

Fifth Source of Uncertainty: Writing Down Risky Accounts

This introduction to ANT begins to look like another instance of Zeno's paradox, as if every segment was split up by a host of mediators each claiming to be taken into account. 'We will never get there! How can we absorb so many controversies?' Having reached this point, the temptation is great to quit in despair and to fall back on more reasonable social theories that would prove their stolid common sense by ignoring most of the sources of uncertainty I have reviewed. We could swallow one, maybe two, but not four in a row. Unfortunately, I have not found a way to speed things up: *this* type of science for *that* type of social should be as slow as the multiplicity of objections and objects it has to register in its path; it should be as costly as it is necessary to establish connections among the many mediators it finds swarming at every step; and it should be as reflexive, articulated, and idiosyncratic as the actors cooperating in its elaboration. It has to be able to register differences, to absorb multiplicity, to be remade for each new case at hand. This is why the four sources of uncertainty have to be tackled courageously all at once, each adding its set of differences to the others. If one is missing, the whole project falls apart.

But I confess the difficulty: Is it not counterproductive in the end to abandon the convenient shorthand of social explanations, to split hairs indefinitely about what is or is not a group, to trick intermediaries into behaving as mediators, to register the queerest idiosyncrasies of the humblest actors, to set up long lists of objects participating in action, and to drop the background made of solid matters of fact for the foreground of shifty matters of concern? How ridiculous is it to claim that inquirers should 'follow the actors themselves', when the actors to be followed swarm in all directions like a bee's nest disturbed by a wayward child? Which actor should be chosen? Which one should be followed and for how long? And if each actor is made of

another bee's nest swarming in all directions and it goes on indefinitely, then when the hell are we supposed to stop? If there is something especially stupid, it is a method that prides itself in being so meticulous, so radical, so all encompassing, and so object-oriented as to be totally impractical. This is not a sociology any more but a *slowciology*! Zen masters can puzzle over the many conundrums of their austere discipline, but not the writer of a sociology treatise. Either she proposes a project that is affordable and manageable or we sue her for disinformation.

We write texts, we don't look through some window pane

Fortunately, there is a solution out of these many difficulties and, like all the solutions I have given so far, it is a very practical one: only by sticking obstinately to our decision to feed off uncertainties can we eventually get back on our feet. If we want to have a chance to mop up all the controversies already mentioned, we have to add a fifth and last source of uncertainty, namely one *about the study itself*. The idea is simply to bring into the foreground the very making of reports. As the reader should have understood by now, the solution to relativism is always more relativity. All things being equal, we should do for our study what Einstein did when he decided to tackle—instead of the sublime questions of ether—the apparently moronic and mundane questions of how anyone equipped with a rod and a clock could catch any signal from someone else equipped with a rod and a clock. What is requested from us is not the impossible task of jumping, in one *salto mortale*, from our mental representation to the four former sources of uncertainty, but to ask the simple question: What do we do when we trace social connections? Are we not, in effect, writing down accounts?

What is an account?¹⁷¹ It is typically a *text*, a small ream of paper a few millimeters thick that is darkened by a laser beam. It may contain 10,000 words and be read by very few people, often only a dozen or a few hundred if we are really fortunate. A 50,000 word thesis might be read by half a dozen people (if you are lucky, even your PhD advisor

¹⁷¹ This is where ANT crosses the resources of ethnomethodology—including the key notion of 'accountability'—with those of semiotics. Strangely enough, for all his attention to practice Garfinkel never points out the practice of writing—which might go some way toward explaining his style! After years of teaching in England and America, I have been forced to recognize that semiotics does not survive sea travels. Attention to text *qua* text remains a continental obsession.

would have read parts of it!) and when I say 'read', it does not mean 'understood', 'put to use', 'acknowledged', but rather 'perused', 'glanced at', 'alluded to', 'quoted', 'shelved somewhere in a pile'. At best, we add an account to all those which are simultaneously launched in the domain we have been studying. Of course, this study is never complete. We start in the middle of things, *in medias res*, pressed by our colleagues, pushed by fellowships, starved for money, strangled by deadlines. And most of the things we have been studying, we have ignored or misunderstood. Action had already started; it will continue when we will no longer be around. What we are doing in the field—conducting interviews, passing out questionnaires, taking notes and pictures, shooting films, leafing through the documentation, clumsily loafing around—is unclear to the people with whom we have shared no more than a fleeting moment. What the clients (research centers, state agencies, company boards, NGOs) who have sent us there expect from us remains cloaked in mystery, so circuitous was the road that led to the choice of this investigator, this topic, this method, this site. Even when we are in the midst of things, with our eyes and ears on the lookout, we miss most of what has happened. We are told the day after that crucial events have taken place, just next door, just a minute before, just when we had left exhausted with our tape recorder mute because of some battery failure. Even if we work diligently, things don't get better because, after a few months, we are sunk in a flood of data, reports, transcripts, tables, statistics, and articles. How does one make sense of this mess as it piles up on our desks and fills countless disks with data? Sadly, it often *remains* to be written and is usually delayed. It rots there as advisors, sponsors, and clients are shouting at you and lovers, spouses, and kids are angry at you while you rummage about in this dark sludge of data to bring light to the world. And when you begin to write in earnest, finally pleased with yourself, you have to sacrifice vast amounts of data that cannot fit in the small number of pages allotted to you. How frustrating this whole business of studying is.

And yet, is this not the way of all flesh? No matter how grandiose the perspective, no matter how scientific the outlook, no matter how tough the requirements, no matter how astute the advisor, the result of the inquiry—in 99% of the cases—will be a report prepared under immense duress on a topic requested by some colleagues for reasons that will remain for the most part unexplained.¹⁷² And that is excellent because *there is no better way*. Methodological treatises might

¹⁷² I use report as a generic term. It might be an article, a file, a website, a poster, a PowerPoint presentation, a performance, an oral exam, a documentary film, an artistic installation.

dream of another world: a book on ANT, written by ants for other ants, has no other aim than to help dig tiny galleries in this dusty and earthly one.

Bringing the writing of reports into the foreground might irritate those who claim to know what the social is made of. They would much prefer to be like 'hard' scientists and try to understand the existence of a given phenomenon, refusing to consider the written account and relying instead on direct contact with the thing at hand via the transparent medium of a clear and unambiguous technical idiom. But we, who have been trained in science studies, don't need to ignore the thickness of any given text, its pitfalls, its dangers, its awful way to make you say things you don't want to say, its opacity, its resistance, its mutability, its tropism. We know too well that, even in 'hard' sciences, authors clumsily try to write texts about difficult matters of concern. There is no plausible reason why our texts would be more transparent and unmediated than the reports coming out of their laboratories.¹⁷³ Since we are all aware that fabrication and artificiality are not the opposite of truth and objectivity, we have no hesitation in highlighting the text itself as a mediator. But for this very same reason, we don't have to abandon the traditional goal of reaching objectivity simply because we consider with great care the heavy textual machinery. Our texts, like those of our fellow scientists, run the parallel course of being artificial *and* accurate: all the more accurate *because* they are artificial. But our texts, like those of our fellow scientists, run the risk of being *simply* artificial, that is full of artifacts. The difference is not between those who know for certain and those who write texts, between 'scientific' and 'literary' minds, between '*esprit de géométrie*' and '*esprit de finesse*', but between those who write *bad* texts and those who write *good* ones.¹⁷⁴ One must put forth the following questions: What is a good laboratory and what is a good textual account? The latter question, far from being belated and irrelevant, becomes central to the definition of what is for us a science of the social. To put it in the most provocative way: good sociology has to be well written; if not, the social doesn't appear through it.

The question is not whether to place objective texts in opposition to subjective ones. There are texts that pretend to be objective because they claim to imitate what they believe to be the secret of the natural

¹⁷³ See Françoise Bastide (2001), *Una notte con Saturno: Scritti semiotici sul discorso scientifico* for a collection of essays. For work in English, see Françoise Bastide (1990), 'The Iconography of Scientific Texts: Principle of Analysis'; F. Bastide, M. Callon and J.P. Courtial (1989), 'The Use Of Review Articles In The Analysis Of A Research Area', Françoise Bastide and Greg Myers (1992), 'A Night With Saturne'.

¹⁷⁴ In an otherwise fascinating book on the writing of history, Carlo Ginzburg (1999), *History, Rhetoric, and Proof* is still trying to reconcile the two opposites of rhetoric and reference without realizing this other crucial difference.

sciences; and there are those that try to be objective because they track objects which are given a chance to *object* to what is said about them. It's because ANT claims to renew what it means to be a science and what it means to be social, that it has also to renew what it is an *objective* account. The word does not refer to the traditional sense of matters of fact—with their cold, disinterested claims to 'objectification'—but to the warm, interested, controversial building sites of matters of concern. Objectivity can thus be obtained either by an objectivist style—even though no object is there to be seen—or by the presence of many *objectors*—even though there is no pretence for parodying the objectivist genre.

It's thus a fair question to ask why the literature of social science is often so badly written. There are two reasons for this: first, scholars strive to imitate the sloppy writings of hard scientists; second, because *contrary to the latter*, they do not convoke in their reports actors recalcitrant enough to interfere with the bad writing.

No matter how illiterate they pretend to be, natural scientists will be forced to take into account at least some of the many quirks of their recalcitrant objects. On the other hand, it seems that only sociologists of the social—especially critical sociologists—can manage to efficiently muffle their informants' precise vocabulary into their own all-purpose meta-language. Even though natural scientists take great pains to be as boring as possible, matters of concern inundate scientific writings in such a way as to make physics, biology, and natural history papers the most fascinating of operas—as literary students of science have shown so forcefully.¹⁷⁵ But social scientists too often succeed, at great cost, in being boring for good! This might be the only real difference between the 'hard' and the 'soft' sciences: you can never stifle the voice of non-humans but you can do it to humans. People have to be treated much more delicately than objects because their many objections are harder to register. Whereas subjects easily behave like matters of fact, material objects never do.¹⁷⁶ This is why the question of what is a good account is so much more crucial for the social than for the natural sciences. To introduce the words 'textual account' into a discourse on method might be like dynamite, but not because it blows apart the claims of scientists to objectivity. Rather, it destroys forever sociologists' entitlement to sloppy writing under the pretext that they have to write 'like' scientists. Because science students had many occasions to probe the slow emergence of objectivity

¹⁷⁵ A scholarly association, 'Science and Literature', is now devoted in part to this task. See their journal *Configurations*.

¹⁷⁶ This is all the less surprising since matters of fact are a political invention, a sort of ideal citizenship invented in the 17th century to convoke the assembly of nature. Humans may comply with this political role but why would non-humans?

in scientific writings, they were delivered from the burden of trying to wear the false attires of the objectivist prose.¹⁷⁷ Because they were not living under the shadow of a borrowed objectivity, they could explore other ways to make the object resist in their textual accounts.

Foregoing the word 'textual' in textual accounts remains dangerous however because, for people unaware of science studies and of semi-otics, texts are often construed as 'stories' or, even worse, as 'just stories'. Against such a blasé attitude, I will be using the expression 'textual account' to mean a text for which the question of its accuracy and truthfulness has *not* been put aside.¹⁷⁸ And yet the temptation to confuse the two is all the greater because there are scholars—if this honorable word can be applied to them—who claim that the social sciences generate 'only' narratives, and they sometimes add: 'just like fiction'.¹⁷⁹ Like footballers scoring a goal against their own team, sophisticated humanists have begun to use the words 'narratives' and 'discourses' as a way to say that there are no truthful scriptures. As if the absence of an absolute Text meant that all the texts were relative. Of course, all those who are ready to denigrate the social sciences have applauded in agreement since that is just what they have been saying all along: 'Sociologists are mere storytellers. It's about time some of them confess it at last.' If it is one thing to say that social sciences produce written accounts—every science on earth does the same and this is why they all end with the -logy or -graphy suffixes—it's quite another to conclude from this trite that we can only write *fiction* stories.

First, such an appreciation betrays a remarkable ignorance of the hard work of fiction writers. Those in anthropology, sociology, cultural studies—who pride themselves on 'writing fictional narratives'—should be inspired in being at least as disciplined, as enslaved by reality, as obsessed by textual quality, as good writers can be. They don't realize that if social science was 'fiction anyway', it would have

¹⁷⁷ This will be probably taken as another instance of my science studies chauvinism, but a characteristic of our subfield is that it is remarkably free of jargon.

¹⁷⁸ I am perfectly happy with the resonance of the word not only with Garfinkel's accountability but also with 'accounting books', since the weak but essential link of accounting with economics has been one of the most productive, and unlikely, domains of science studies. See Alain Desrosières (2002), *The Politics of Large Numbers: A History of Statistical Reasoning* and Michael Power (1995), *Accounting and Science: Natural Inquiry and Commercial Reason*. For an even more surprising case, see Quattrone 'Accounting for God'.

¹⁷⁹ Those reviewed in Lindsay Waters (2004), *Enemies of Promise: Publishing, Perishing, and the Eclipse of Scholarship* have often taken their cues from France, without realizing that the French steeped in Bachelard and Canguilhem never for a moment believed that they were extending their arguments to science. In France, you can be at once naively rationalist and a great admirer of deconstruction. Once transported across the Atlantic, this innocent passion became a dangerous binary weapon.

to submit to an ordeal that would be even more discriminating than what they imagine to be those of experimental science. You can object by asking 'What is a good writer?' But I will answer: 'What is a good scientist?' There is no general answer to these two questions.

But more importantly, an account which accepts to be 'just a story' is an account that has lost its main source of uncertainty: it does not fret any longer at being accurate, faithful, interesting, or objective. It has forsaken the project of translating the four sources of uncertainty that we have reviewed so far. And yet, no social scientist can call oneself a *scientist* and abandon the *risk* of writing a *true and complete* report about the topic at hand. It's not because you become attentive to the writing that you have to shed the quest for truth. Conversely, it's not because a text is bland and boring, that it is accurate. Too often, social scientists believe that an 'objective style', by which they usually mean a few grammatical tricks like the passive form, the royal 'we', and lots of footnotes, will miraculously disguise the absence of objects. The thick sauce of 'objective style' cannot hide for long the lack of meat. But if you have the meat, you may add an extra condiment or dispense with it.

Textual accounts are the social scientist's laboratory and if laboratory practice is any guide, it's *because* of the artificial nature of the place that objectivity might be achieved on conditions that artifacts be detected by a continuous and obsessive attention. So, to treat a report of social science as a textual account is not a weakening of its claims to reality, but an extension of the number of precautions that have to be taken onboard and of the skills requested from the enquirers. As it should be clear by now, rendering the production of objectivity *more* difficult is the name of the game. There is no reason why sociologists of association should abandon that constraint when they abandon the sociology of the social and when they add to the discussion a fifth source of uncertainty, this one generated by the writing of their own studies. In fact, it is quite the opposite. If the social is something that circulates in a certain way, and not a world beyond to be accessed by the disinterested gaze of some ultra-lucid scientist, then it may be *passed along* by many devices adapted to the task—including texts, reports, accounts, and tracers. It may or *it may not*. Textual accounts can fail like experiments often do.¹⁸⁰

By contrast, it seems that too often sociologists of the social are simply trying to 'fix a world on paper' as if this activity was never in risk of failing. If that is the case, there is no way they can succeed, since

¹⁸⁰ The same epistemologists who have fallen in love with Popper's falsifiability principle would be well advised to prolong his insight all the way to the text itself and to render explicit the conditions under which their writing can fail as well.

the world they wish to capture remains invisible because the mediating constraints of writing are either ignored or denied. No matter what pains they have taken to be accurate during the course of their inquiries, their textual account has been missed. Sociologists of association try an experiment altogether different: Can the materiality of a report on paper, a story, or rather a fiction—there is no need to abstain from a word that is so close to the fabrication of facts—*extend* the exploration of the social connections a little bit *further*? The careers of mediators should be pursued all the way to the final report because a chain is only as weak as its weakest link. If the social is a trace, then it can be retraced; if it's an assembly then it can be *reassembled*. While there exists no material continuity between the society of the sociologist and any textual account—hence the wringing of hands about method, truth, and political relevance—there might exist a plausible *continuity* between what the social, in our sense of the word, does and what a text may achieve—a *good* text, that is.

Defining at last what a network is

But what is a good text? We are not concerned here by good style because no matter how well we learn to write, we will always remain, alas, mere social scientists and we will never be able to do more than emulate from far away the skills of writers, poets, playwrights, and novelists. For this reason, we need a less sophisticated shibboleth. Surprisingly, it's the search for just such a touchstone that will help us define at last the most confusing of the words used in our alternative social theory. I would define a good account as one that *traces a network*.

I mean by this word a string of actions where each participant is treated as a full-blown mediator. To put it very simply: A good ANT account is a narrative or a description or a proposition where all the actors *do something* and don't just sit there. Instead of simply transporting effects without transforming them, each of the points in the text may become a bifurcation, an event, or the origin of a new translation. As soon as actors are treated not as intermediaries but as mediators, they render the movement of the social visible to the reader. Thus, through many textual inventions, the social may become again a circulating entity that is no longer composed of the stale assemblage of what passed earlier as being part of society.¹⁸¹ A text,

¹⁸¹ This is referred to as 'objects of value'. See usage in Greimas's study of Maupassant, Algirdas Julien Greimas (1988), *Maupassant: The Semiotics of Text. Practical Exercises*.

in our definition of social science, is thus a test on how many actors the writer is able to treat as mediators and how far he or she is able to achieve the social.

Thus, the network does not designate a thing out there that would have roughly the shape of interconnected points, much like a telephone, a freeway, or a sewage 'network'. It is nothing more than *an indicator of the quality of a text* about the topics at hand.¹⁸² It qualifies its objectivity, that is, the ability of each actor to *make* other actors *do* unexpected things. A good text elicits networks of actors when it allows the writer to trace a set of relations defined as so many translations.

A terminological precision about network

The word network is so ambiguous that we should have abandoned it long ago. And yet the tradition in which we use it remains distinct in spite of its possible confusion with two other lines. One is of course the technical networks—electricity, trains, sewages, internet, and so on. The second one is used, in sociology of organization, to introduce a difference between organizations, markets, and states (Boyer 2004). In this case, network represents one informal way of associating together human agents (Granovetter 1985).

When (Castells 2000) uses the term, the two meanings merge since network becomes a privileged mode of organization thanks to the very extension of information technology. It's also in this sense that Boltanski and Chiapello (2005) take it to define a new trend in the capitalist mode of production.

But the other tradition, to which we have always referred, is that of Diderot especially in his *Le rêve de d'Alembert* (1769), which includes twenty-seven instances of the word *réseaux*. This is where you can find a very special brand of active and distributed materialism of which Deleuze, through Bergson, is the most recent representative.¹⁸³ Here is one example:

'This one should satisfy you for today. There was a woman who had just given birth to a child; as a result, she suffered a most alarming attack of the vapors—compulsive tears and laughter, a sense of suffocation, convulsions, swelling of the breasts, melancholy silence, piercing shrieks—all the most serious symptoms—and this went on for several years. Now this woman was passionately in love, and eventually she began to think she saw signs indicating that her lover had grown wary of her illness and complaints

¹⁸² In that sense it is the equivalent of the ethnomethodologists' notion of 'unique adequacy', provided the notion of account has been enriched by that of *textual* account.

¹⁸³ On Diderot's network philosophy of nature, see Wilda Anderson (1990), *Diderot's Dream*.

and was beginning to break off their affair. That was when she decided that she must either get well or make an end of herself. In this way there began a sort of civil war inside her own consciousness. Sometimes this war would turn to the advantage of the master; sometimes the subjects would get the upper hand. Whenever the two sides were equal, so that the force exerted by the fibers exactly counterbalanced that of the center of the bundle [*S'il arrivait que l'action des filets du réseau fût égale à la réaction de leur origine*], she would fall to the ground as though dead. Then, when carried to her bed, she would lie for hours on end, entirely motionless and almost lifeless. On other occasions the effect would be only one of general lassitude or exhaustion or loss of consciousness from which it often seemed she would never recover. For six months she kept up the struggle. Whenever the rebellion began in her fibers she was able to feel it coming on. She would stand up, run about, busy herself with the most vigorous forms of physical exercise, climb up and down stairs, saw wood or shovel dirt. She would make the center of her network, the organ of will power, as rigid as possible by saying to herself: You must conquer or die.' (Diderot 1964)

It's clear from this quote that *réseau* has nothing to do with the social as normally construed, nor is it limited to human ties. But it's certainly close to Tarde's definition of 'society' and 'imitative rays' (Karsenti 2002).

So how can we define by contrast a bad textual account? In a bad text only a handful of actors will be designated as the causes of all the others, which will have no other function than to serve as a backdrop or relay for the flows of causal efficacy. They may go through the gestures to keep busy as characters, but they will be without a part in the plot, meaning they will not act. Nothing is translated from one to the other since action is simply carried through them. Remember that if an actor makes no difference, it's not an actor. The report has not been produced in an ad hoc fashion to be *uniquely adequate* to the description of specific actors and for the eyes of specific readers.¹⁸⁴ It is standard, anonymous, across the board; nothing happens in it. There are just repeat clichés of what has been assembled before as the social past. It has watered down translations into mere displacements without transformation. It simply transports causalities through mere intermediaries.

This is where the literary contrast between ANT and sociology of the social—and even more so with critical sociology—is the greatest. What is often called a powerful and convincing account, because it is made

¹⁸⁴ To say that it's an actor-network is to say that it's specific and that the principles of its expansion are rendered visible and the price for its deployment fully paid.

of a few global causes generating a mass of effects, ANT will take as a weak and powerless account that simply repeats and tries to transport an already composed social force without reopening what it is made of and without finding the extra vehicles necessary to extend it further. Masses of social agents might have been invoked in the text, but since the principle of their assembly remains unknown and the cost of their expansion has not been paid, it's as if nothing was happening. No matter what their figuration is, they don't do very much. Since the reassembling of new aggregates has not been rendered traceable through the text, *it's as if the social world had not been made to exist*. Although the common definition of the social seems to be everywhere in full view, *our* definition of what is social has failed to appear. Conversely, when our definition of the social is retraced, the common definition of the social has to vanish first. It's hard to see a more extreme contrast: it is either a society or a network.

So, network is an expression to check how much energy, movement, and specificity our own reports are able to capture. Network is a concept, not a thing out there. It is a tool to help describe something, not what is being described. It has the same relationship with the topic at hand as a perspective grid to a traditional single point perspective painting: drawn first, the lines might allow one to project a three-dimensional object onto a flat piece of linen; but they are not *what* is to be painted, only what has allowed the painter to give the impression of depth before they are erased. In the same way, a network is not what is represented in the text, but what readies the text to take the relay of actors as mediators. The consequence is that you can provide an actor-network account of topics which have in no way the shape of a network—a symphony, a piece of legislation, a rock from the moon, an engraving. Conversely, you may well write about technical networks—television, e-mails, satellites, salesforce—without at any point providing an actor-network account.

But is it not somewhat disingenuous to retain the tricky word network to describe such a benchmark of literary quality? I agree that it does not resemble other words I have used up to now like group, actor, actant, group, fluid, and non-human, which are chosen voluntarily because of their benighted meaninglessness. This one, on the contrary, has too many meanings! The confusion took place—it is our fault entirely—because some of the earlier objects described by ANT were networks in the technical sense—metrology, subways, telephones—and also because when this term was introduced twenty-five years ago, the Internet had not struck—nor had al-Qaida for that matter. So, network was a novelty that could help in eliciting a contrast with

'Society', 'institution', 'culture', 'fields', etc. which were often conceived as surfaces, floods of causal transfers, and real matters of fact. But nowadays, networks have become the rule and surfaces the exception. It has lost its sharp edge.¹⁸⁵ If I believed in jargon and if *worknet* or *action net* had any chance to hold, I would offer it as a substitute so as to make the contrast between technical networks and worknets, the latter remaining a way for social scientists to make sense of the former.¹⁸⁶ *Work-nets* could allow one to see the labor that goes on in laying down *net-works*: the first as an active mediator, the second as a stabilized set of intermediaries.

Whatever the word, we need something to designate flows of translations. Why not use the word network, since it is now there and solidly attached by a little hyphen to the word actor that I redefined earlier? There exists no good word anyway, only sensible usage; in addition, the original material metaphor still retains the three important features I wish to induce with this expression:

- a) a point-to-point connection is being established which is physically traceable and thus can be recorded empirically;
- b) such a connection leaves *empty* most of what is *not* connected, as any fisherman knows when throwing his net in the sea;¹⁸⁷
- c) this connection is not made for free, it requires effort as any fisherman knows when repairing it on the deck.

To make it fit our purposes, we have to add a fourth feature that, I agree, breaks down the original metaphor somewhat: a network is not made of nylon thread, words or any durable substance but is the trace left behind by some moving agent. You can hang your fish nets to dry, but you can't hang an actor-network: it has to be traced anew by the passage of another vehicle, another circulating entity.

The weakness of the notion derives partly from the dissemination of rather simple-minded visual representations. At first, the graph representation of networks, seen as star-like embranchments out of which lines leave to connect other points that have nothing but new connections, provided a rough but faithful equivalent to those

¹⁸⁵ As Boltanski and Chiapello's, *The New Spirit of Capitalism* has shown, it can even be used to characterize what is worst in the recent metamorphosis of capitalist modes of production.

¹⁸⁶ Action net, as proposed in Barbara Czarniawska (2004), 'On Time, Space, and Action Nets'.

¹⁸⁷ This point will become even more essential when, at the end of Part II, we will deal with the notion of 'plasma'. Emptiness is the key in following the rare conduits in which the social circulates.

associations.¹⁸⁸ It had the advantage of defining specificity not by any substantial content, but by a list of associations: the more connected, the more individualized a point was. But those visual graphs have the drawback of not capturing movements and of being visually poor. Yet even those limits have their advantage since the very poverty of graphical representation allows the inquirer not to confuse his or her infra-language with the rich objects that are being depicted: the map is not the territory. At least there is no risk of believing that the world itself is made of points and lines, while social scientists too often seem to believe that the world is made of social groups, societies, cultures, rules, or whatever graphic displays they have devised to make sense of their data.

In order to trace an actor-network, what we have to do is to add to the many traces left by the social fluid through which the traces are rendered again present, provided something happens in it. In an actor-network account the relative proportion of mediators to intermediaries is increased. I will call such a description a *risky* account, meaning that it can easily fail—it does fail most of the time—since it *can put aside neither the complete artificiality of the enterprise nor its claim to accuracy and truthfulness*. As to its relevance for the actors themselves and the political impact it might have, this is even less automatic—as we shall see in the Conclusion. The whole question is to see whether the *event* of the social can be extended all the way to the *event* of the reading through the medium of the text. This is the price to pay for objectivity, or rather ‘*objectfullness*’ to be achieved.

Back to basics: a list of notebooks

The best way to proceed at this point and to feed off this fifth source of uncertainty is simply to keep track of all our moves, even those that deal with the very production of the account. This is neither for the sake of epistemic reflexivity nor for some narcissist indulgence into one’s own work, but because from now on *everything is data*: everything from the first telephone call to a prospective interviewee, the first appointment with the advisor, the first corrections made by a

¹⁸⁸ This was shown in the early Leximappe tools in Michel Callon, John Law and Arie Rip (1986), *Mapping the Dynamics of Science and Technology*. However, there are now many more graphic devices that have been developed. See Alberto Cambrosio, Peter Keating and Andrei Mogoutov (2004), ‘Mapping Collaborative Work and Innovation in Biomedicine’. Viewed as representation it is naive, but viewed as theory it’s a formidable help to abstraction. See their early use in Geneviève Teil (1991), ‘Candidide[®], un outil de sociologie assistée par ordinateur pour l’analyse quantitative de gros corpus de textes’.

client on a grant proposal, the first launching of a search engine, the first list of boxes to tick in a questionnaire. In keeping with the logic of our interest in textual reports and accounting, it might be useful to list the different notebooks one should keep—manual or digital, it no longer matters much.¹⁸⁹

The first notebook should be reserved as a *log* of the enquiry itself. This is the only way to document the transformation one undergoes by doing the travel. Appointments, reactions to the study by others, surprises to the strangeness of the field, and so on, should be documented as regularly as possible. Without it, the artificial experiment of going into the field, of encountering a new state of affairs, will be quickly lost. Even years after, it should remain possible to know how the study was conceived, which person was met, what source was accessed, and so on, at a precise date and time.

A second notebook should be kept for gathering information in such a way that it is possible simultaneously to keep all the items in a chronological order *and* to dispatch them into categories which will evolve later into more and more refined files and subfiles. There exists lots of software nowadays that maintain this contradictory specification, but older hands like me have benefited enormously from the tedious rewriting of data onto cards. Whatever the solution, the movement through one frame of reference to the next is greatly facilitated if the data set can be kept at once unspoiled while still being reshuffled in as many arrangements as possible. This is the only way to become as pliable and articulate as the subject matter to be tackled.

A third notebook should be always at hand for *ad libitum* writing trials. The unique adequacy one should strive for in deploying complex imbroglios cannot be obtained without continuous sketches and drafts. It is impossible to imagine that one would gather the data for a period of time and only then begin to write it down. Writing a report is too risky to fall into this divide between enquiring and reporting. What comes spontaneously out of the keyboard are generalities, clichés, transportable definitions, substitutable accounts, ideal-types, powerful explanations, abstractions, in brief, the stuff out of which more social genres write themselves effortlessly. To counteract this trend, many efforts have to be made to break the automatic writing up; it's not easier to write textual accounts as it is in a laboratory to discover the right experimental design. But ideas, paragraphs, metaphors, and tropes might come haphazardly during the course of the study. If they are not allowed to find a place and an outlet, they will either be lost or, worse yet, will spoil the hard work of data collecting

¹⁸⁹ I am using notebooks rather metaphorically since they now include digital files as well as films, interviews, and websites.

by mixing the meta-language of the actors with that of the analysts. So it is always good practice to reserve a separate space for the many ideas that may spring to mind even if they will only be used years later.

A fourth type of notebook should be carefully kept to register the effects of the written account on the actors whose world has been either deployed or unified. This second experiment, added to the fieldwork itself, is essential to check how an account plays its role of assembling the social. The study might be finished, but the experiment goes on: the new account adds its performative action to all the others, and that too produces data. It does not mean that those who have been studied have the right to censor what has been written about them, nor does it mean that the analyst has the incredible right of ignoring what his 'informants' say about the invisible forces that make them act. Rather, it means that a new negotiation begins to decide what are the ingredients out of which the one common world might be made—or not.¹⁹⁰ Since the relevance of a risky account might occur much later, the trails left in its wake also have to be documented.

It might be disappointing for the reader to realize that the grand questions of group formation, agency, metaphysics, and ontology that I have reviewed so far have to be tackled with no more grandiose resources than tiny notebooks to be kept during the fully artificial procedure of fieldwork and enquiries. But I warned the reader in advance: there is nothing more rewarding to be had and there is no faster way. After all, Archimedes was in need of nothing more than a fixed point to raise the world. Einstein equipped his observers with only a rod and a stopwatch: Why would we require heavier equipment to creep through the dark tiny conduits traced by blind ants? If you don't want to take notes and to write them down well, don't try to get into sociology: it's the only way there is to become slightly more objective. If those textual accounts are said to be not 'scientific enough', I will retort that although they might not look scientific in the clichéd definition of the adjective, they might be according to the only definition that interests me here: they try to grasp some recalcitrant objects through some artificial device with utmost accuracy, even though this enterprise may very well come up empty. If only a fraction of the energy devoted in social sciences to the commentary of our eminent predecessors was converted into fieldwork! As Garfinkel has taught us: it's practice all the way down.

¹⁹⁰ Witness the length of time it took from the long experiment of science studies of the first publications to the Science Wars. And yet, as I have shown in the previous chapter, without a careful documentation the experiment of science studies would have been wasted.

Deployment not critique

To add in a messy way to a messy account of a messy world does not seem like a very grandiose activity. But we are not after grandeur: the goal is to produce a science of the social uniquely suited to the specificity of the social in the same way that all other sciences had to invent devious and artificial ways to be true to the specific phenomena on which they wished to get a handle on. If the social circulates and is visible only when it shines through the concatenations of mediators, then this is what has to be replicated, cultivated, elicited, and expressed by our textual accounts. The task is to *deploy* actors *as* networks of mediations—hence the hyphen in the composite word ‘actor-network’. Deployment is not the same as ‘mere description’, nor is it the same as ‘unveiling’, ‘behind’ the actors’ backs, the ‘social forces at work’. If anything, it looks more like a PCR amplification of some small DNA sample.¹⁹¹

And what is so wrong with ‘mere descriptions’?¹⁹² A good text is never an unmediated portrait of what it describes—nor for that matter is a portrait.¹⁹³ It is always part of an artificial experiment to replicate and emphasize the traces generated by trials in which actors become mediators or mediators are turned into faithful intermediaries. There is nothing less natural than to go into fieldwork and remain a fly on the wall, pass out questionnaires, draw maps, dig up archives, record interviews, play the role of a participant-observer, compile statistics, and ‘Google’ one’s way around the Internet. De-scribing, inscribing, narrating, and writing final reports are as unnatural, complex, and painstaking as dissecting fruit flies or sending a telescope into space. If you find Faraday’s experiments oddly artificial, what about Pitt-Rivers’s ethnographic expeditions? If you believe Lord Kelvin’s laboratory contrived, what about Marx compiling footnotes in the British Library, Freud asking people to free-associate on his Viennese couch, or Howard Becker learning how to play jazz in order to take notes on jazz playing? The simple act of recording anything on paper is already an immense transformation that requires as much skill and just as much artifice as painting a landscape or setting up some elaborate biochemical reaction. No scholar should find humiliating the task of

¹⁹¹ See Law, *After Method*, p. 112. See also the beautiful term ‘enactement’ used by Mol and ‘choreography’ in Charis Cussins (1996), ‘Ontological Choreography: Agency through Objectification in Infertility Clinics’.

¹⁹² The useful notion of ‘thick description’ provides a welcome attention to details but not necessarily to style. ‘Thickness’ should also designate: ‘Have I assembled enough?’ It should give the word ‘assembling’ a political meaning, something we will come across in the Conclusion.

¹⁹³ See Joseph Leo Koerner (1997), *The Moment of Self-Portraiture in German Renaissance Art*.

sticking to description. This is, on the contrary, the highest and rarest achievement.

However, we worry that by sticking to description there may be something missing, since we have not ‘added to it’ something else that is often called an ‘explanation’. And yet the opposition between description and explanation is another of these false dichotomies that should be put to rest—especially when it is ‘social explanations’ that are to be wheeled out of their retirement home. Either the networks that make possible a state of affairs are fully deployed—and then adding an explanation will be superfluous—or we ‘add an explanation’ stating that some other actor or factor should be taken into account, so that it is the *description* that should be *extended* one step further. If a description remains in need of an explanation, it means that it is a bad description. There is an exception, however, if it refers to a fairly stable state of affairs where some actors do indeed play the role of fully determined—and thus of fully ‘explained’ intermediaries—but in this case we are back to simpler pre-relativist cases. This new diffidence for an explanation ‘added’ to a description is all the more important because it is usually when a ‘frame’ is called in that the sociology of the social insinuates its redundant cause. As soon as a site is placed ‘into a framework’, everything becomes rational much too fast and explanations begin to flow much too freely. The danger is all the greater because this is the moment most often chosen by critical sociology, always lurking in the background, to take over social explanations and replace the objects to be accounted for with irrelevant, all-purpose ‘social forces’ actors that are too dumb to see or can’t stand to be revealed. Much like ‘safe sex’, sticking to description protects against the transmission of explanations.

Here again, it is the attempt at imitating a false view of the natural sciences that bogs down the social ones: it is always felt that description is too particular, too idiosyncratic, too localized. But, contrary to the scholastic proverb, there is science only of the particular.¹⁹⁴ If connections are established between sites, it should be done through *more* descriptions, not by suddenly taking a free ride through all-terrain entities like Society, Capitalism, Empire, Norms, Individualism, Fields, and so on. A good text should trigger in a good reader this reaction: ‘Please, more details, I want more details.’ God is in the details, and so is everything else—including the Devil. It’s the very character of the social to be specific. The name of the game is not reduction, but irreduction. As Gabriel Tarde never tired of saying: ‘To exist is to differ.’

¹⁹⁴ Monographs in social science is one of the contributions of Tarde. See Tarde, *Social Laws*, p. 92. In Tarde’s general view of societies, human societies are typical because of the small number of agents they mobilize, contrary to biology or physics that deal with millions or billions of elements. So being particular is what encountering the social is all about.

To deploy simply means that through the report concluding the enquiry the number of actors might be increased; the range of agencies making the actors act might be expanded; the number of objects active in stabilizing groups and agencies might be multiplied; and the controversies about matters of concern might be mapped. Only those who have never tried to write about mediators instead of intermediaries will say that this is an easy task, something akin to 'mere description'. For us, on the contrary, it requires exactly as much invention as a laboratory experiment for every new case at hand—and success is just as rare. If we succeed, which is not automatic and is not obtained simply by putting 'PhD' at the bottom of one's signature, a good account will *perform* the social in the precise sense that some of the participants in the action—through the controversial agency of the author—will be *assembled* in such a way that they can be *collected* together. It does not sound like much, and yet it is far from being totally negligible.

The problem is that social scientists too often alternate between *hubris*—each of them dream to be the Newton of social science as well as the Lenin of social change—or desperation—they despise themselves for merely piling on more reports, stories, and statistics that no one will read. But the choice between complete mastery and total irrelevance is a very superficial one. To despair of one's own written text doesn't make any more sense than for the head of a chemistry laboratory to want to be relevant to the NIH. Relevance, like everything else, is an achievement. A report is interesting or not depending on the amount of work done to interest, that is, to place it between other things.¹⁹⁵ This is exactly what the five uncertainties added together might help to reveal: What is the social made up of? What is acting when we are acting? What sort of grouping do we pertain to? What do we want? What sort of world are we ready to share? All those questions are raised not only by scholars, but also by those they study. It is not that we, social scientists, know the answer that would reside behind the actors, nor is it the case that they, the famous 'actors themselves', know the answer. The fact is that *no one* has the answers—this is why they have to be collectively staged, stabilized, and revised. This is why the social sciences are so indispensable to the reassembling of the social. Without them we don't know what we have in common, we don't know through which connections we are associated together, and we would have no way to detect how we can live in the same common world.

¹⁹⁵ Science studies have followed many of the relevance-making strategies in hard sciences and documented many failures. See Michel Callon (1989), *La science et ses réseaux: Genèse et circulation des faits scientifiques* and John Law (2002), *Aircraft Stories: Decentering the Object in Technoscience*. On the notion of interest, see also Stengers, *Power and Invention*.

In order to generate those answers, every new artifice might be welcome, *including that of a social scientist's tiny interpretation*. Failure is not more certain than success. It's certainly worth a try. This is precisely because all the five sources of uncertainty are nested into one another, that a report written by some humble colleague who does not even wear a white coat may make a difference. It may offer a provisional staging of the connections it has managed to deploy. It offers an artificial site (the textual account) that might be able to solve for some particular audience the question of which common world they pertain to. Assembled around the 'laboratory' of the text, authors as well as readers may begin to render visible the two mechanisms that account for the plurality of associations to be taken into account and for the stabilization or unification of the world they wish to live in.¹⁹⁶ On the one hand, it is just a text made up of reams of paper sullied by an inkjet or burnt by a laser beam. On the other, it is a precious little institution to represent, or more exactly to re-represent—that is, to present *again*—the social to all its participants, to *perform* it, to give it a form. It is not much, but to ask for more is often settling for less. Many 'powerful explanations' might turn out to be less convincing than weaker ones.

In the last page of his book on sociology of science, Pierre Bourdieu defines the possibility for the sociologist to reach the famous God's eye view of nowhere after having purged himself of all perspectives through an extreme application of critical reflexivity:

'While [the sociologist] must also beware, lest he forget that like any other scientist he is to attempt to help build science's aperspectival perspective, as a social agent he is also placed within the object which he takes as his object, and on these grounds he has a perspective which does not coincide with others, nor with the overview and over-arching perspective of the quasi-divine observer, which he can reach if the field's demands are satisfied. Thus he knows that the particularity of the social sciences calls upon him to work (as I have tried to do for the case of the gift and of labor in the pascalian meditations) to construct a scientific truth capable of integrating the observer's vision and the truth of the agent's practical vision, into a perspective not known as such which is put to the test in the illusion of the absolute.' (Bourdieu 2001)¹⁹⁷

This is probably the most honest version ever given of the dream of critical sociology as this was written a few months before Bourdieu's untimely disappearance.

¹⁹⁶ Those two functions are part of the definition of politics. See Conclusion.

¹⁹⁷ Kindly translated by Simon Schaffer.

To anguish over the potential efficacy of sociological texts is to show lack of modesty or lack of ambition. If anything, the success of social sciences in spreading through the social world is even more astounding than the expansion of the natural sciences and technological devices. Can we overestimate the changes achieved in the way every one of us is now 'having a gender' that has been brought about by the tiny texts of feminist scholars? What would we know about the 'Other' without anthropologists' accounts? Who could size up one's past without archaeologists and historians? Who would be able to navigate without the geographers? Who would have an unconscious without the psychologists? Who would know whether or not a profit is made without the accountants? To be sure, texts look like miserable pathways to move between the many contradictory frames of reference, and yet their efficacy is unmatched by the more grandiose and powerful social explanations that are proposed to humiliate them. It is not because the sociologist cannot occupy the place of the all-encompassing and all-seeing God of social science that he or she has to be imprisoned blind in a cellar. We, the little ants, should not settle for heaven or hell, as there are plenty of things on this earth to munch our way through.

On the Difficulty of Being an ANT: An Interlude in the Form of a Dialog

An office at the London School of Economics on a dark Tuesday afternoon in February before moving upstairs to the *Beaver* for a pint. A quiet but insistent knock is heard. A student peers into the office.¹⁹⁸

Student: Am I bothering you?

Professor: Not at all. These are my office hours. Come in, have a seat.

S: Thank you.

P: So . . . I take it that you are a bit lost?

S: Well, yes. I am finding it difficult, I have to say, to apply Actor Network Theory to my case study on organizations.

P: No wonder! It isn't applicable to anything.

S: But we were taught . . . I mean . . . it seems like hot stuff around here. Are you saying it's useless?

P: It might be useful, but only if it does not 'apply' to something.

S: Sorry, but are you playing some sort of Zen trick here? I have to warn you that I'm just a straight Organization Studies doctoral student, so don't expect . . . I'm not too much into French stuff either, just read a bit of *Thousand Plateaus* but couldn't make much sense of it . . .

P: Sorry, I wasn't trying to say anything cute. Just that ANT is first of all a *negative* argument. It does not say anything positive on any state of affairs.

S: So what can it do for me?

P: The best it can do for you is to say something like, 'When your informants mix up organization, hardware, psychology, and politics in one sentence, don't break it down first into neat little pots; try to follow the link they make among those elements that would have

¹⁹⁸ A version of this dialog has appeared in *The Social Study of Information and Communication Technology*, edited by C. Avgerou, C. Ciborra, and F.F. Land, Oxford University Press, 2004, pp. 62–76.

looked completely incommensurable if you had followed normal procedures.' That's all. ANT can't tell you positively what the link is.

S: So why is it called a 'theory' if it says nothing about the things we study?

P: It's a theory, and a strong one I think, but about *how* to study things, or rather how *not* to study them—or rather, how to let the actors have some room to express themselves.

S: Do you mean that other social theories don't allow that?

P: In a way, yes, and because of their very strengths: they are good at saying *substantive* things about what the social world is made of. In most cases that's fine; the ingredients are known; their repertoire should be kept short. But that doesn't work when things are changing fast. Nor is it good for organization studies, information studies, marketing, science and technology studies or management studies, where boundaries are so terribly fuzzy. *New* topics, that's what you need ANT for.

S: But my agents, I mean the people I am studying at the company, they form a lot of networks. They are connected to a lot of other things, they are all over the place...

P: But see, that's the problem! You don't need Actor-Network to say that. Any available social theory would do. It's a waste of time for you to pick such an outlandish argument simply to show that your informants are 'forming a network'.

S: But they are! They form a network. Look, I have been tracing their connections: computer chips, standards, schooling, money, rewards, countries, cultures, corporate boardrooms, everything. Haven't I described a network in your sense?

P: Not necessarily. I agree this is terribly confusing, and it's largely our fault—the word we invented is a pretty horrible one. But you should not confuse the network that is drawn by the description and the network that is used to make the description.

S: Come again?

P: Surely you'd agree that drawing *with* a pencil is not the same thing as drawing the *shape* of a pencil. It's the same with this ambiguous word: network. With Actor-Network you may describe something that doesn't at all look like a network—an individual state of mind, a piece of machinery, a fictional character; conversely, you may describe a network—subways, sewages, telephones—which is not all drawn in an 'Actor-Networky' way. You are simply confusing the object with the method. ANT is a method, and mostly a negative one at that; it says nothing about the *shape* of what is being described with it.

S: This is confusing! But my company executives, are they not forming a nice, revealing, powerful network?

P: Maybe, I mean, surely they are—but so what?

S: Then I can study them with Actor-Network-Theory!

P: Again, maybe yes, but maybe not. It depends entirely on what *you yourself* allow your actors (or rather, your actants) to do. Being connected, being interconnected, or being heterogeneous is not enough. It all depends on the sort of action that is flowing from one to the other, hence the words 'net' and 'work'. Really, we should say 'work-net' instead of 'network'. It's the work, and the movement, and the flow, and the changes that should be stressed. But now we are stuck with 'network' and everyone thinks we mean the World Wide Web or something like that.

S: Do you mean to say that once I have shown that my actors are related in the shape of a network, I have not yet done an ANT study?

P: That's exactly what I mean: ANT is more like the name of a pencil or a brush than the name of a specific shape to be drawn or painted.

S: But when I said ANT was a tool and asked you if it could be applied, you objected!

P: Because it's not a tool, or rather, because tools are never 'mere' tools ready to be applied: they always modify the goals you had in mind. That's what 'actor' means. Actor Network (I agree the name is silly) allows you to produce some *effects* that you would not have obtained by some other social theory. That's all that I can vouch for. It's a very common experience. Just try to draw with a lead pencil or with charcoal, you will feel the difference; and cooking tarts with a gas oven is not the same as with an electric one.

S: But that's not what my supervisor wants. He wants a frame in which to put my data.

P: If you want to store more data, buy a bigger hard disk.

S: He always says: 'Student, you need a framework.'

P: Maybe your supervisor is in the business of selling pictures! It's true that frames are nice for showing: gilded, white, carved, baroque, aluminum, etc. But have you ever met a painter who began his masterpiece by first choosing the frame? That would be a bit odd, wouldn't it?

S: You're playing with words. By 'frame' I mean a theory, an argument, a general point, a concept—something for making sense of the data. You always need one.

P: No you don't! Tell me, if some X is a mere 'case of' Y, what is more important to study: X that is the special case or Y which is the rule?

S: Probably Y...but X too, just to see if it's really an application of...well, both I guess.

P: I would bet on Y myself, since X will not teach you anything new. If something is simply an 'instance of' some other state of affairs, go study this state of affairs instead. A case study that needs a frame in addition, well, it is a case study that was badly chosen to begin with!

S: But you always need to put things into a context, don't you?

P: I have never understood what context meant, no. A frame makes a picture look nicer, it may direct the gaze better, increase the value, allows to date it, but it doesn't add anything to the picture. The frame, or the context, is precisely the sum of factors that make no difference to the data, what is common knowledge about it. If I were you, I would abstain from frameworks altogether. Just describe the state of affairs at hand.

S: 'Just describe'. Sorry to ask, but is this not terribly naive? Is this not exactly the sort of empiricism, or realism, that we have been warned against? I thought your argument was, um, more sophisticated than that.

P: Because you think description is easy? You must be confusing it, I guess, with strings of clichés. For every hundred books of commentaries and arguments, there is only one of description. To describe, to be attentive to the concrete state of affairs, to find the uniquely adequate account of a given situation, I myself have always found this incredibly demanding.

S: I have to say that I'm lost here. We have been taught that there are two types of sociology, the interpretative and the objectivist. Surely you don't want to say you are of the objectivist type?

P: You bet I am! Yes, by all means.

S: You? But we have been told you were something of a relativist! You have been quoted as saying that even the natural sciences are not objective. Surely you are for interpretative sociology, for viewpoints, multiplicity of standpoints and all that.

P: I have no real sympathy for interpretative sociologies. No. On the contrary, I firmly believe that sciences are objective—what else could they be? They're all about objects, no? What I have said is simply that objects might look a bit more complicated, folded, multiple, complex, and entangled than what the 'objectivist', as you say, would like them to be.

S: But that's exactly what 'interpretative' sociologies argue, no?

P: Oh no, not at all. They would say that *human* desires, *human* meanings, *human* intentions, etc., introduce some 'interpretive flexibility' into a world of inflexible objects, of 'pure causal relations', of 'strictly material connections'. That's not at all what I am saying. I would say that this computer here on my desk, this screen, this keyboard are objects made of multiple layers, exactly as much as you sitting here are: your body, your language, your worries. It's the object itself that adds multiplicity, or rather the thing, the 'gathering'. When you speak of hermeneutics, no matter which precaution you take, you always expect the second shoe to drop: someone inevitably will add:

'But of course there *also* exists "natural", "objective" things that are "not" interpreted'.

S: That's just what I was going to say! There are not only objective realities, but also subjective ones! This is why we need both types of social theories...

P: See? That's the inevitable trap: 'Not only...but also'. Either you extend the argument to everything, but then it becomes useless—'interpretation' becomes another synonym for 'objectivity'—or else you limit it to one aspect of reality, the human, and then you are stuck—since objectivity is always on the other side of the fence. And it makes no difference if the other side is considered richer or poorer; it's out of reach anyway.

S: But you wouldn't deny that you also possess a standpoint, that ANT is situated as well, that you also add another layer of interpretation, a perspective?

P: No, why would I 'deny' it? But so what? The great thing about a standpoint is that you can stand on it and modify it! Why would I be 'stuck with' it? From where they are on earth, astronomers have a limited perspective. Take for instance Greenwich, the Observatory down the river from here. Have you been there? It's a beautiful place. And yet, they have been pretty good at shifting this perspective, through instruments, telescopes, satellites. They can now draw a map of the distribution of galaxies in the whole universe. Pretty good, no? Show me one standpoint and I will show you two dozen ways to shift out of it. Listen: all this opposition between 'standpoint' and 'view from nowhere', you can safely forget. And also this difference between 'interpretative' and 'objectivist'. Leave hermeneutics aside and go back to the object—or rather, to the thing.

S: But I am always limited to my situated viewpoint, to my perspective, to my own subjectivity?

P: Of course you are! But what makes you think that 'having a viewpoint' means 'being limited' or especially 'subjective'? When you travel abroad and you follow the sign 'Belvedere 1.5 km', 'Panorama', 'Bella vista', when you finally reach the breath-taking site, in what way is this proof of your 'subjective limits'? It's the thing itself, the valley, the peaks, the roads, that offer you this grasp, this handle, this take. The best proof is that, two meters lower, you see nothing because of the trees and two meters higher, you see nothing because of a parking lot. And yet you have the same limited 'subjectivity' and you transport with you exactly the very same 'standpoint'! If you can have many points of views on a statue, it's because the statue itself is in three-dimensions and allows you, yes, *allows* you to move around it. If something supports many viewpoints, it's just that it's highly

complex, intricately folded, nicely organized, and beautiful, yes, *objectively* beautiful.

S: But certainly nothing is objectively beautiful—beauty has to be subjective . . . taste and color, relative . . . I am lost again. Why would we spend so much time in this school fighting objectivism then? What you say can't be right.

P: Because the things people call 'objective' are most of the time the clichés of matters of facts. We don't have a very good description of anything: of what a computer, a piece of software, a formal system, a theorem, a company, a market is. We know next to nothing of what this thing you're studying, an *organization*, is. How would we be able to distinguish it from human emotions? So, there are two ways to criticize objectivity: one is by going *away* from the object to the subjective human viewpoint. But the other direction is the one I am talking about: back to the object. Positivists don't *own* objectivity. A computer described by Alan Turing is quite a bit richer and more interesting than the ones described by *Wired* magazine, no? As we saw in class yesterday, a soap factory described by Richard Powers in *Gain* is much livelier than what you read in Harvard case studies. The name of the game is to get back to empiricism.

S: Still, I am limited to my own view.

P: Of course you are, but again, so what? Don't believe all that crap about being 'limited' to one's perspective. All of the sciences have been inventing ways to *move* from one standpoint to the next, from one frame of reference to the next, for God's sake: that's called relativity.

S: Ah! So you confess you are a relativist!

P: But of course, what else could I be? If I want to be a scientist and reach objectivity, I have to be able to travel from one frame of reference to the next, from one standpoint to the next. Without those displacements, I would be limited to my own narrow point of view for good.

S: So you associate objectivity with relativism?

P: 'Relativity', yes, of course. All the sciences do the same. Our sciences do it as well.

S: But what is *our* way to change our standpoints?

P: I told you, we are in the business of descriptions. Everyone else is trading on clichés. Enquiries, survey, fieldwork, archives, polls, whatever—we go, we listen, we learn, we practice, we become competent, we change our views. Very simple really: it's called inquiries. Good inquiries always produce a lot of new descriptions.

S: But I have lots of descriptions already! I'm drowning in them. That's just my problem. That's why I'm lost and that's why I thought it would be useful to come to you. Can't ANT help me with this mass of data? I need a framework!

P: 'My Kingdom for a frame!' Very moving; I think I understand your desperation. But no, ANT is pretty useless for that. Its main tenet is that actors themselves make everything, including their own frames, their own theories, their own contexts, their own metaphysics, even their own ontologies. So the direction to follow would be more descriptions I am afraid.

S: But descriptions are too long. I have to *explain* instead.

P: See? This is where I disagree with most of the training in the social sciences.

S: You would disagree with the need for social sciences to provide an explanation for the data they accumulate? And you call yourself a social *scientist* and an objectivist!

P: I'd say that if your description needs an explanation, it's not a good description, that's all. Only bad descriptions need an explanation. It's quite simple really. What is meant by a 'social explanation' most of the time? Adding another actor to provide those already described with the energy necessary to act. But if you have to add one, then the network was not complete. And if the actors already assembled do not have enough energy to act, then they are not 'actors' but mere intermediaries, dopes, puppets. They do nothing, so they should not be in the description anyhow. I have never seen a good description in need of an explanation. But I have read countless bad descriptions to which nothing was added by a massive addition of 'explanations'. And ANT did not help.

S: This is very distressing. I should have known—the other students warned me not to touch ANT stuff even with a long pole. Now you are telling me that I shouldn't even try to explain anything!

P: I did not say that. I simply said that either your explanation is relevant and, in practice, this means you are adding a new agent to the description—the network is simply longer than you thought—or it's not an actor that makes any difference and you are merely adding something irrelevant which helps neither the description nor the explanation. In that case, throw it away.

S: But all my colleagues use them. They talk about 'IBM corporate culture', 'British isolationism', 'market pressure', 'self-interest'. Why should I deprive myself of those contextual explanations?

P: You can keep them as shorthand or to quickly fill in the parts of your picture that make no difference to you, but don't believe they explain anything. At best they apply equally to all your actors, which means they are probably superfluous since they are unable to introduce a difference among them. At worst, they drown all the new interesting actors in a deluvium of older ones. Deploy the content with all its connections and you will have the context in addition.

As Rem Koolhaas said, 'context stinks'. It's simply a way of stopping the description when you are tired or too lazy to go on.

S: But that's exactly my problem: to stop. I have to complete this doctorate. I have just eight more months. You always say 'more descriptions' but this is like Freud and his cures: indefinite analysis. When do you stop? My actors are all over the place! Where should I go? What is a complete description?

P: Now that's a good question because it's a practical one. As I always say: a good thesis is a thesis that is done. But there is another way to stop than just by 'adding an explanation' or 'putting it into a frame'.

S: Tell me it then.

P: You stop when you have written your 50,000 words or whatever is the format here, I always forget.

S: Oh! That's really great. So my thesis is finished when it's completed. So helpful, really, many thanks. I feel so relieved now.

P: Glad you like it! No seriously, don't you agree that any method depends on the size and type of texts you promised to deliver?

S: But that's a *textual* limit, it has nothing to do with method.

P: See? That's again why I dislike the way doctoral students are trained. Writing texts has *everything* to do with method. You write a text of so many words, in so many months, based on so many interviews, so many hours of observation, so many documents. That's all. You do nothing more.

S: But I do more than that. I learn, I study, I explain, I criticize, I...

P: But all those grandiose goals, you achieve them through a text, don't you?

S: Of course, but it's a tool, a medium, a way of expressing myself.

P: There is no tool, no medium, only mediators. A text is thick. That's an ANT tenet, if any.

S: Sorry, Professor, I told you, I have never been into French stuff; I can write in C and even C++, but I don't do Derrida, semiotics, any of it. I don't believe the world is made of words and all of that...

P: Don't try to be sarcastic. It doesn't suit the engineer in you. And anyway I don't believe that either. You ask me how to stop and I am just telling you that the best you will be able to do, as a PhD student, is to *add* a text—which will have been read by your advisors, maybe a few of your informants, and three or four fellow doctoral students—to a given state of affairs. Nothing fancy in that: just plain realism. One solution for how to stop is to 'add a framework', an 'explanation'; the other is to put the last word in the last chapter of your damn thesis.

S: I have been trained in the sciences! I am a systems engineer—I am not coming to Organization Studies to abandon that. I am willing to add flow charts, institutions, people, mythologies, and psychology to what I already know. I am even prepared to be 'symmetric' as you teach

us about those various factors. But don't tell me that science is about telling nice stories. This is the difficulty with you. One moment you are completely objectivist, perhaps even a naive realist—'just describe'—and the other you are completely relativist—'tell some nice stories and run'. Is this not so terribly French?

P: And that would make you so terribly what? Don't be silly. Who talked about 'nice stories'? Not me. I said you were *writing* a PhD thesis. Can you deny that? And then I said that this so-many-words-long PhD thesis—which will be the only lasting result of your stay among us—is thick.

S: Meaning?

P: Meaning that it's not just a transparent windowpane, transporting without deformation some information about your study. 'There is no in-formation, only trans-formation.' I assume that you agree with this ANT slogan? Well, then this is surely also true of your PhD thesis, no?

S: Maybe, but in what sense does it help me to be more scientific, that's what I want to know. I don't want to abandon the ethos of science.

P: Because this text, depending on the way it's written, will *or will not* capture the actor-network you wish to study. The text, in our discipline, is not a story, not a nice story. Rather, it's the functional equivalent of a laboratory. It's a place for trials, experiments, and simulations. Depending on what happens in it, there is or there is not an actor and there is or there is not a network being traced. And that depends entirely on the precise ways in which it is written—and every single new topic requires a new way to be handled by a text. Most texts are just plain dead. Nothing happens in them.

S: But no one mentions 'text' in our program. We talk about 'studying the organization, not 'writing' about it.

P: That's what I am telling you: you are being badly trained! Not teaching social science doctoral students to *write* their PhDs is like not teaching chemists to do laboratory experiments. That's why I am teaching nothing but writing nowadays. I keep repeating the same mantra: 'describe, write, describe, write.'

S: The problem is that's not what my supervisor wants! He wants my case studies to 'lead to some useful generalization'. He does not want 'mere description'. So even if I do what you want, I will have one nice description of one state of affairs, and then what? I still have to put it into a frame, find a typology, compare, explain, generalize. That's why I'm starting to panic.

P: You should panic only if your actors were not doing that constantly as well, actively, reflexively, obsessively. They, too, compare; they, too, produce typologies; they, too, design standards; they, too,

spread their machines as well as their organizations, their ideologies, their states of mind. Why would you be the one doing the intelligent stuff while they would act like a bunch of morons? What they do to expand, to relate, to compare, to organize is what you have to describe as well. It's not another layer that you would have to add to the 'mere description'. Don't try to shift from description to explanation: simply *go on with* the description. What your own ideas are about your company is of no interest whatsoever compared to how this bit of the company itself has managed to spread.

S: But if my people don't act, if they don't actively compare, standardize, organize, generalize, what do I do? I will be stuck! I won't be able to add any other explanations.

P: You are really extraordinary! If your actors don't act, they will leave no trace whatsoever. So you will have no information at all. So you will have nothing to say.

S: You mean when there is no trace I should remain silent?

P: Incredible! Would you raise this question in any of the natural sciences? It would sound totally silly. It takes a social scientist to claim that they can go on explaining even in the absence of any information! Are you really prepared to make up data?

S: No, of course not, but still I want . . .

P: Good, at least you are more reasonable than some of our colleagues. No trace left, thus no information, thus no description, then no talk. *Don't fill it in*. It's like a map of a country in the 16th century: no one went there or no one came back, so for God's sake, leave it blank! *Terra incognita*.

S: But what about invisible entities acting in some hidden ways?

P: If they act, they leave some trace. And then you will have some information, then you can talk about them. If not, just shut up.

S: But what if they are repressed, denied, silenced?

P: Nothing on earth allows you to say they are there without bringing in the *proof* of their presence. That proof might be indirect, far-fetched, complicated, but you need it. Invisible things are invisible. Period. If they make other things move, and you can document those moves, then they are visible.

S: Proof? What is a proof anyway? Isn't that terribly positivistic?

P: I hope so, yes. What's so great about saying that things are acting whose existence you can't prove? I am afraid you are confusing social theory with conspiracy theory—although these days most of critical social science comes down to that.

S: But if I add nothing, I simply repeat what actors say.

P: What would be the use of adding invisible entities that act without leaving any trace and make no difference to any state of affairs?

S: But I have to make the actors learn something they didn't know; if not, why would I study them?

P: You social scientists! You always baffle me. If you were studying ants, instead of ANT, would you expect ants to *learn* something from your study? Of course not. They are the teachers, you learn from them. You explain what they do to you for your own benefit, or for that of other entomologists, not for them, who don't care one bit. What makes you think that a study is always supposed to teach things to the people being studied?

S: But that's the whole idea of the social sciences! That's why I'm here at the school: to criticize the ideology of management, to debunk the many myths of information technology, to gain a critical edge over all the technical hype, the ideology of the market. If not, believe me, I would still be in Silicon Valley, and I would be making a lot more money—well, maybe not now, since the bubble burst... But anyway, I have to provide some reflexive understanding to the people...

P: ...Who of course were not reflexive before you came to honor them with your study!

S: In a way, yes. I mean, no. They did things but did not know why... What's wrong with that?

P: What's wrong is that it's so terribly cheap. Most of what social scientists call 'reflexivity' is just a way of asking totally irrelevant questions to people who ask other questions for which the analyst does not have the slightest answer! Reflexivity is not a birthright you transport with you just because you are at the LSE! You and your informants have different concerns—when they intersect it's a miracle. And miracles, in case you don't know, are rare.

S: But if I have nothing to add to what actors say, I won't be able to be critical.

P: See, one moment you want to explain and play the scientist, while the next moment you want to debunk and criticize and play the militant...

S: I was going to say: one moment you are a naive realist—back to the object—and the next you say that you just write a text that adds nothing but simply trails behind your proverbial 'actors themselves'. This is totally apolitical. No critical edge that I can see.

P: Tell me, Master Debunker, how are you going to gain a 'critical edge' over your actors? I am eager to hear this.

S: Only if I have a framework. That's what I was looking for in coming here, but obviously ANT is unable to give me one.

P: And I am glad it doesn't. I assume this framework of yours is hidden to the eyes of your informants and revealed by your study?

S: Yes, of course. That should be the added value of my work, not the description since everyone already knows that. But the explanation,

the context, that's something they have no time to see, the typology. You see, they are too busy to think. That's what I can deliver. By the way, I have not told you yet, at the company, they are ready to give me access to their files.

P: Excellent, at least they are interested in what you do. It's a good beginning. But you are not claiming that in your six months of field-work, you can by yourself, just by writing a few hundred pages, produce more knowledge than those 340 engineers and staff that you have been studying?

S: Not 'more' knowledge but different. Yes, I hope I can. Shouldn't I strive exactly for that? Is this not why I am in this business?

P: I am not sure what business you are in, but how *different* is the knowledge you produce from theirs, that's the big question.

S: It's the same kind of knowledge as all the sciences, the same way of explaining things: by going from the case at hand to the cause. And once I know the cause, I can generate the effect as a consequence. What's wrong with that? It's like asking what will happen to a pendulum that has been moved far from the equilibrium. If I know Galileo's law, I don't even need to look at any concrete pendulum anymore; I know exactly what will happen—provided I forget the perturbations, naturally.

P: Naturally! So what you are hoping for is that your explanatory framework will be to your case study what Galileo's law is to the fall of the pendulum—minus the perturbations.

S: Yes, I guess so, though less precisely scientific. Why? What's wrong with that?

P: Nothing. It would be great, but is it feasible? It means that, whatever a given concrete pendulum does, it will add no new information to the law of falling bodies. The law holds *in potentia* everything there is to know about the pendulum's state of affairs. The concrete case is simply, to speak like a philosopher, the 'realization of a potential' that was already there.

S: Isn't that an ideal explanation?

P: That's just the problem. It's an ideal squared: the ideal of an ideal explanation. I doubt somewhat that your company's subsidiary behaves that way. And I am pretty confident that you can't produce the law of its behavior that will allow you to deduce everything as the realization *in concreto* of what was already there potentially.

S: Minus the perturbations...

P: Yes, yes, yes, this goes without saying. Your modesty is admirable.

S: Are you making fun of me here? Striving for that sort of framework seems feasible to me.

P: But even it were, would it be desirable? See, what you are really telling me is that the actors in your description make *no difference*

whatsoever. They have simply realized a potential—apart from minor deviations—which means they are not actors at all: they simply carry the force that comes through them. So, my dear Student, you have been wasting your time describing people, objects, sites that are nothing, in effect, but passive intermediaries since they do nothing on their own. Your fieldwork has been simply wasted. You should have gone directly to the cause.

S: But that's what a science is for! Just that: finding the hidden structure that explains the behavior of those agents you thought were doing something but in fact are simply placeholders for something else.

P: So you are a structuralist! You've finally come out of the closet. Placeholders, isn't that what you call actors? And you want to do Actor Network Theory at the same time! That's stretching the limits of eclecticism pretty far!

S: Why can't I do both? Certainly if ANT has any scientific content, it has to be structuralist.

P: Have you realized that there is the word 'actor' in actor-network? Can you tell me what sort of action a placeholder does in a structuralist explanation?

S: That's easy, it fulfills a function. This is what is so great about structuralism, if I have understood it correctly. Any other agent in the same position would be forced to do the same.

P: So a placeholder, by definition, is entirely *substitutable* by any other?

S: Yes, that's what I am saying.

P: But that's also what is so implausible and what makes it radically incompatible with ANT. In my vocabulary, an actor that makes no difference is not an actor at all. An actor, if words have any meaning, is exactly what is *not* substitutable. It's a unique event, totally irreducible to any other, except, that is, if you render one commensurable with another one by some process of standardization—but even that requires a *third* actor, a third event.

S: So you are telling me that ANT is not a science!

P: Not a structuralist science, that's for sure.

S: That's the same thing, any science . . .

P: No! Organization Studies, Science and Technology Studies, Business Studies, Information Studies, Sociology, Geography, Anthropology, whatever the field, they cannot rely, by definition, on any structuralist explanation since information is transformation.

S: 'Systems of transformations', that's exactly what structuralism is about!

P: No way, my friend, since in structuralism nothing is really transformed, it's simply *combined*. You don't seem to fathom the abyss that

exists between it and ANT. A structure is just a network on which you have only very sketchy information. It's useful when you are pressed for time, but don't tell me it's more scientific. If I want to have actors in my account, they have to *do* things, not to be placeholders; if they do something, they have to make a difference. If they make no difference, drop them, start the description anew. You want a science in which there is no object.

S: You and your stories. Eventful stories, that's what you want! I am talking about explanation, knowledge, critical edge, not writing scripts for soap operas on Channel 4!

P: I was getting to that. You want your bundle of a few hundred pages to make a difference, no? Well then, you have to be able to prove that your description of what people do, when it comes back to them, *does* make a difference to the way they were doing things. Is this what you call having a 'critical edge'?

S: I guess so, yes.

P: But you would agree that it wouldn't do to provide them with an irrelevant appeal to causes that make no difference to what they do because they are too general?

S: Of course not. I was talking about *real* causalities.

P: But those won't do either because if they existed, which I doubt very much they do, they would have no other effect than transforming your informants into the placeholders of other actors, which you call function, structure, grammar, etc. In effect, they wouldn't be actors anymore but dopes, puppets—and even that would be quite unfair to puppets. Anyway, you are making actors out to be nothing: at best they could add some minor perturbations like the concrete pendulum that only adds slight wobbles.

S: Huh?

P: Now you have to tell me what is so politically great about transforming those you have studied into hapless, 'actless' placeholders for hidden functions that you, and you only, can see and detect?

S: Hmm, you have a way of turning things upside down. Now I am not so sure. If actors become aware of what is imposed on them, if they become more conscious, more reflexive, then is their consciousness not raised somewhat? They can now take their fate into their own hands. They become more enlightened, no? If so, I would say that now, and in part thanks to me, they are more active now, more complete actors.

P: *Bravo, bravissimo!* So an actor for you is some fully determined agent, plus a placeholder for a function, plus a bit of perturbation, plus some consciousness provided by enlightened social scientists? Horrible, simply horrible. And you want to apply ANT to these people! After you have reduced them from actors to placeholders, you want to

add insult to injury and generously bring to those poor blokes the reflexivity they had before and that you have taken away by treating them in a structuralist way! Magnificent! They were actors *before* you came in with your 'explanation'. Don't tell me that it's your study that might make them so. Great job, Student! Bourdieu could not have done better.

S: You might not like Bourdieu very much, but at least he was a real scientist, and even better, he was politically relevant. As far as I can tell, your ANT is neither.

P: Thanks. I have been studying the links between science and politics for about thirty years, so I am hard to intimidate with talks of which science is 'politically relevant'.

S: I have learned not to be intimidated by arguments of authority, so your thirty years of study makes no difference to me.

P: *Touché*. But your question was: 'What can I do with ANT?' I answered it: no structuralist explanation. The two are completely incompatible. Either you have actors who realize potentialities and thus are not actors at all, or you describe actors who are rendering virtualities actual (this is Deleuze's parlance by the way) and which require very specific texts. Your connection with those you study requires very specific protocols to work—I guess this is what you would call 'critical edge' and 'political relevance'.

S: So where do we differ? You, too, want to have a critical edge.

P: Yes, maybe, but I am sure of one thing: it's not automatic and most of the time it will fail. Two hundred pages of interviews, observations, etc. will not make any difference whatsoever. To be relevant requires another set of extraordinary circumstances. It's a rare event. It requires an incredibly imaginative protocol. It requires something as miraculous as Galileo with his pendulum or Pasteur with his rabies virus.

S: So what should I do? Pray for a miracle? Sacrifice a chicken?

P: But why do you want your tiny little text to be automatically more relevant to those who might be concerned by it (or not) than say a huge laboratory of natural sciences? Look at how much it takes for Intel[™] chips to become relevant for mobile phones! And you want everyone to have a label 'LSE[™] inside' at no cost at all? To become relevant you need extra work.

S: Just what I need, the prospect of even more work!

P: But that's the whole point: if an argument is automatic, across the board, all-purpose, then it can't possibly be scientific. It's simply irrelevant. If a study is really scientific, then it could have failed.

S: Great reassurance, nice of you to remind me that I can fail my thesis!

P: You are confusing science with mastery. 'Being able to lose the phenomenon is essential to scientific practice.'¹⁹⁹ Tell me, can you imagine one single topic to which Bourdieu's critical sociology, which you are so fond of, could possibly *not* apply?

S: But I can't imagine one single topic to which ANT would apply!

P: Beautiful, you are so right, that's exactly what I think.

S: That was not meant as a compliment.

P: But I take it as a true one! An application of anything is as rare as a good text of social science.

S: May I politely remark that, for all your exceedingly subtle philosophy of science, you have yet to tell me how to write one.

P: You were so eager to add frames, context, structure to your 'mere descriptions', how would you have listened to me?

S: But what's the difference between a good and a bad ANT text?

P: Now, that's a good question! Answer: the same as between a good and a bad laboratory. No more, no less.

S: Well, okay, um, thanks. It was nice of you to talk to me. But I think after all, instead of ANT, I was thinking of using Luhmann's system theory as an underlying framework—that seems to hold a lot of promise, 'autopoiesis' and all that. Or maybe I will use a bit of both.

P: Hmmm . . .

S: Don't you like Luhmann?

P: I would leave aside all 'underlying frameworks' if I were you.

S: But your sort of 'science', from what I see, means breaking all the rules of social science training.

P: I prefer to break them and follow my actors. As you said, I am, in the end, a naive realist, a positivist.

S: You know what would be real nice? Since no one around here seems to understand what ANT is, you should write an introduction to it. That would ensure our teachers know what it is and then, if I may say without being rude, they might not try to push us too hard into it, if you see what I mean . . .

P: So it's really that bad?

S: See, I'm just a PhD student, but you're a professor. You have published a lot. You can afford to do things that I can't. I have to listen to my supervisor. I simply can't follow your advice too far.

P: Why come to me then? Why try to use ANT?

S: For the last half hour, I have to confess, I've been wondering the same thing . . .

¹⁹⁹ See Garfinkel, *Ethnomethodology's Program*, p. 264.