On making data social: heterogeneity in sociological practice

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ABSTRACT This article is concerned with how we might go about theorizing the roles of nonhumans (technologies, animals, etc.), and their associations with humans, in the production of 'social data'. Drawing on recent sociological work on heterogeneity, the article explores how nonhumans contribute to the emergence of both the 'microsocial' and 'macrosocial' as complex patterns of ordering and disordering. These patterns are exemplified with reference to a 'disastrous interview episode'. With the aid of such concepts as parasite, preposition and co(a)gent, the disastrous interview episode is interpreted in three ways to show how nonhumans must be disciplined in order to allow the emergence of social data; how nonhumans' 'misbehaviour' can be understood in terms of their 'hybridic' associations with humans; and how the interaction between hybrids mediates such macro entities as universities and corporations. Finally, in conclusion, some of the broader implications of this analysis for sociological practice are considered.

KEYWORDS: *co(a)gent, heterogeneity, parasite, preposition, social data, sociological practice*

The aim of this article is to lay out a tentative analytic model for addressing the following three interconnected issues:

1. The role of (technological and 'natural') nonhumans in the context of sociological practice, particularly the production of social data.
2. The ways in which nonhumans are entailed in the processes of social ordering and disordering.
3. The role of nonhumans in mediating micro–macro relations.

This article is thus concerned to establish that, insofar as they play a part in the processes of social ordering and disordering, it is possible to investigate

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how nonhumans are involved in the ostensibly social production of social data. That is to say, in the social process of deriving data from respondents or participants, one can trace how various nonhumans must play their part. Normally, however, the roles of nonhumans are hidden. It often takes something to 'go wrong' to reveal how nonhumans have, in their quietly disciplined way, been contributing to the production of smooth social routines – routines such as social scientific interviews. By examining a 'disastrous interview episode' in which various nonhumans 'misbehaved', it is possible to examine how such entities need to be 'disciplined' in order to make the production of social data possible.

However, I also wish to pursue an additional set of issues. Insofar as the heterogeneous relations entered into between humans and nonhumans enable new hybrid units of analysis (comprising combinations of humans and nonhumans) to be formulated, these can be used to illuminate social episodes still further. On this perspective, nonhumans and humans operate *together* to produce both order and disorder. Moreover, these interactions between such *hybrids* (or what I will call *co(a)gents*) serve in the local mediation of macro-entities (such as corporations and the university sector). We can also begin to explore how rather mundane and seemingly 'trivial' nonhumans (pets, tape recorders) are locally entailed in the ways that macrosociological entities come to reproduce themselves.

It will be apparent that this article is attached to what seems to be a broad, straggling but evidently accelerating intellectual movement that is attempting to theorize the 'material' within sociology (though without privileging it). Names that come to mind are Donna Haraway (e.g. 1991, 1997) and Bruno Latour (e.g. 1993a, 1999b), and latterly, in more mainstream social theory, John Urry (2000). Of course there are numerous analysts working in various sociological subdisciplines who have also addressed, in one way or another, this issue. For example, there is much work on the body which seeks to theorize materiality by examining the role of corporeal engagements with objects and environments of various sorts, as well as other persons, in the production of the social and the cultural (e.g. Burkitt, 1999; Williams and Bendelow, 1998). Recent analysis in environmental sociology has likewise explored the ways in which the natural environment might be seen to configure the social, and vice versa (e.g. MacNaghten and Urry, 1998, 2000). Research into mundane technology has also examined the ways in which these otherwise unnoticed artefacts shape everyday life (e.g. Lie and Sorensen, 1996; Michael, 2000). This exceedingly partial list can, by no stretch of the imagination, be considered a 'new paradigm' – there are too many epistemological and ontological differences to take into account. Nevertheless, it does seem that, after the rediscovery of the crucial and multifarious role of language in social processes, we are now in the process of rediscovering the crucial and multifarious role of the material.

My overarching aim, then, is to explore some possible ways of further

fruitfully integrating the material into sociological practices and social processes. In this, I take a microsociological perspective, in part derived from the work of Latour and Haraway, but also drawing on the philosophy of Michel Serres. By stressing the complex interweavings of the material and the semiotic, I suggest that it is necessary to develop an alternative vocabulary, on the one hand, in order to look at the ways in which the material comes to be 'translated' into the semiotic and vice versa, and on the other in order to find a means of narrating the heterogeneity inherent in social processes in general and sociological practices in particular.

In brief, Haraway and Latour furnish, respectively, the concepts of cyborg and hybrid which accommodate the human and the nonhuman, the material and the semiotic, and the real and the constructed. I draw on these to develop the notion of co(a)gent which further encompasses the simultaneously distributed and the unitary character of these processual, emergent and relational hybrid entities. I also partly follow Serres's injunction to develop a philosophy of prepositions – that is, a terminology of relationalities which goes some way toward articulating the heterogeneous interactions between heterogeneous entities. Some of these interactions yield order, others disorder. In coming to grips with these patterns, Serres's notions of the parasite proves especially illuminating. To reiterate, such an approach enables the analysis of the role of nonhumans in the production of ostensible social data, in the present case interview data. Indeed, as will become apparent, it is hoped, the disciplining of various nonhumans is crucial to the smooth production of social data.

In what follows, then, I will begin with a discussion of how best to address heterogeneity which does not attempt any facile transcendence of standard sociological dichotomies, not least materiality and semiosis. This leads on to an exploration of the usefulness of Michel Serres's work, especially his concern with processes of interaction which are both ordering and disordering, and which demand, in his view, a keener attention to prepositions. In the subsequent sections, I attempt to illustrate the heterogeneous dynamics of ordering and disordering among co-present 'co(a)gents' by glossing, in three different ways, a disastrous interview episode characterized by wayward human and nonhuman actors. In the process, I explore the role of nonhumans in both the processes by which sociological data is produced and the co-production of the micro and the macro. Finally, in conclusion, I roughly sketch some of the broader implications of this analysis for sociological practice.

Irreducibility and heterogeneity

In placing materiality (in all its complexity) back onto the, albeit dispersed and highly contestable, sociological agenda, one of the things we must be wary of attempting to do, or claiming to have succeeded in doing, is 'transcending' the dichotomies – most obviously, subject/object, semiotic/material, agency/

structure, real/constructed – that have both been constitutive of, and obsessively interrogated by, sociology. 'Transcend' here would mean something like 'resolve' – or, in dialectical terms, accomplish a state akin to 'synthesis'. It is very unlikely that we will successfully 'go beyond' the contradictions, contrasts, dichotomies that sociology has long lived by – after all, they are the epistemic stuff in which we are immersed (Smart, 1982). Or rather, this transcendence is not an 'intellectual' one, but cultural (as indeed were the original dichotomizations, see for example Horigan, 1988) where a new vocabulary emerges in which these apparent opposites are accommodated without contradiction (Michael, 2000; see later discussion). Of course, were we to go down this route we would no longer be practising 'sociology', as indeed Latour (e.g. 1999a) has urged.

Let us explore this difficulty in transcending these dichotomies. For example, when one wants to talk about the role of the material in the production of knowledge, there is always a tiny unbridgeable gap between the object and its signifier – as Adorno (1973) taught us, though using a rather different terminology. How does the object get 'grasped' semiotically, that is, represented? In order to see it move from one domain to the other, it needs to undergo some sort of transformation for the object – the thing – needs to be converted from something that is in a chain of cause and effect to something that is in a chain of signifiers, or in a hermeneutic circle (e.g. Harre, 1979). That is to say, as is well known, it has to move from a discursive order of explanation to a discursive order of interpretation. Yet, if it can move from the material to the semiotic/hermeneutic, then it already has something about it of a signifier/thought.[1] The material object in order to be interpretable has to have something that can be interpreted and that must be some sort of signifier. Now, this critique is possible because of the incommensurability of causal/explanatory and symbolic/interpretative registers. However, there is no a priori reason to hold to this dichotomy, as various commentators have long noted.[2] Indeed, for the likes of Latour and Haraway, the world happily accommodates both these registers for it is irreducibly composed of both the semiotic and the material, the human and the nonhuman, which combine to produce innumerable hybrid entities.

Thus, according to Latour (1993a), hybrids are everywhere. Imbroglios of humans and nonhumans are becoming increasingly part of our everyday life. Hybrids populate the pages of the press. Yet simultaneously, while we live more or less happily with these mixtures, we are constantly told that the old divisions remain in place: newspapers retain pure headings like science, politics, economy and so on, and the practitioners of these disciplines reassure us that these traditional, modernist categories are perfectly able to accommodate such hybrid happenings. Now, such heterogeneity and hybridity is characteristic of the modern condition (indeed, all conditions). Despite our finest modernist efforts at denying the 'exchange of properties' between humans and nonhumans, this heterogeneous process of mingling continues apace.

In sum, for Latour (1993a), in contrast to premodern cultures, modernity has been fundamentally concerned to purify these hybrids, to disaggregate them into their ostensibly component, dichotomously categorized parts. Thus, we moderns have routinely indulged in dualism: for example, we have represented nature as transcendent, while society is seen to be our free construction. Yet beneath all this activity of purification, the hybrids have been multiplying at alarming rates. Indeed, the recent proliferation of strange hybrids (e.g. frozen embryos, sensory-equipped robots, gene synthesizers, etc.) has been so great that it has become increasingly difficult to maintain the nature–society divide: we moderns have now, at last, (re)gained an awareness of hybrids.

But hybridity is not only exemplified in exotic imbroglios; it is instanced in the most mundane configurations of humans and nonhumans. For example, Latour (1993b) posits the hybrid of the gun-person. For Latour, contrary to the views that 'it is guns that kill' and it is 'people that kill', it is the 'citizen-gun'. Rather than ascribing essences to the 'gun' and the 'citizen' (each being either good, or bad, or neutral), what Latour aims to do is to show how the new hybrid entails new associations, new goals, new translations and so on. As one enters into an association with a gun, both citizen and gun become different. Accordingly, what should be policed are not the gun or the person – not subject or object alone – but the combination, the hybrid. According to Latour, we moderns have been singularly inept at such policing, even as we are ever more deeply embroiled in, or rather, necessarily, the effect of, hybrid networks.

Let us now turn to the cyborg. For Haraway (1991), the cyborg is a complex figure that evokes the situated and embodied embroilment of humans with multiple technologies and sociotechnical networks. As the editors of the *Cyborg Handbook* put it: 'we are really bodies hooked into machines and bodies linked to other bodies by machines. . . . There is no one "cyborg" and no one benefit or drawback or evil' (Gray et al., 1995: 7). Certainly the cyborg serves as a way of articulating a politics that is not shy of the imbroglios of humans and nonhumans, and it can be conceptualized as a politically situated female entity (see Penley and Ross, 1991) that is involved with the production of new critical spaces within the New World Order (that emerges in the bonding of technoscience and transnational capital – cf. Haraway, 1997). But this is not inevitable, for the cyborg is also deeply implicated in this new world order, serving as an accomplice as well as an antagonist.[3] Moreover, there is further ethical ambiguity that attaches to the cyborg. As Prins (1995) has noted, the cyborg 'accommodates two different ethical stances . . . the anti-humanist Nietzschean ethic of resistance and self-affirmation . . . (and) . . . a socialist-feminist ethic of solidarity, a Christian feeling for a suffering humanity' (Prins, 1995: 361). The former theme denies human essence, stresses becoming, while the latter depends upon essence, emphasizes being.

Latour's hybrid and Haraway's cyborg are both contradictory (oxymoronic

even) only if one operates within the structure of modernist dichotomies. By virtue of their lack of 'obviousness', notions such as hybrids and cyborgs in their specificity draw attention to their status as cultural and analytic fabrications.[4] Thus, Haraway has always been acutely aware of how the situated apprehension of the cyborg is conducted through a collage of myth, politics, technoscience and fiction. Latterly, Latour (1999b) has also acknowledged that the world is made up of entities, relations, and processes that are at once real and constructed, facts and fetishes – in a word (Latour's word), 'factishes'.

The issue of how we might go about making the analytic 'choices' about what components comprise a particular hybrid or cyborg has been addressed by Michael (2000). In attempting to grapple with these heterogeneous entities, he has paid particular attention to interactions with mundane technologies and, importantly, with natures. His concept of 'co(a)gents' is designed to connote distributedness, that is, the ways in which hybrids entail *co-agents in a melee of co-agency*. At the same time he also wants to narrate the singularized hybrid, to deal with its *cogency*, that is, its convincing power and its unitariness. In deriving the terms *'co(a)gency'* and *'co(a)gent'* the aim is to capture the simultaneity and ambiguity of, on the one hand, distributed, exploded agency and, on the other, concentrated, imploded, agency. The methodological point that follows from this is that one 'follows the co(a)gent'. However, the co(a)gent is an analytic fabrication. 'Choices' have to be made as to what to include and exclude in its composition. Sometimes, one can draw on co(a)gents present in popular culture (e.g. the couch potato comprised, at minimum, of person, sofa, TV and remote control); at other times one can compose altogether stranger co(a)gents such as the 'hudogledog' (a mixture of person, dog, and doglead). As Michael (2000) argues, the point of these delimited admixtures of the human and nonhuman is that they allow us to explore some of the complex heterogeneous interactions that make up social ordering processes. Co(a)gents thus serve as heuristic probes with which to examine and explicate relations, connections, and interactions that are barely apparent but nevertheless serve in the (de)structuring of everyday routines. In this respect, the value of particular co(a)gents rests not so much on their empirical 'accuracy' as on their capacity to illuminate otherwise hidden processes.[5] Moreover, co(a)gents act as foci for fruitfully drawing together subdisciplines (in considering the couch potato, it is possible to interconnect in novel ways, for example, literatures on governmentality, consumption, body, technology, design, emotions, gender, globalization).

In the present context, there are two main points to draw out in relation to the notion of co(a)gent.[6] Firstly, as noted above, co(a)gents as analytic fabrications entail choices. Certain associations between entities are emphasized over others. Within a given situation, there are innumerable connections, or patterns of connections, making up different co(a)gents that can be traced. In the analysis of the 'disastrous interview episode' discussed later, three such

patterns will be described. We shall see that these 'overlie' one another, making the 'disastrous interview episode' a complex, multiplicitous event that takes in 'macro' as well as 'micro' relations. Secondly, these patterns (i.e. co(a)gents) have to be temporally maintained, that is, ongoingly reproduced. However, sometimes these co(a)gential patterns transform as some connections fall away and others are engaged. While on one level such reorderings might seem to indicate co(a)gential change, on another level they suggest business as usual. In other words, there are simultaneous processes of ordering and disordering, the production of new co(a)gents, and the reproduction of old ones.

However, before we can go on to look at these processes in relation to the 'disastrous interview episode', we must make one final (and brief) detour through the work of Michel Serres.

Parasites, prepositions, and Michel Serres

Of Michel Serres's huge oeuvre, most pertinent for present purposes are his explorations of the role of the object – or rather the movement of the quasi-object – in enabling the social. Serres traces how the object 'stabilises our relationships, it slows down the time of our revolutions. For the unstable bands of baboons, social changes are flaring up every minute. . . The object, for us, makes our history slow' (Serres, 1995a: 87). But this movement of quasi-objects is not separate from human relations: 'The relations at the heart of the group constitute their object; the object moving in a multiplicity constructs these relations and constitutes the group. These two complementary activities are contemporaneous' (Serres, 1991: 102). As such, over time, 'Our quasi-objects have increasing specificity' (Serres, 1982: 232). In other words, the specificity and particularity of quasi-objects become greater and this mediates and is mediated by the increasing specificity and particularity of social relations.

Serres has also considered the interventions of the object in the social, that is, the disruption of social bonds by the material. The figure of the parasite is especially important here. The parasite has several meanings: for example, an organism that takes from its host without giving anything in return, or a disrupter of a signal between communicator and receiver. In all these, for communication in this broad sense to be possible, there needs to be exclusion – a bracketing, a removal of those entities, processes, parasites that would otherwise disturb the connection, that is, disrupt the communicational flow by introducing noise. Serres refers to this as the excluded third. So, we also need to be aware of how these circulations entail exclusion (indeed, for Serres, without such exclusion there could not even be the possibility of communication).

In his exploration of the parasite, Serres elaborates on a particular parasite – the uninvited guest at the dinner table, who exchanges stories for food. Here,

we see how stories (the hermeneutic, the semiotic) are transformed into the material (food, shelter) and vice versa. This is a key motif: it tells, for example, how certain material interventions open up the space for new meanings, and how disruptions and disturbances have the potential for generating more complex orders. Here, we come to another core concern for Serres, namely the relation between order and chaos. As Latour (1987a) notes, Serres's interest is in the interface between chaos and order and the processes by which ordering and disordering occur simultaneously.

The mirror figure to the disruptive parasite was, for a long time, Hermes, who conveyed the connectedness of thought across disparate domains (e.g. science and myth). Like the parasite, Hermes also embodied the ways in which 'messages' move from the material to the semiotic, in the process being transformed from energies, matters, objects into thoughts, ideas, cultural artefacts and vice versa (see, for example, Serres, 1991). More recently, in order to deal with the accelerating multiplicity of messages and movements that modern technology has enabled, Serres (1995b) has begun to draw on the figure of angels[7] in their multitudes. As Serres puts it: 'Each angel is a bearer of one or more relationships; today they exist in myriad forms, and every day we invent billions of new ones. However, we lack a philosophy for such relationships' (1995b: 293).

Another way of putting this lack is in terms of the need for a philosophy of *prepositions* – to, from, beneath, between (Serres and Latour, 1995). That is to say, we need to explore the possibility of a new vocabulary of prepositions that can address the disparate shifting relationalities between heterogeneous entities that are at once material and semiotic, objective and subjective, human and nonhuman.

In what follows, I attempt to exemplify what it might mean to develop this attention to – to operationalize, even – these new prepositions, parasites, and co(a)gents. I do this with the aid of a particular illustration – the 'disastrous interview episode'.

Prepositions and parasites in fieldwork: the disastrous interview episode

In 1989, I was based at Lancaster University and engaged in fieldwork into the public understanding of science. Specifically, I was conducting interviews with respondents to derive the 'mental models' that underpinned their understanding of ionizing radiation. In one particularly disappointing piece of fieldwork, I was conducting a second interview with a respondent at her home. The interviewee was an ex-drug user who, after a period of unemployment, had recently (indeed, since our last interview session) got a job at Burger King. I was seated on the sofa, the respondent was in an armchair to my right, and the tape recorder was placed on the floor between us.

During the preliminary conversation, her pit bull terrier ambled up and sat

on my feet. As the respondent said, 'she liked to know where people were'. As I tried to open up further discussion of ionizing radiation, it became clear that she would much rather talk about her new job, and the opportunities it offered her: she was obviously delighted with Burger King's career structure and was looking forward to rapid promotion. While this conversation was going on, her cat came into the room, and after a few moments of clawing at the tape recorder began to pull it along the ground by its strap. (Figure 1 shows the general layout.) As the cat played with the recorder, it got further and further away from the interview, which was rapidly turning into a monologue about Burger King, a monologue which I could neither halt nor redirect, being too distracted by the disappearing tape recorder and the pit bull's liking for my feet. The interviewee was paid five pounds for the interview.

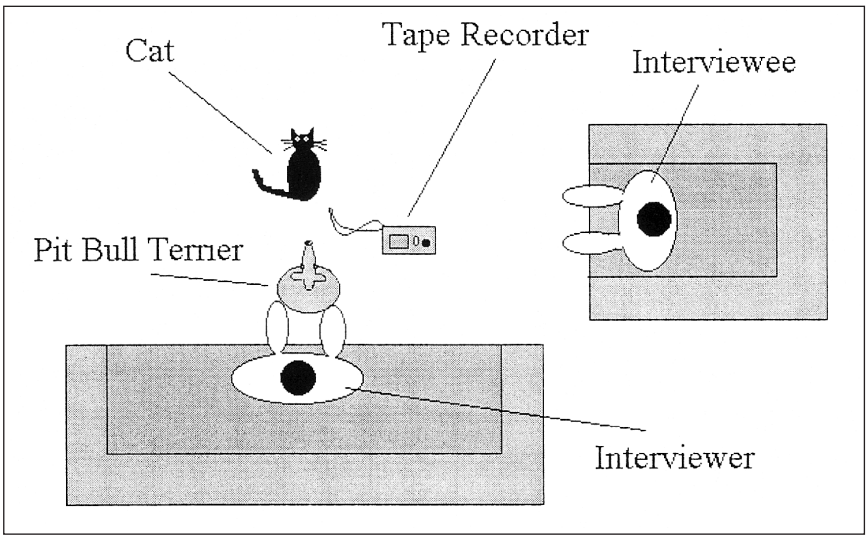

FIGURE 1.

While this is a rather eccentric fieldwork episode, it does have a number of merits. First, there is the obvious presence of nonhumans (animal and technological) whose contribution to the social interaction can be unpicked relatively readily. Second, there is a prima facie process of disordering in which the interaction seems to fail. Taken together, these characteristics allow for an exploration of the general features of the gathering of sociological data (what relations to nonhumans need to be disciplined), and of the dynamics of social exchanges (what relations to nonhumans serve in the processes of social interaction). Third, this 'micro' episode entails the mediation of the 'macro', especially the university sector and the Burger King Corporation. The episode thus exemplifies the enactment of large-scale actors within local situations, and the role of the nonhuman in this enactment. In sum, this episode, by virtue of the clearly disruptive role of nonhumans and their relations to

humans, serves as a (for want of a better term) 'material deconstruction' of the 'social' taken as the site of sociological data gathering, the process of social ordering, and the enactment of the macro in the micro.[8]

In this section, then, I subject the disastrous interview episode to three analyses that increasingly encompass more relationalities, parasites, and co(a)gencies, and thus explore the complexities of the human–nonhuman relations. In the process I focus on progressively larger co(a)gents that make up the episode. While I make no attempt to derive new prepositions, the process of expanding the co(a)gents serves as a way of evoking these relationalities as they are embodied in the co(a)gents themselves.

DISASTROUS INTERVIEW EPISODE: ANALYSIS 1

In reviewing the disastrous interview episode, we can see immediately that parasites abound. The communication between interviewer and interviewee was curtailed – parasitized – by the pit bull terrier and the cat. Their ostensibly physical activities intervened in the social semiotic exchange. Through the cat's playfulness the tape recorder was being progressively removed from the scene and thus being marginalized as a particular sort of quasi-object that mediated a particular sort of relationship between two people, namely that of interviewer and interviewee. The other parasite can be called the 'dog's bottom': it too comprised an intervention, being placed upon the interviewer's feet and disrupting his communication with the interviewee. However, for it to act as such, certain meanings had to attach to its positioning. It was placed between the top of the interviewer's feet and the jaws and teeth of a pit bull that signified a potential 'devil dog' (stories about devil dogs were then current, the pit bull being singled out as particularly devilish).[9] In sum, here we have cat and dog's bottom serving as parasites, intervening as 'noise' – both material and semiotic – in what should have been a simple circuit of social communication. In other words, what should have been unproblematic flows of information and materials that reflected and mediated a particular relation – and a particular co(a)gent (comprised of interviewer and interviewee) – were undermined by the interruptions of the animal parasites. Notice that, in this analysis, the concern is with relationalities between more or less familiar actors (or co(a)gents) – the playful cat, the potential devil dog, the indifferent respondent and the petrified interviewer. Figure 2 summarizes this interpretation.

More generally, this analysis points to a number of relations with nonhumans which must normally be disciplined so that sociological data might be 'gatherable'. This applies to a multitude of social scientific techniques from ethnography to surveys. Indeed, it can be argued that it is the narrative screening out of these processes of heterogeneous disciplining that makes data 'social' in the first place.

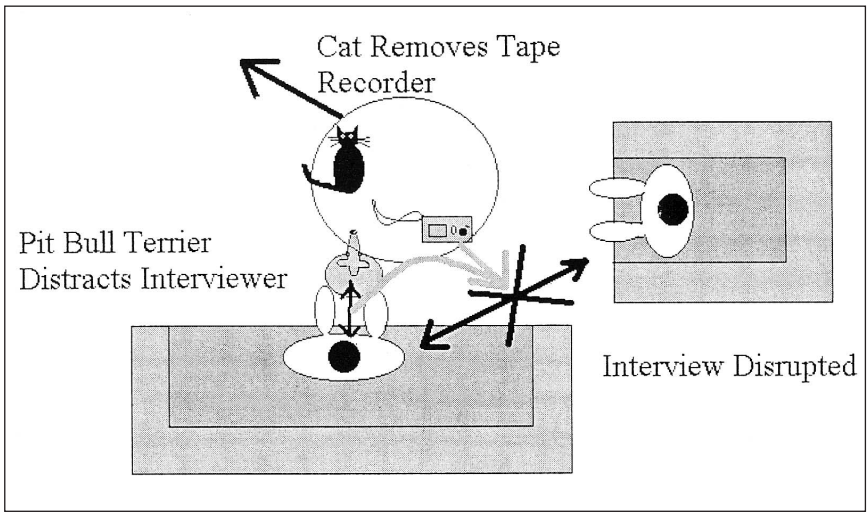

FIGURE 2.

DISASTROUS INTERVIEW EPISODE: ANALYSIS 2

Overlying the processes of ordering and disordering narrated above were a set of other relationalites and co(a)gencies. One could say that, at outset, these co(a)gencies always militated against the very possibility of an interview (in the sense of gathering data relevant to a particular research project on the public understanding of ionizing radiation). The activities of the pit bull and the cat, that is, the sociality to which they contributed with their human companion (the interviewee), reflected a circumstance in which the interviewee could comfortably 'go off at a tangent'. In other words, in the context of her pets, she was a particular sort of person who felt free to rank talk about career opportunities at Burger King over talk about ionizing radiation. However, we can view the relationalities entailed in this sociality as comprising a rather different co(a)gent made up minimally of pit bull terrier, person and cat – what we might term a 'pitpercat'.[10]

Notice that the internal structure (and thus the range of constitutive prepositions) of the pitpercat does not especially concern us at this narrative level. Rather, what is important in this narrative is the fact that this co(a)gent interacted with, and disrupted the operations of, another co(a)gent composed of interviewer and tape recorder – the 'intercorder' (= inter[viewer] + [re]corder). To put it another way, these two co(a)gents, so formulated, had little prospect of common communication. Or rather, there was a mostly one-way flow of materials and signs from the pitpercat to the intercorder which effectively served as noise that disrupted the ordering between interviewer and tape recorder. This confrontation between two co(a)gents is represented in Figure 3.

At this second level of analysis, we see how social interactions (including

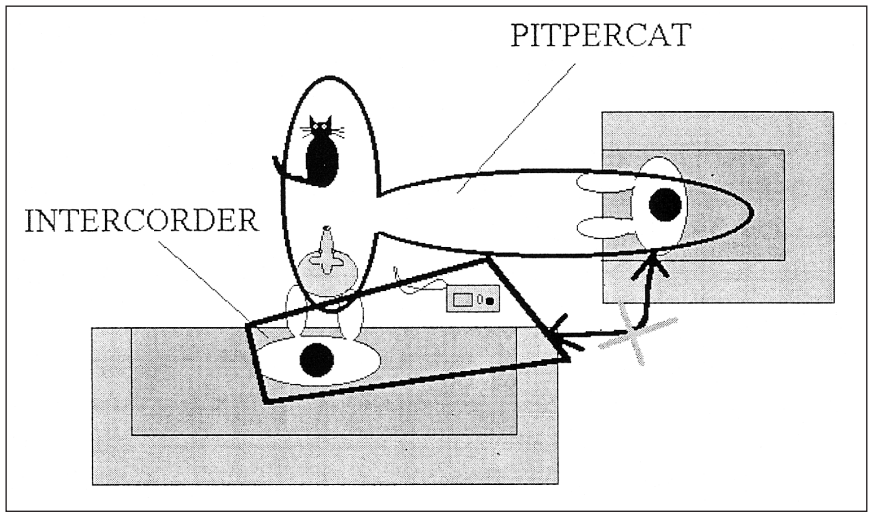

FIGURE 3.

those of data gathering) are thoroughly enmeshed with technological and natural nonhumans. Others that could have been brought into the analysis include the room itself (and layout) or the interviewer's briefcase. The general point is that the 'social exchange' is an abstraction – or subtraction – from the heterogeneous communications of co(a)gents. In other words, if we revision the world as populated by co(a)gents (as attempted here), then by implication our analytic attention should be directed toward the processes by which such 'singular' entities as interviewer, interviewee, tape recorder, cat and dog are derived. In sum, at this level of analysis, by presupposing the relationalities of co(a)gents, we can look critically at our existing categories of human, social, technology and the like.

DISASTROUS INTERVIEW EPISODE: ANALYSIS 3

Now, there is further interaction that we can detect in this disastrous interview episode in which the co(a)gents are somewhat more expansive. Along with the demeanour of the interviewer, the tape recorder and the five pounds sterling evoke a broader co(a)gent – that of Lancaster University (and possibly, the university sector or academia in general). The monologue about the opportunities in management offered by Burger King likewise implicated a grander co(a)gent – that of Burger King with which the interviewee was 'entangled' materially and semiotically (cf. Callon, 1998a, b). The refusal to enter into the interview (both in terms of the content of the monologue and the lack of any effort to relieve the discomfiture of the interviewer) could thus be read as a moment of extrication from the attempted social scientific co(a)gent of interviewer–interviewee.

Indeed, the disastrous interview episode can be interpreted as a refusal of

the previous significance of the five pounds interview fee and the grander co(a)gent from which this sum emanated (Lancaster University). Following Serres's example of the uninvited dinner guest, one could say that the interviewer's five pounds were part of an exchange of material for stories (interview data), an exchange which would have 'endangered' the ordering (the co(a)gency) between the interviewee and Burger King (an ordering partly grounded on the perceived career prospects for the interviewee, prospects that included financial autonomy). The monologue is thus a means to draining the meaning out of the five pounds. No longer can the five pounds represent remuneration for a particular service, and thus a particular relationship to the interviewee as the 'object of study' to be taken into the academic co(a)gent, because the interview is simply not being conducted in the correct way: relevant data are neither being produced nor recorded. One could say that these two expansive co(a)gents were being differentiated through this monologue. This level of co(a)gential differentiation is represented in Figure 4.

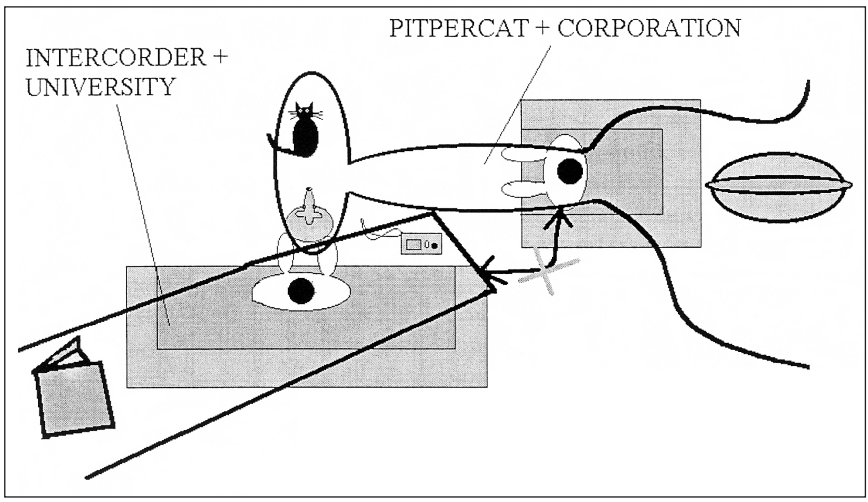

FIGURE 4.

In this analysis we are witness to a particular exemplification of the micro-social moment at which macro entities such as university and corporation ongoingly differentiate. The broader point to draw from this is that in this moment we should systematically seek out the (sometimes unlikely) constitutive role of nonhumans in this process. Cats and dogs, but also cars and sofas, are parts of the co(a)gential context which mediates this process of macro-social reproduction.

Discussion

In the foregoing, three analyses of the disastrous interview episode were presented in which were traced the interactions and interventions of three different categories of co(a)gent. In the first analysis we saw the more or less familiar co(a)gents of humans, animals, and technologies engaged in a process of ordering and disordering. While there was an attempt to forge a particular relation between interviewer and interviewee, the animals intervened and as 'parasites' curtailed the 'appropriate' interview form of communication between the two human actors. In the second analysis, two co(a)gents were derived, the pitpercat and the intercorder. These failed to interact because the pitpercat, in the present circumstances, was disposed to curtail the ordering between the interviewer and the tape recorder. If the first analysis points to a disruption of the communication between interviewer and interviewee, the second highlights the disruption of the relation between interviewer and technology. The third analysis shows how the interviewee's co(a)gent expanded to incorporate Burger King (explicitly, a particular representation of Burger King). The monologue becomes both a means of asserting the economic independence of this co(a)gent (the meaning of the five pounds remuneration becomes altered), and also a refusal to enter into another co(a)gent, that of Lancaster University (or the university sector or academia in general).

So far, these analyses have been treated separately. However, in the third analysis there was a hint of the possible ways in which these co(a)gents not only overlie one another, but also influence one another. In analysis 1, the animals disrupt communication between interviewer and interviewee, yet this intervention is partly enabled by the fact that they are part of the pitpercat (a configuration which affects their domesticated behaviour – see, for example, Costall, 1995). As part of the pitpercat, they also serve in the extrication of the interviewee from the broader academic co(a)gent in that they partly enable her to voice uninterrupted her version of Burger King.

What we have then is a complex set of interactions where humans, animals, and technologies are involved in a process of constituting orderings and disorderings by virtue of the various relations into which they enter, relations that at one level might generate disruption (as parasites), but on another reproduce certain configurations (or prepositions). Thus, from the perspectives of the interviewer, intercorder, and expanded academic co(a)gent there were a series of disruptions. Yet, from the perspective of the interviewee, pitpercat, and expanded corporate co(a)gent, there was a process of successful ordering.

To reiterate, this disastrous interview episode was chosen heuristically because its apparent breakdown more readily allowed us to disambiguate some of the disparate roles of nonhumans, roles that generalize to all such encounters. It sensitized us to the heterogeneous disciplinary work that must

be carried out in the production of social data, social order, and macrosocial entities. Had the interview been successful and data on the public understanding of ionizing radiation collected, then we would have had to work somewhat harder to derive a role for nonhumans (say, of cash in the production of the interviewee–interviewer co(a)gent). Of course, the real task we face is unravelling these dynamics in encounters which proceed smoothly.

Conclusion

In this article I have tried to develop a way of looking at the role of the nonhuman in the complex heterogeneous processes of ordering and disordering that might be entailed in microsocial encounters. In conducting this exercise, I have been informed by Serres's concern with a philosophy of prepositions. Obviously enough I have made no attempt to generate new prepositions that can somehow encompass the complexity and variability of semiotic and material relationalities. However, I have tried to get at this by looking at the ways that relationalities coalesce to form particular sorts of co(a)gents that interact at a number of levels. In other words, embodied within these co(a)gents were prepositions that would describe the heterogeneous relationalities between humans and nonhumans, materials and signs, micro and macro. The recourse to the concept of co(a)gents was a means to bracket these recalcitrant dichotomies. The broader point is that in producing our data, engaging in our orderly social interactions, and enacting our institutions, it behoves us to seek out the function of relations with nonhumans, not least in terms of how naturo-socio-technical stuff has to be kept in place and how particular co(a)gents must be made to behave.

In conclusion, let me draw out three broad implications for sociological practice.

Implication 1: In trying to incorporate nonhumans into sociological analysis in a way which does not have recourse to entrenched dichotomies, it is necessary to alter the unit of analysis. This article has advocated one such unit – the co(a)gent. That is to say, empirical analysis should focus on the interactions between co(a)gents in their production of orderings and disorderings out of which emerge other co(a)gents such as institutions or sociological data. To be sure, within each interacting co(a)gent there are complex and heterogeneous relations which operate, but for the purposes of the analysis of co(a)gential interactions these internal relations can be contingently bracketed. The broad rationale behind such a move is that it lays the grounds for a more systematic exploration of the role of nonhumans in the social. Put another way, co(a)gents are heuristic tools for probing the often obscure ways in which (social) ordering and disordering operate.

Implication 2: Throughout the foregoing it has been emphasized that analytic choices must be exercised in the formulation of co(a)gents. This raises important implications for the epistemological status of co(a)gential analysis.

First, any such analysis must be a reflexive one that acknowledges its own contingency. Second, we must be wary of reifying – that is, over-humanizing or over-textualizing – the researcher who is, as we have seen in the disastrous interview episode, heterogeneous, situated, embodied, and emergent. Indeed, embroiled within an array of technological and natural nonhumans, the researcher is a co(a)gent. As such, thirdly, no longer should entities such as animals, institutions, corporations, technologies, objects be spoken 'about', or 'for', or 'of'. Alternative prepositions are needed. As a co(a)gent, the researcher (and indeed the respondent) speaks 'with', 'by', 'through' and 'as' these entities. The status of data becomes altogether more relational.

Implication 3: It is clear that in investigating co(a)gential interactions we need to be sensitive to the complex folding of orderings and disorderings. What from one point of view looks like a disordering of relations, from another looks like a reinforcement. In exploring the (re)production of co(a)gents, both small-scale (e.g. pitpercat) and large-scale (e.g. the Burger King Corporation), it becomes necessary to engage in what might be called *heterogeneous perspectivism*. Accordingly, evidence of ordering and disordering is sought from the varying perspectives of the different relevant co(a)gents: as we have indicated, it is possible to map patterns in which disordering among 'local' co(a)gents can contribute to the ordering within 'global' ones and vice versa.

These three broader implications have been presented as new sensibilities to be encouraged within sociological practice. However, it is certainly possible to translate these into methodological injunctions. For example, one can state the following rule of method in relation to heterogeneous perspectivism: 'Whenever there is evidence of disordering, always seek a site of ordering.' Attractive though this rigour might be, it is, on the one hand, perhaps premature in light of the still heuristic and exploratory status of co(a)gency, and on the other perhaps inappropriate given the patterns of heterogeneous ordering and disordering that will characterize the implementation of this injunction and, indeed, the very doing of sociology.

NOTES

1. I am acutely aware that I am mixing up genres – humanist and post-structuralist – but I think the general point holds.
2. Chief among these is Alfred North Whitehead (1929), who in his metaphysical philosophy of the organism talks of 'prehension' in order to capture the disparate data (that incorporate emotion, and purpose, and valuation, and causation) that concresce (or combine) to produce what he calls an actual entity. One might say that Whitehead's metaphysics, insofar as it is fundamentally concerned with the way that entities emerge out of heterogeneous relations, prefigures the (a)modern admixtures of human and nonhuman that we find theorized through such concepts as hybrid (Latour, 1993a, b), monsters (Law, 1991), cyborgs (Haraway, 1991) and co(a)gents (Michael, 2000).
3. For a reflection upon Haraway's sometime pessimism regarding the cyborg, see Harvey and Haraway, 1995).

4. This process of analytic fabrication is no less subject to fabrication. To state the obvious, choice is not wrought by some autonomous analyst for the analyst is no less emergent, no less heterogeneous (cf. Michael, 2000).
5. For 'illuminate' one can read 'surprise us about' or 'persuade us of'. The point is that co(a)gents are tools as much as they are entities. As such, to the ontological heterogeneity of co(a)gents we must add an epistemological one.
6. An obvious point of reference for the notion of co(a)gent is actor-network theory (ANT). However, there are number of ways in which the present approach departs from 'classical' ANT (for example, Callon, 1986a, b; Latour, 1987b; Law, 1987). I will point to three such differences. First, there is no heroic actor translating others to produce a network. There is instead a more perspectival analysis which traces the *mutual* constitution of actors. Second, instead of ANT's focus upon the ordering of networks, the present analysis entertains the coexistence of ordering and disordering processes. Third, in contrast to the empiricist tenor of classical ANT accounts, co(a)gents are openly constructs whose ontological status remains ambivalent. All these points have been raised in a number of critiques of ANT (see, for example, Latour, 1999b; Law, 1991; Law and Hassard, 1999; Michael, 1996, 2000).
7. I do not draw explicitly on either Hermes or angels in subsequent sections, although both clearly inform the analysis. This is because I am primarily concerned with the process of disruption in the disastrous interview episode. Of course angels abound, not least in the interiority of the co(a)gents, binding their components into what can be treated as unitary wholes. It is the *parasitic interaction* of these, albeit contingent, wholes – these co(a)gents – that is the focus of the present analysis.
8. I should underline that underlying this version of the 'social' is a microsocial view of macro- or meso-sociological entities. These are viewed as (re)produced in the local setting of their enactment (for example, Bowker and Star, 1999; Callon and Latour, 1981; Knorr-Cetina, 1988; Law, 1994).
9. As one reviewer of the paper pointed out, this intervention by the pit bull terrier is also dependent on the interviewer's refusal to enter into a co(a)gential relation with the dog and the interviewee. In this respect, the parasitism of the dog is, ironically, predicated on the inflexibility of the interviewer – that is, his inability to adapt his interactions with the dog in order to communicate better with the interviewee.
10. There are various ways in which one could, for ease of exposition, name and reify such co(a)gents. In this case, 'pitpercat' = pit (bull terrier) + per(son) + cat (see Michael, 2000). As Michael argues, this naming serves the purpose of rendering these odd combinations more graspable, even as we recognize that they are partially fabricated.

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