A surgeon may urge a patient to attend to walking therapy but this is not central to his therapeutic practice and he does not have the discursive resources at hand for effectively stating the importance of walking: "Surgeons tell their patients to walk (and to stop smoking), but to them this is not part of the therapy. It is something done in addition to therapy, a matter of giving advice, providing information. In walking therapy, however, the talking cannot be separated from the intervention: talking is an intervention" (Mol 2002a, 230). Indeed, it is often necessary to conceal the support of walking therapy *as part of* this work because

> the idea that the results of walking therapy are one's own achievement is a boost for patient's self-confidence.... A doctor who simply says, "Walk!" has little effect, but if all the nonheroic, work of guiding and supporting is done well, the patient's self-assurance increases from having achieved improvement all alone. (Mol 2002a, 230-31)

An emerging post-ANT insight is thus that many different networks exist and produce multiple versions of phenomena such as arteriosclerosis, which may seem singular at first. The elucidation of different versions of phenomena and their overlapping and fractal relations and effects (for instance, with the goal of answering questions such as "what is it to treat?"; Mol

2002a, 229) consequently presents itself as a key task for post-ANT. In addition, as Mol explains, this type of reflection also entails the post-ANT researcher; analysis and description cannot be separated from political convictions and normative hopes. Just as the talking of therapists "cannot be separated from the intervention: talking *is* an intervention," so the writing and theorizing of the STS researcher cannot be separated from intervening but is integral to it.

Symmetrical Complexity

Social anthropologist Marilyn Strathern has made a connected set of observations and, in our view, her work is central to post-ANT. Here, we focus on her contribution to *Actor Network Theory and After*, "What is intellectual property after" (1999a).

Strathern discusses IPR in a PNG setting in relation to ANT's success in handling humans and artifacts on a symmetrical footing. Interestingly, governmental and other organizations in PNG also strive to manage people, culture, and material possibilities symmetrically. The question of how "symmetry" should be done, however, is a source of controversy in these debates. These concern the efforts of the World Trade Organization (WTO) to induce developing countries to take out patents and to extend the protection given to the inventions of technology-rich countries. So, IPR in PNG offers material for reflecting on the symmetrical rationale of ANT.

As noted, ANT deployed "symmetry" to dissolve dualisms such as society/technology, human/nonhuman, and so forth by considering things relationally. ANT also insisted on its own democratizing potential in relation to both human and nonhuman actors. That is why, one major achievement of ANT, namely its development of ways of dealing even-handedly with human and nonhuman actors, might be compared to the effort to eradicate the boundary between Western and indigenous people of PNG through the introduction of IPR. Yet, Strathern argues that a boundary between the human and nonhuman is erected as a side effect of this endeavour. Paradoxically, the politically symmetrical effort creates a *new* division between society and technology. Following Latour, purifications follow in the wake of hybridization (1993).

Strathern invites us to imagine that, previously, a border between persons and things was virtually nonexistent in PNG. Subsequently, she asks how one

can make use of ANT in a situation where a meaningful difference between persons and things is conspicuous by its absence. In a Western view, the constitution of human identity is premised on a differentiation between subjects and objects. However, this is not how persons are seen in PNG. Here, in contrast, they are assumed to be *extendable* by means of things, rather than opposed to them. Where a Western subject is constituted as an effect of owning objects (what one *has*), in PNG what makes for the creation and maintenance of social relations is how one's identity is enacted in conjunction with numerous "nonhumans."

What one is, in PNG, then, is not a Western person but a hybrid of person *plus* material and spiritual extensions. People on PNG have never perceived themselves as moderns (Latour 1993), but perhaps they have always been cyborgs (Haraway 1991). Consequently, social differences in PNG do not emerge as a result of acquiring more wealth. Rather, persons are differentiated from one another by occupying shifting positions based on the exchange of "extensions."

In this case, what happens when IPR, founded on the distinction between subject and object, are deployed in the effort to secure equality among persons? Seeking an answer to the question, Strathern describes the International Convention on Biodiversity, which PNG signed in 1992. This was the time when IPR was introduced as a tool for securing international recognition of copyright and patents. Although IPR was introduced as a new idea in PNG, cultural models for making sense of the concept and facilitating its adoption were already in place. Thus, IPR could be imagined analogically through models available from existing practices of resource extraction and exchange. The biodiversity convention aimed to protect the practices and knowledge of local communities, while opening up this knowledge for utilization. IPR thus conceived means to ensure that creativity would be able to receive commercial protection. Laws were introduced, which supported the notion of rights to material and cultural resources. In addition, with the introduction of patents and the related pressure to innovate, authorship and creation were emphasized as the most important factors in decisions to protect rights. As a consequence, concepts such as knowledge, information, creation, technique, and cultural practice became increasingly important.

Strathern suggests that it may seem like the basic lesson of ANT has been learned: human knowledge is promoted on equal terms with other resources and quite a few social and natural actors are relevant when one considers the distribution of rights. Yet, through the effort to make profit from knowledge, IPR promotes a differentiation between technology and society. It is not enough to create new knowledge to qualify for IPR protection. The

right to protection only arises when the knowledge can be used for commercial purposes. Knowledge has to be transformed into something other than *mere knowledge* to be protected by copyright and patents. This means that things are separated from people. A conception of objects as holders of independent qualities becomes important. Innovators need to possess originality and give testimony to their own uniqueness—just as a book contains the name of the author, place of publication, and copyright data. Second, this model contributes to promote individualism. In turn, this form of individuation conflicts with the understanding that persons plus things are integrally connected and basic entities. Most importantly, IPR entails that things are reconstituted in terms of ownership, which means that the traditional personhood of PNG can no longer be enacted as easily.

Strathern points out that anthropologists have always been intrigued by the exchange of identical things in PNG, such as shells for shells and pigs for pigs. This occurred, she argues, because the important thing about objects was precisely their social origin, which enabled the renewal of relations through exchange. Persons lived in a flow of transactions in which items such as shells, yams, and pigs were exchanged to create and maintain social identities. The existence of this flow also meant that the introduction of compensation through IPR could be inscribed rather easily in the local order and related to older transactional forms such as bride wealth. It can thus be said that IPR has simply added new qualities to previously existing types of transactions.

Yet, in this process, PNG have also been compelled toward a self-understanding as a traditional, collectivized society in opposition to a modern and individualized one. What is more, the introduction of IPR to compensate local inhabitants compels the implementation of Western institutions and mechanisms for handling subject–object relations. This transformation can easily be depicted as contrary to the ideal of *protecting* local culture and it points to important questions concerning who gets to speak for whom in arenas of postcolonial politics. Certainly, the situation can be seen as both promising and perilous. Politically, the situation may therefore be engaged in various ways.

Analytically, however, it elucidates the enactment of different versions of reality and their partial convergence. Although IPR may create wealth in PNG, it also translates the culture and ontology of its inhabitants. The discussion illustrates that profound differences exist between Western and Melanesian ontology that cannot be ignored as theoretical oddities, but rather have many practical consequences. The new asymmetries, which emerge as an effect of seemingly symmetrical mechanisms for compensation, are thought-provoking

for ANT and indicate that the dismantling of old borders may create new ones, unintentionally and perhaps without recognition. Or, as Strathern sums up:

> No one these days wants to claim ownership of an idea or artefact on grounds of unique identity, yet there is no refuge for social anthropologists in the idea of hybrids, networks, and invented cultures either. These do not, of themselves, indicate a symmetrical sharing morality. They are not of themselves the resistant, transgressive stands they might seem; not the revitalized assembly or parliament of things Latour so freely imagines. For neither a mixed nature nor an impure character guarantees immunity from appropriation. On the contrary, the new modernities [amodernity and postmodernity] have invented new projects that forestall such imaginings. We can now all too easily imagine monopolies on hybrids, and claims of ownership over segments of network. (Strathern 1999b,135)

This analysis, in turn, makes it possible for us to see that the daemon of ANT—*the distinction between society and technology*—is continuously enrolling new allies and colonizing new terrain. An emerging lesson is that post-ANT should not imagine that traditional distinctions can be dissolved or refigured once and for all. This indicates why keeping in mind the original symmetrical incentive of ANT remains of central importance. The complexities produced by symmetrical analysis might expand researchers' analytical capacities for imagining new orders or perceiving the emergence of them. However, because the ANT researcher never controls such orders, this analysis also indicates the danger of using ANT as another tool with which to "improve practice."

ANT as a Postplural Attitude

Mol and Strathern engage in a critique of perspectivism which they both see as closely linked to pluralism. Mol depicts how actors are both conceptually and materially involved in doing arteriosclerosis. If one were to view arteriosclerosis as an unambiguously "natural" disease, it might still be said that it affords many different perspectives and one could describe how these perspectives may conflict. In fact, this is how medical sociology and anthropology often proceeds. Mol's central counterargument to this view is that the disease is neither natural nor passive but is instead a flexible participant in various enactments. However, although the disease is therefore unable to provide any "objective" or "natural" ground for perspectives, this does not mean that everything that happens is purely social

or solely subjective. Rather, multiplicity is an ontological condition that presents itself to the student of the phenomenon.

Yet, multiple does not reduce to plural. The notion of pluralism relates to perspectivism, a conception, which emerged as a response to objectivism (Mol 1999). Perspectivism implies that observers with different cultures, habits, and interests will tend to view things differently. In turn, this implies a view of reality as what lies passively behind the perspectives, providing the mute material, which is being gazed at from different angles. What this means is that perspectivism affects only a superficial break with the truth regime of objectivism. It breaks only by multiplying "the eyes of the beholders":

> And this in turn brought pluralism in its wake. For there they are: mutually exclusive perspectives, discrete existing side by side, in a transparent space. While in the centre the object of the many gazes and glances remains singular, intangible, untouched. (Mol 1999, 76)

Social constructivism, for example, tells us about people from different social groups with accordingly variable perspectives. Other types of constructivism highlight how theories are made durable in laboratories. They make explicit how historical alternatives to any current fact or artifact were not doomed to fail from the beginning. Seeds for other ways of constructing reality were present but were not allowed to bloom. As Bijker and Pinch (1989) portray, there have been historical alternatives to the bicycle as we know it today, but these alternatives have been "forgotten," until the constructivist endeavour recovered them.

To Mol, a conception of reality as multiple calls for metaphors other than perspectives and points of view. Reality is manipulated in many ways and does not lie around waiting to be glanced at. It does not have "aspects," "qualities," or "essences," which are shed light upon by a certain theoretical perspective. However, when doing ontological work, different versions of objects appear. These, in turn, may relate and shape partially linked versions of reality. Concepts such as "intervention," "performance," and "enactment" highlight the attempt to approach reality as "done" rather than "observed."

The idea that reality exists in multiple related versions lends itself to the notion that one can "choose" freely between them. However, if one tries to locate the outside position from where one is supposed to evaluate and make such choices, one finds that such a place simply does not exist. Mol points out, that one consequence of this situation is that possibilities seem to

exist everywhere. Important normative moments and decisions therefore often appear as originating elsewhere and feel as if out of reach. However, Mol's analysis also shows why it is in fact impossible to identify, evaluate, and compare discrete perspectives. For as her analysis of the versions of arteriosclerosis indicates different enactments do not necessarily exclude each other but may be in various ways entwined: "What is other is also within" (Mol 1999, 85). This is why objects such as arteriosclerosis are characterized by fractality. They are "more than one but less than many" (Mol 2002a, 82).

Marilyn Strathern remarks on a similar analytical problem, noting ironically that the sheer proliferation of viewpoints generated by perspectivism have become problematic for the notion of perspective itself:

> In the late twentieth century, anthropology has already moved from a plural to what could be called a postplural perception of the world. . . . [T]he realization of the multiplier effect produced by innumerable perspectives extends to the substitutive effect of apprehending that no one perspective offers the totalizing vista it presupposes. It ceases to be perspectival. (Strathern 1991, xvi)

The capacity to obtain more perspectives has become increasingly culturally recognized but this has also made it questionable. Prior to its explicitation, perspectives were "taken for granted" as foundations on the basis of which theories were constructed and knowledge produced. From this vantage point, the constant drive to find new theoretical perspectives seemed reasonable. It was also sustained by the belief that more perspectives would allow (social) science to move closer to a "completion" of its knowledge. Yet, this belief in progression is challenged as perspectivism becomes explicit: it facilitates a critical questioning of whether we really learn *more* about the world by exploring it from different angles.

Strathern and Mol disagree with the perspectivist assumption that one nonhuman world provides a stable baseline for multiple human interpretations. It is, of course, a distinct feature of perspectivism to recognize that people come from different backgrounds, have different opinions, and so forth. Indefinitely many viewpoints can exist, and a particular theory allows the researcher to access only a subset of the many stories, which possibly could be told. Pluralism, then, is the result of combining "theoretical perspectivism" with an egalitarian approach to the status of the knowledge produced by each perspective. In addition, yet, when perspectivism becomes explicit, it also becomes increasingly easy to wonder what the point of any given

perspective is and whether the morsels of knowledge produced from different perspectives add up to anything coherent at all.

Strathern terms "postplurality" this skepticism with respect to the notion that knowledge of the world is increasing in a qualitative sense through the proliferation of perspectives. From a postplural vantage point, theoretical perspectives are seen to be produced as much as they are producing the world. Indeed, they seem to be *folded* into all kinds of empirical matters on any number of different "levels." Theoretical perspectives appear here also as fractal figures—partial views, engaged in ontological politics, vulnerable and changeable, situated as they are in the thick of things.

Pluralism is thus an egalitarian idea about the status of the various kinds of knowledge produced by theoretical perspectives. As a moral stance, it holds that perspectives are, in principle, equal entities, mutually tolerant and tolerated. Analogously pluralism grants equal status to different methodical approaches. "Methods" simply provide different kinds of access to the nooks and corners of reality, explored with any given theoretical perspective. So, while knowledge appears to be constructed through the production of *more* perspectives, it is also produced as each perspective elucidates different "subject matters" or "parts of the world" through the application of a variety of methods. Yet, as pluralism and perspectivism are challenged, the idea that methods provide clear and coherent guidelines must also be questioned.

It is sometimes assumed that ANT (and post-ANT) relies on specific dictums that guide its analyses (this is supported, for example, by Appendix 1 in *Science in Action*, which is called "Rules of Method" (Latour 1987, 258). Yet, reading ANT texts for their methodology is often quite disappointing. Most texts by Mol and Strathern, Law and Latour do not say much about how to go about doing ANT, practically speaking. This could lead to the conclusion that an enigmatic ANT method is still at work behind the scenes and encourage efforts to make its requirements explicit. In our view, though, the situation simply suggests that ANT ought to be characterized differently, while it might ally with specific methods, it is not itself one.

ANT has to work with the assumption that the analyst is likely to be wrong about his or her assumptions when encountering ontological work in practice. For good reasons, then it cannot equip the researcher with a failsafe method for doing ANT. Indeed, it just might be a mistake to follow the actor in some cases. Thus, we read ANT texts neither as sociological theories or methodological guides but as additions to and transformations of the study of various networks. This is why we find notions such as a "postplural

attitude" or a "nonhumanist disposition" to better characterize ANT and post-ANT than either theoretical or methodological specifications.

The Empirical Is Everywhere

Given the above reflexive and recursive arguments about ANT, its characteristics and relations, what can one conclude? The immediate answer is that there is no way to conclude, because ANT is a dynamic assemblage of ideas and practices, which tells stories about how the world cannot stop transforming, and also tells such stories about itself. However, this does not lead to the ironic conclusions that everything is equally good, or that nothing matters. Some of the most important points can be summed up in the following way.

Post-ANT stretches ANT's empirical–ethnographic interest to include *everything*. There are no *a priori* limits as to *where* the empirical can be found or to what kind of settings will enable insights about a given theme. Mol's study of arteriosclerosis stuck closely to the hospital setting. Yet, the empirical has a propensity for spreading out and, no doubt, arteriosclerosis has longer social tendrils. Hence, while clinical practice is an obvious site to begin an investigation of a medical issue, the self-evidence of this choice should not lead the researcher to forget that any phenomenon is always part of much larger networks, which participate in defining the qualities and characteristics encountered in the clinic. For this reason, it should never be automatically assumed that that one comes closer to medical reality by engaging with a clinical situation than, for example, by examining performance art, newspaper clips, or patient diaries. Multiple aspects of reality may be important to grasp what is at stake in any situation, which are in fact crucial is precisely what cannot be determined with reference to any particular method. Among other things, this is because it depends on answering the central question, "crucial with respect to what?" — a question that must be answered by the researcher as much as the "field."

Indeed, the insistence that this question be answered in each case is to take seriously that if everything is empirical, then researcher is inevitably *part of the field*. In addition, what this means is that, even if one claims to "follow the actor," one cannot shy away from the fact that one is doing so hoping to achieve certain effects: developing a response to problems in cultural theory, for example, or acquiring a usable understanding of problems in a given organization. Here, we find a discrepancy between ANT and

post-ANT. In our view, Latour's position in "On recalling ANT"—wanting to make the vocabulary of ANT even weaker—does not do justice to the attitude of post-ANT. One can make strong philosophical and ontological claims without presenting a general theoretical perspective. In addition, if generalized symmetry is turned "inwards," one realizes that the difference between practical intervention and neutral observation is just one more dualism: pure description, as well as pure politics and intervention, does not exist. This implies that strong conceptions about what the world *is* or *must be* (as in a "general theory of") as well as about how one *should act* to obtain valid knowledge about the world (as in "methodological requirements") must always be questioned and often resisted.

In this light, ANT can be considered a theory only in the minimal sense that it proposes a generalized agnosticism with respect to the value of theories. This is one reason why John Law characterizes the application of the term theory to ANT as "doubtful" (Law 2004, 157). Likewise, ANT is certainly not a method telling the researcher what to do. If it can be considered a method, it is so only in the counterintuitive sense of providing a crash course in learning to recognize the limitations imposed on research by an overly reverential attitude to theories and methods. The sole "method" of ANT, then, is to provide a constant reminder that research is always likely to encounter conglomerates or hybrids of action rather than pure entities.

This suggests a final lesson. The researcher and the researched do not participate in a game where one or the other has to be neutralized for new knowledge to emerge (Latour 1987b; Jensen and Lauritsen 2005) With ANT, the situation is exactly opposite. The researcher has the opportunity to translate insights, which have been obtained through scholarship, training, and empirical study. Yet, simultaneously ANT is also learned in practice from other actors. Thus, ANT is a transformative entity, which one teaches and is taught in different settings. This is far from the notion of passive theory, which one can learn from a book and then apply to everything. Instead, ANT may be viewed as a vessel of intellectual resources that can only bear fruit in specific constellations with empirical matters.

The ANT Multiple

Viewed in relation to one another, the various contributions to *Actor Network Theory and After* and *Complexities* clearly explicate that ANT cannot be defined as *one* singular entity but may rather be viewed as a

multiplicity—the ANT multiple. Different versions of ANT exist, which entail diverse theoretical, analytical, methodological, and empirical implications and commitments. Naturally, this is also an effect of the reflexivity of post-ANT. This multiplicity should come as no surprise, as researchers working with these approaches have mainly done so in the spirit of developing a meticulous, flexible, and experimental empirical approach to the study of science, technology, and society.

As noted, it is a central tenet in ANT that the researcher's categories and presumptions should not be allowed to dominate descriptions. Instead, actors ought to be given voice in their own categories. The researcher must be open-minded with respect to what counts as observation, and careful in description because local actors, in the first instance, are believed to know their own practices best—as has been emphatically argued by ethnomethodology (Garfinkel 1968).

This is one reason why ANT resists a definition of itself as a theoretical perspective, that is, as a fixed set of concepts and convictions, which, as in some branches of sociology, is conceived as capable of revealing what is *really going on* in practice. We suggest that an interpretation of ANT as a theoretical perspective is based on the misunderstanding that ANT always delivers *the same conclusion*, namely, that no matter what is scrutinized the concern is always to demonstrate that actors are entangled in networks. However, the point is the opposite; it is to refuse to know *in advance* who the relevant actors are in any given situation and what comprises a network. That is why, one cannot make use of clear-cut distinctions until practices have been researched and the relevant local categories and differences have been encountered.

Latour writes about this ultraspecific approach to empirical material as the development of "throwaway explanations" (Latour 1988), precisely because each explanation is tailor-made to a particular network. Viewing ANT as a theoretical perspective dissolves this insight, with the consequence of closing off the possibility of learning how specific networks unfold in practice. Although it is not a traditional theory, it is obviously an approach—a large number of texts now have more in common than simply shared use of the term. ANT has been simultaneously strong enough to give some sense of common intellectual ground, while hosting multiplicity. Neither the result nor the goal of ANT can be simply the construction of a theoretical perspective. As we have argued, more modestly, the aim must be to contribute to a living "vessel" of intellectual resources.

ANT researchers are not naïve with regards to the tension between claiming to provide descriptions, on one hand, and proclaiming to be an open

sociotechnical approach, on the other. The possibility/impossibility of freeing oneself from one's assumptions is thus an explicit problem internal to post-ANT. The problem acts as a constant reminder that no one idea should be allowed to mutate into an unproblematic truth. Insights gathered from the study of one practice cannot be used to judge other practices, although, with adequate translation, they may well inspire local interpretations.

In turn, this implies that ANT is relatively indefinable. It is obviously possible to propose defining characteristics and discuss what one believes it has in common with other approaches. However, because both ANT and post-ANT are seen as done in continuous negotiations between networks and actors, such suggestions can never be definitive. The original writers of ANT have therefore neither the ultimate right nor the practical capacity to determine what ANT *is*. As Latour has often repeated, its definition, like any definition, is "in the hands of later users" (e.g., Latour 1987, 29).

Summing Up—The Challenges of Post-ANT

How does one find intellectual ground while accepting that reality is enacted, multiple, and fractal? How to limit a study or finish investigations? How to argue for the relevance of ANT research without an appeal to the modern conception of research as unproblematically delivering solutions to problems? Post-ANT approaches turn these objections on their heads. By necessity, the researcher "cuts the network" (Strathern 1996) but neither theory nor methodology will tell how this must be done. Instead, this effort is inevitably assisted by practical conditions as well as intellectual considerations relating to what one aims to achieve. Paying attention to the specific way in which the research network is cut might therefore be viewed as an aspect of conducting good research (Jensen and Zuiderent-Jerak 2007).

In this view, practice ceases to be disconnected from theory, while theory no longer figures as a "perspective" existing on the outside, nowhere or everywhere. The question of *what practice is*, then, is up for continual interpretation and reconstruction, because of the activities of the researcher *among* other actors; consequently, it appears that doing "theory" is a very specific and practical, yet "inventive" endeavor (Wagner 1981).

In response to the question posed at the beginning of this article: "what comes after ANT?" we can now say that ANT "went beyond itself" from the beginning, as new research inevitably translated original formulations

and aspirations. For this reason, the important question for post-ANT is not how to preserve ANT with restorative custodian nostalgia, just as it is not to consolidate ANT as a theoretical perspective, method, or strong managerial tool. More interestingly, we believe in a reflective engagement with ANT and its extensions in *partial connection with* other networks whose characteristics cannot be taken for granted, just as the consequences of such interactions cannot be foretold.

Note

1. The notion of translation originates from the work of French philosopher Michel Serres (see Brown 2002).

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