

The more than human micropolitics of the research assemblage

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Abstract

Conventionally, scientific research has been regarded as a human activity or practice. In this anthropocentric perspective, the human researcher is centre-stage, with non-human matter – from the tools and instrumentation used to generate ‘data’ to the material substrates that constitute the subject-matter of research – relegated to marginal significance. In social research, a humanist emphasis has extended to encompass research subjects, with acknowledgement of the need to accommodate the interests and rights of respondents during the research process. This, however, has further marginalised the part that other matter plays in the research endeavour.

The more-than-human ontology of the new materialisms de-privileges such human agency, focusing instead upon how assemblages of the animate and inanimate together produce the world. This has fundamental implications for social inquiry methodology and methods. The chapter uses this post-anthropocentric perspective to re-think research as more-than-human engagements, in which multiple materialities contribute to the production of research findings, outputs and knowledge. Key to this exploration is the materialist notion of a ‘research-assemblage’, comprising not only human elements such as researcher, respondents and audience, but also research tools, data, contexts and material outputs. Using the ethological new materialist toolkit of Gilles Deleuze, the chapter applies the concepts of affects, assemblages and micropolitics to explore the more-than-human micropolitics of the research process. We then consider how a perspective on research as a more-than-human assemblage engages with the distinction between an axiom-driven ‘major science’ with the aim of representational and a ‘minor science’ that follows a phenomenon.

Introduction

In the post-Enlightenment era, scientific research has been regarded as foundationally a human activity or practice. In this anthropocentric perspective, the human researcher is centre-stage, with non-human matter – from the tools and instrumentation used to generate ‘data’ to the material substrates that constitute the subject-matter of research – relegated to marginal significance. Within social research, a humanist emphasis has extended to encompass research subjects, with acknowledgement of the need to accommodate the interests and rights of respondents during the research process (Berger, 1966: 188; British Sociological Association, 2017: 5-6; May, 1993: 44-47). This, however, has further marginalised the part that other matter plays in the research endeavour.

The emergence of more-than-human ontologies in recent social theory has posed challenges to the privilege accorded to human agency in modernism and humanism, focusing instead upon how assemblages of the animate and inanimate together produce the world. This has fundamental implications for social inquiry methodology and methods. A more-than-human (MTH) perspective on research entirely transforms not only how this enterprise is to be understood, but also challenges the underpinning objective of scientific inquiry as an effort to supply an accurate representation of the world – natural and social. This chapter sets out how an MTH ontology of the research process supplies an understanding of research-as-assemblage, in which the micropolitics of a multiplicity of human and non-human materialities produce the research findings, outputs and ‘knowledge’ that scientific inquiry generates during research.

However, this MTH and micropolitical perspective upon research is not simply a matter of adopting a post-humanist or post-anthropocentric terminology. An MTH understanding of research poses more fundamental questions about scientific inquiry itself. To explore these issues, the chapter situates an understanding of the research assemblage upon the distinction made by Deleuze and Guattari (1988: 291-292) between ‘major’ and ‘minor’ science, and addresses the challenges in recent MTH and new materialist ontologies to the view that research can accurately represent the realities that it studies (see, for example, Barad, 2007; Lather and St Pierre, 2013; St Pierre, 2021; Thrift, 2008). Consequently, the chapter first explores these two models of scientific inquiry, and how a more-than-human perspective on

scientific inquiry can replace representationalism with a model of science that ‘follows the action’ rather than attempting to discern truths or causality.

We then apply Deleuze’s (1988: 124-126) ‘ethological’ toolkit of affects, assemblages and micropolitics to make sense of the research assemblage as more-than-human engagements between the object of study, the tools of research, research contexts, research outputs, and the human participants in the research process, including researchers, respondents and audience. We conclude by considering the implications of the research assemblage for the practical endeavour of social inquiry, and offer a framework for more-than-human social inquiry methodology and methods.

Social inquiry beyond humanism

Approaches to social inquiry have often been differentiated in terms of a constructionist/realist dualism (Alvesson and Skoldberg, 2009; Lau and Morgan, 2014: 574). From a constructionist/post-structuralist perspective, social inquiry and the resulting knowledge generated are part of the process that constructs the social world we live in. Human actions, interactions, systems of thought, cultures and micro-processes of power together produce a socially constructed universe of multiple, relative realities (Fox, 2014). By contrast, from within a realist epistemology, social inquiry involves generating knowledge not only of surface phenomena of everyday life, but also revealing underlying mechanisms that generate these phenomena, which are not immediately accessible by simple observation. It is knowledge of this deeper objective reality, the realist argues, that is the main aim of social inquiry. So, for instance, critical realist investigation of well-being in older adults concluded that causal mechanisms associated with autonomy and control explained poor health outcomes (Danermark et al, 2002: 190-191).

However, these radically different epistemologies of research obscure a commonality between them: an ontology of social inquiry that privileges human agency within the research process. This anthropocentric inflection establishes a distinction between a human researcher and their object of study: with the former the active party, and the latter (whether chemical, biological or social) the passive material to be measured, observed, interrogated or otherwise subjected to scrutiny. Meanwhile the tools and techniques of research – from the test-tubes,

scales and scientific instruments of the laboratory through to the survey instruments, interview schedules and statistical techniques of social research – are also passive components within a human research endeavour.

Ontologies are often chosen in order to bolster the beliefs, commitments or needs of scholars or other interest communities (Morgan and Smircich, 1980: 499). As an ontological child of the Enlightenment, humanism – with its emphasis upon human reason as the means by which truths about the natural and social world could be gleaned – bolstered the emergence of scientific inquiry. Such human-driven scientific inquiry supplanted prior religious ontologies that treated such knowledge as something only to be revealed by the gods. As Carroll (1993: 117) suggests, in this Enlightenment era

(w)here truth illuminated the way, there was no need for religion. ... It formed and developed the major science of physics, chemistry and biology. It did the same with the new sciences of man, psychology, sociology, history and economics.'

Carroll's assessment ignores the later sidelining of humanism within science, as positivism's emphasis upon observational data became the driving force behind the development of the natural sciences (Tibbetts, 1982). However, as noted a moment ago anthropocentrism remains central to scientific inquiry and research methodology. Indeed, anthropocentrism is at its most apparent in positivist scientific inquiry, in which a human researcher is considered the sole protagonist, with the tools and techniques of research simply the means whereby evidence about the workings of the world may be extracted in the form of 'data' from the passive object of research.

From within this anthropocentric ontology, it is thus perhaps unsurprising that those working within scientific epistemologies (including realist and constructionist social scientists) have little to say (bar the broadest of commentaries) about the micro-workings of the research process. To ask, for example, what precisely goes on when applying stratified sampling or a telephone questionnaire? How does thematic analysis or the use of multivariate statistics produce particular kinds of knowledge about the researched topic? For natural science

positivists, assessment of these micro-workings is limited to considerations of how to apply rigorous scientific methodology to counter ‘bias’, ‘extraneous variables’ or other ‘threats to validity’ (Park et al, 2020). For social science post-positivists, concern with the unintended consequences of the research process is restricted to the impact of the human actors (researcher and researched), and how knowledge of the social world is inevitably ‘constructed’: first by research subjects’ interpretations of the events in which they are involved, and then subsequently by the researcher’s interpretations of these constructions (Fox, 2008). Rather than *describing* the social world, research and scholarship actually contribute to social realities. Thus, for example, Kitzinger (1987) argued that scientific research on non-normative sexualities has produced a series of contingent knowledges over time: from pathology to deviance to diversity.

By contrast, in this chapter, these micro-processes and micropolitics of research are the core focus in the critical analysis of research, via a posthuman, post-anthropocentric or more-than-human materialist ontology. While supplying insights into the power imbalances within the research process, and into the culture of social inquiry, this will also provide a means to peer into the detailed workings of social inquiry.

Central to this MTH ontology is the conception of a ‘research assemblage’ constituted from a multiplicity of human and non-human materialities, and held together by the capacities of these constituent elements to affect or be affected (Fox and Alldred, 2015a, 2015b). Many of these capacities are beyond the direct control or intentionality of human actors. Fox and Alldred’s development of this analysis of research-as-assemblage has been developed within the relational, post-anthropocentric and monist ontology of the range of perspectives in social theory known variously as new materialisms (Coole and Frost, 2010), vital materialism (Bennett, 2010) and ‘renewed materialism’ (Braidotti, 2022: 108).

These materialist threads within social theory have emerged over the past 20 years as an approach concerned fundamentally with the material workings of power, but focused firmly upon social production rather than social construction (Coole and Frost, 2010: 7). It radically extends the scope of earlier materialist analyses beyond structural and ‘macro’ level social phenomena (van der Tuin and Dolphijn, 2010: 159), to address issues often regarded as the

remit of ‘micro-sociology’ because of their association with how thoughts, desires and feelings contribute to social production (Braidotti, 2000: 159; DeLanda, 2006: 5). As well as this collapse of the micro/macro dichotomy, new materialist theory puts in question social theory dualisms including culture/nature, structure/agency, reason/emotion, human/non-human, animate/inanimate, inside/outside, and perhaps most importantly, mind/matter (van der Tuin and Dolphijn, 2010: 157).

Furthermore, new materialists such as Jane Bennett and William Connolly proclaim the vitality of all matter (Bennett, 2010: 2; Connolly, 2013: 400), displacing human agency as the prime mover of social production. This understanding flattens out distinctions between human and all the other stuff conventionally treated as our ‘environment’: all the disparate materialities that may assemble together within an event have capacities to affect — or to be affected by — other assembled matter (Deleuze, 1988: 101).

More specifically, the conception of a research assemblage derives from the ‘ethology’ of Gilles Deleuze (1988: 125-126, see also Deleuze and Guattari, 1988: 256-258). In this ethological ontology, assemblages rather than single bodies become the unit of analysis, as it is only when a body or a thing assembles with another body or thing that its capacities for action or reaction emerge (Deleuze and Guattari, 1988: 88-89). Any event or interaction may be considered as an assemblage of ‘affective materialities’. Later in this chapter the application of this ontology of assemblages and affects to research is fully developed.

However, Deleuze and Guattari’s work also supplies a broader context within which to set out a more-than-human perspective on social inquiry. Before exploring the research assemblage in detail, Deleuze and Guattari’s (1988: 367) contrast between ‘major’ and ‘minor’ scientific traditions, and their consequent critique of efforts of science to ‘represent’ the world it researches, provides a more-than-human foundation for the remainder of the chapter.

Major and minor science

For Deleuze, both singly and in his collaboration with the psychoanalyst Félix Guattari, the world that humans inhabit is dynamic and endlessly in flux. Furthermore, this world is enacted entirely upon what they called the ‘plane of immanence’ (Deleuze and Guattari, 1994: 35ff.), that is, the singular yet infinitely variable arena within which all events natural and social, all interactions, all desires, all lives are played out (Deleuze, 1997; Deleuze and Guattari, 1994: 47-48). In this monist ontology, there is no ‘other level’, above, below or beyond the everyday that make things happen ‘behind the scenes’, as has often been suggested in those sociologies (from Marx to Parsons to Luhmann) that call upon ‘social structures’ or ‘social systems’ to do the theoretical heavy-lifting when it comes to explaining social continuity (Connolly, 2011: 178); Fox and Alldred, 2018; Latour, 2005: 5-6).

In this ‘flat’ ontology (DeLanda, 2005: 51), without structures or systems to fall back upon as explanations of phenomena such as social stratification, inequalities or exploitation, the workings of power in new materialist theory is *micropolitical*, operating at the level of the everyday event. Deleuze’s philosophy of immanence is founded in his (1988) exegesis of Spinoza’s ‘monist’ philosophy, which rejected any notion of the transcendent, or of base/superstructure or surface/depth dualism. This ontology considers human bodies and all other material, social and abstract entities as relational, gaining contingent capacities in their interactions with other similarly contingent and ephemeral bodies, things and ideas (Deleuze, 1988: 123; Deleuze and Guattari, 1988: 261). Translated into social theory, a monist world-view focuses exclusively upon the forces and affects operating at the level of actions, interactions and events. Moreover, it shifts attention from essences and ‘being’ toward concern with matter’s (human and non-human) capacities for *becoming* (Deleuze and Guattari, 1988: 256). Consequently, the question to be asked is not what matter *is*, but what it can *do* (Fox and Alldred, 2017: 24).

Politically, this focus on change and becoming-other (Deleuze and Guattari, 1988: 238) underpinned the emphasis throughout Deleuze’s work upon the ‘minor’ and minoritarian strands in social life. Minor literatures (Deleuze and Guattari, 1988: 105), minor philosophies (Massumi, 1992: 2), and – pertinent to this chapter – minor science (Deleuze and Guattari, 1988: 368): all in opposition to what Deleuze and Guattari called variously the ‘major’, ‘State’ or ‘Royal’ mainstreams.

These minoritarian strands challenge majoritarian privilege and oppression (for instance, patriarchy, colonialism and anthropocentrism) in favour of the conventionally de-privileged, such as women, animal, child, person of colour (Deleuze and Guattari, 1988: 291-292). Deleuze and Guattari (1988: 291-292) sought to up-end this hierarchy, to promote becoming-woman, becoming-animal, becoming-imperceptible. This re-privileging of becoming and the minoritarian chimes with a range of other concepts with which Deleuze and Guattari pepper their writing, such as nomadology (1988: 23), de-territorialisation and lines of flight (1988: 277), smooth space (1988: 371, 478), the rhizome (1988: 7-10) and multiplicity (1988: 8-9).

However, Deleuze and Guattari's minoritarian emphasis not only challenges majoritarian privilege in social phenomena such as patriarchy, racism, colonialism and humanism, but also offers a new perspective on scientific efforts to reveal 'the truth' by providing definitive representations of the world through theories and axioms (DeLanda, 2016: 87-88; Deleuze and Guattari, 1988: 372). Deleuze and Guattari (1988: 364) described this neat equation of truth with representation as the basis of major science. This enterprise has the objective of creating universal explanatory 'laws' (DeLanda, 2016: 91), often rendered mathematically, as in Newtonian and Einsteinian physics (Deleuze and Guattari, 1988: 376).

Deleuze and Guattari suggested that alongside this model, a minor strand of scientific inquiry has run in parallel with major science for much of its history. Minor science, in their view, applies an alternative model of inquiry to representation: 'following'. This approach attends not to the stable and homogeneous, but to the flows and fluxes of unfolding phenomena (Jensen, 2018: 38). It is grounded firmly in observation of singular events (Deleuze and Guattari, 1988: 372) and to practical problems concerning how to intervene in the natural or social world (for instance to forge iron or build a bridge). Deleuze and Guattari (1988: 372) offered this analogy: rather than observing a river from the bank (the major science model of the disinterested researcher), get into the boat yourself and become part of the action.

Such a model of science as 'following the action' is actually a fairly accurate description of many social sciences, which have been either unable or unwilling to formulate 'laws' of social action and interaction, and have questioned on epistemological grounds the capacity to

‘represent’ a social reality that is highly mutable, and largely mediated via language, concepts and ideologies (St Pierre, 2013). Indeed, as DeLanda (2016: 87-88) has pointed out, classical physics is possibly the only true exemplar of a major science. Even a natural science such as chemistry has ‘followed’ the materiality of chemical phenomena for much of its history, rather than axiomising its subject-matter (DeLanda, 2016: 99; Deleuze and Guattari, 1988: 367-369).

In the contemporary period, this doubt over science’s claims to ‘represent’ the world accurately by means of theories and laws has been a feature of much new materialist and posthuman scholarship, which – generally speaking – has been ‘post-representational’ as a consequence. Apart from Deleuze and Guattari’s conception of minor science, other examples of this are Karen Barad’s (2007: 73) suggestion of ‘diffraction’ as an alternative to representation, Nigel Thrift’s (2008) non-representational theory, and St Pierre’s (2021, 2022) eschewal of all pre-determined methodology.

While these latter scholars regard any effort to shift social science toward a major key as foundationally misguided (see, for example, Barad, 2003: 815; St Pierre, 2021), it is worth noting that Deleuze and Guattari explicitly stated (1988: 372) that following is ‘(n)ot better, just different’ from representation. DeLanda (2016: 100-101) has developed this last point further, suggesting that within sciences, including social sciences, there are continual processes of becoming-major and becoming-minor, as methodologies develop and evolve.

In the spirit of DeLanda’s commentary, it is consequently appropriate to acknowledge a dynamic between minor and major social sciences, with some branches endeavouring to axiomise the fuzzy findings of minor science, while others continually undermine the certainties of major science. Indeed, this minor/major dynamic has been played out endlessly in the continuous evolution of social research methodologies, some of which (most notably, in economics and psychology, but also in quantitative sociology) have sought a social science knowledge that can reproduce the social world accurately and generalisably, while others aimed to undermine such efforts and promote a social science that is contingent, inventive and reflexive about its own biases.

Within the social sciences, there is a long tradition of engaged research that acknowledges multiple perspectives on ‘truth’. What the DeleuzoGuattarian analysis of major and minor science adds is an ontological and micropolitical basis for methodologies that are fully engaged with the phenomena they research. In contrast with the anthropocentric, researcher-driven emphasis of major science, a minor social science entails a more-than-human focus on the assemblages and affects that constitute the flows and fluxes of the social and natural world *and* the research process itself. With this in mind, this chapter will set out a perspective on research-as-assemblage. Before that, the next section establishes a conceptual framework within which to develop this understanding.

A more-than-human conceptual toolkit

Recent social theory has variously acknowledged MTH ontologies in which human actors are displaced from the centre-stage of anthropocentric and humanist ontology. Actor-network theory (ANT), originally developed to inform empirical studies of science and technology studies (Callon, 1986; Latour, 1999, 2005), ascribes agency not to humans or other entities, but to transient relational networks (Law, 1999: 4) comprising both human and non-human ‘actants’ (Latour, 2005: 54). These networks are consequently heterogeneous, and extend beyond what is traditionally considered ‘social’, to include ‘texts, devices, architectures’ (Law, 1992: 379). In Karen Barad’s ‘onto-epistemology’, matter – both human and non-human – does not possess prior fixed attributes, but rather capacities that emerge in the context of ‘intra-actions’ between these materialities (Barad, 2007: 73). The Spinozist philosophy of Deleuze (1988; Deleuze and Guattari, 1984, 1988) focused upon transient and unstable assemblages of animate and inanimate entities that exist only in relation to other (similarly contingent and ephemeral) elements (Deleuze and Guattari 1988: 260-261). All social production, social formations, power relations and resistances emerge from these affective flows, which bring together micro and macro, personal and geopolitical (Deleuze, 1990: 207; Gatens 1996: 169).

Given the earlier discussion of Deleuze and Guattari’s acknowledgment of minor and major scientific threads, there is some logic in applying the latter Spinozist ontology. Moreover, Deleuzian ontology has the potential to inform social inquiry, partly because of its empirical focus on processes and interactions, but also because it addresses social science interests in

both power and resistance, and offers a means to move beyond structure/agency and culture/nature dualisms (van der Tuin and Dolphijn, 2010). In an interview (Dolphijn and van der Tuin, 2012), Braidotti described the DeleuzoGuattarian project as ‘a method, a conceptual frame and a political stand, which refuses the linguistic paradigm, stressing instead the concrete yet complex materiality of bodies immersed in social relations of power’.

The key concepts of Deleuze’s ‘ethological’ ontology, and its differentiation from a traditional ‘anthropocentric’ social ontology can be summarised in a few paragraphs. Firstly, Deleuze shifted from conceptions of objects and bodies as occupying distinct and delimited spaces (Law, 1999: 6). Instead, human bodies and all other material, social and abstract entities are *relational*, gaining capacities only in their relationships with other similarly contingent and ephemeral bodies, things and ideas (Deleuze 1988: 123; Deleuze and Guattari 1988: 261). *Assemblages* (Deleuze and Guattari 1988: 88) of these materialities develop in unpredictable ways around actions and events, ‘in a kind of chaotic network of habitual and non-habitual connections, always in flux, always reassembling in different ways’ (Potts, 2004: 19), and operate as ‘machines’ (Deleuze and Guattari, 1988: 4) that do something, produce something. Assemblages develop at sub-personal, interactional or macro-social levels (DeLanda, 2006: 5), and have an existence, a life even, independent of human bodies (DeLanda, 2006: 40; Ansell-Pearson, 1999: 157-9).

Deleuze’s second move was to replace the conventional conception of human agency with the Spinozist notion of *affect* (Deleuze, 1988: 101), meaning simply the capacity to affect or be affected. In an assemblage, there is no ‘subject’ and no ‘object’, and no single element possesses agency (Anderson, 2006: 736). Rather, an affect is a ‘becoming’ (Deleuze and Guattari, 1988: 256) that represents a change of state or capacities of an entity (Massumi, 1988: xvi): this change may be physical, psychological, emotional or social. Affects produce further affective capacities within assemblages (Deleuze and Guattari 1988: 400); and because one affect can produce more than one capacity, social production is not linear, but ‘rhizomatic’ (Deleuze and Guattari, 1988: 7), a branching, reversing, coalescing and rupturing flow. Thus, for example, a sexual desire is an affect that may have multiple and unanticipated effects on bodies, resources, interactions and even social institutions such as monogamy.

Third, assemblages and the affects within them constitute the entirety of the natural and social world; there is nothing beyond this immanent universe. In place of top-down power, there is a *micropolitics* that flows through the world, rendering assemblages constantly in flux. Specifying or 'territorialising' affective flows stabilise an assemblage, while other affects generalise or 'de-territorialise' what it (and its constituent more-than-human elements) can do (Deleuze and Guattari, 1988: 88-89). Affects may also aggregate matter within assemblages, while other affects are non-aggregative or 'singular', affecting a single body or other materiality in an assemblage in a unique way. So, for example, naming a new pet kitten is a singular affect, while categorising it as tabby or tortoiseshell is aggregative. These fluxes within and between assemblages create an 'economy' of affects (Clough, 2004: 15) and are the process by which lives, societies and history unfold, 'in a world which is constantly becoming' (Thrift 2004: 61).

These concepts: assemblages, affects, capacities and micropolitics together supply the means to launch an MTH analysis of social research. Conventionally, social inquiry (like other scientific inquiry) has been anthropocentric, regarding the researcher as the prime mover in the research enterprise, whose reason, logic, theory and scientific method gradually imposes order upon 'data' to supply an understanding, however imperfect, of the world (and its social construction). By contrast, a materialist ontology of assemblages and affects treats the researcher and the researched event, plus the many other materialities involved in social inquiry such as the tools, technologies and theories of scientific research, as elements in a *research-assemblage*. This research assemblage is productive of a variety of capacities in the human and non-human matter thereby assembled. The following sections develop this MTH concept of the research-assemblage.

The research assemblage

From within the ethological perspective just outlined, every interaction, every event is to be understood as a more-than-human assemblage, brought into being by the affects between the different materialities that are interacting. So, for instance, a shower of rain is an assemblage, constituted from affects between the Sun, wind, clouds, seas and the land and organic matter it falls upon. If this shower falls upon humans, then they too become part of the assemblage,

perhaps along with raincoats, umbrellas, places to shelter and so forth. From within this same perspective, it follows that meteorological or social research into rain needs to be able to explore these affects and the capacities that it produces in constituent elements of the assemblage.

A further consequence of this ontology is that research must itself be acknowledged as an assemblage with its own affect economy. A research assemblage (Coleman and Ringrose, 2013: 17; Fox and Alldred, 2015a, 2015b; Masny, 2013: 340) will comprise research tools such as questionnaires, interview schedules or other apparatus; recording and analysis technologies, computer software and hardware; theoretical frameworks and hypotheses; research literatures and findings from earlier studies; and of course, researchers. To this may be added contextual elements such as the physical spaces and establishments where research takes place; the frameworks, philosophies, cultures and traditions that surround scientific research; ethical principles and ethics committees; and the paraphernalia of academic research outputs: libraries, journals, editors and reviewers, and readers. The affects assembling these disparate MTH relations are those needed to conduct ‘research’: that is, to gather ‘data’, analyse it, and produce a report that makes some claim to ‘knowledge’ about the event studied.

Importantly, once research begins, the events to be researched also become part of the research assemblage. This insight has significant consequences for what a research assemblage can do, but also for the micropolitics of research, as the affects in an event and the affects associated with the research process intermingle. To explore this interaction, consider a more-than-human event *E*, such as the study of sexualisation and online pornography use among teenagers reported in Fox and Bale (2018). The human matter in this event assemblage included teenagers, family, teachers, school/college and celebrities. Non-human matter included parties and social events; alcohol; media and pornography; contraceptives; sex education classes and materials; and paraphernalia of youth culture such as music, vehicles, skateboards and mobile phones (Fox and Bale, 2018: 399). These human and non-human materialities affected each other, thereby establishing the event assemblage that was sexualisation.

When *E* became the focus of a research study (which is itself another event *R*), the aim of the research was to apply methods that could document the affects ('ABC') within the *E* assemblage and assess the capacities that these affects produce. However, the research assemblage *R* included all the MTH paraphernalia of academic inquiry described earlier in this section, assembled by the affects ('XYZ') that enable social inquiry and the translation of 'data' into 'knowledge' about *E*. However, if *R* was to successfully document, analyse and eventually textually report *E*, it must necessarily have possessed the capacity to be affected by the event affects ABC, in the sense that a research instrument or conceptual tool must be sufficiently sensitive to be useful as an indicator.

So during research, the research assemblage encompasses the affects of the event that it is studying. This 'hybrid' assemblage is brought together by the affects in both *R* and *E*, namely A, B, C, X, Y and Z (Fox and Alldred, 2015a). However, this capacity of a research assemblage to incorporate event affects poses two opposing hazards for any research study, including the study of sexualisation and pornography (Fox and Bale, 2018). First, if the XYZ affects in the research-assemblage *R* are puny, then the ABC affects in the event *E* will overwhelm them, generating research outputs that are anodyne or merely descriptive, theoretically uninformed, journalistic rather than critical. Alternatively, if the affects XYZ within the research-assemblage *R* are too powerful, then – as the research seeks to analyse, apply theory, summarise, generalise and assert knowledge of *E* – the flow of affect in the event assemblage could be submerged by the research affects. In this latter circumstance, the 'knowledge' of *E* that is produced will be more a product of the research process than of *E* itself. For instance, some scholars of sexuality have suggested that the affects within modernist human science research have been so overwhelming that contemporary 'sexuality' has been entirely constituted by expert 'knowledge' (Foucault, 1981; Kitzinger, 1987).

This analysis of the hybridisation of event and research assemblage affect-economies sheds light on the challenges faced by all research studies, but also bring this analysis back to the earlier contrast between major (representational) science and minor (following) science. Arguably, the second hazard just described (a research assemblage whose affects overwhelm an event assemblage) is particularly problematic in the axiomatising affect economy of major science, while the following model of minor science risks falling into the first hazard (an

inadequately-robust research assemblage). However, this analysis also permits a sophisticated further exploration of the research assemblage, which has the potential to chart a course between these hazards, or at least to acknowledge their consequences for the ‘knowledge’ that research produces. The next section develops this assessment.

The micropolitics of the research assemblage

How event, instruments and researchers interact will depend upon the affective interactions within a specific research assemblage. Fortunately, the ethological conceptual toolkit of affects, capacities and micropolitics enables a more granular analysis of these interactions. Deleuze and Guattari (1988: 4) described assemblages as constituted from a collection of simpler ‘machines’ that link elements together affectively to do something, to produce something. They consequently suggest a very practical question for analysing assemblages: ‘given a certain machine, what can it be used for?’ (Deleuze and Guattari, 1984: 3). This question offers a way into the analysis of how different research methodologies and methods work.

The stages in social research (design, data collection, data analysis and reporting) can be seen as a series of such simple machines, linked by a flow of affect that takes an ‘event’ (defined as any interaction between bodies, things, settings, social formations that causes matter to assemble and affects to flow) as its focus for study and produces ‘knowledge’ in the form of research outputs. A data collection machine turns aspects of an event into ‘data’, while a analysis machine processes this data according to specific rules of logic, deduction or inference to produce ‘findings’ in the form of generalities or summaries (Jackson and Mazzei, 2013). A writing machine takes these outputs of data analysis and creates knowledge products for dissemination: theory, policy and practice implications and so forth.

These methods and techniques will vary from discipline to discipline and from methodology to methodology. For instance, meteorological research into a severe event such as a hurricane will employ physical apparatus to measure rainfall or atmospheric pressure; a social inquiry of the same event would use interviews, questionnaire or observational methods to explore the effects of the storm upon humans. The former may make use of the ‘laws of

physics' and mathematical formulae to analyse the phenomenon; the latter might interpret the data using social science theories of collective behaviour or risk-taking.

This machinic analysis opens to scrutiny the *micropolitics* of affects as a research-assemblage interacts with its object of study. Different methodologies, methods or theoretical frameworks will specify what research can or cannot do, and what kind of 'knowledge' they produce (Jackson and Mazzei, 2013: 263). Analysis of research methods and techniques as machines designed to shape how affect flows between elements in the research assemblage means that a change of methodology (for instance, from survey to ethnography) or of data collection or analysis method will significantly alter these flows, and thus upon what emerges from the research-assemblage.

First, these micropolitics act at the level of research designs. For example, in a randomised controlled trial of pharmaceutical versus psychotherapeutic treatments for erectile dysfunction, controlling the experimental conditions and use of statistical techniques together limit the affective capacities of those 'confounding' elements (such as cultural or sub-cultural beliefs) found in 'real-world' settings, enabling a researcher to model the 'uncontaminated' effect of independent upon dependent variable. By contrast, a 'naturalistic' study of sexual behaviour would aim to limit the affective influence of the researcher upon the research process by allowing respondents to 'speak for themselves'.

Second, there is a micropolitics associated with each and every method or technique used in research. For instance, analytical strategies in much social research can impose order or otherwise shape conclusions. Consider, for example, the MTH affects in the simple research-machine that enables a questionnaire to gather data. These require a question to be asked, an answer to be supplied, this answer to be recorded and possibly allocated to a pre-coded category, and the instrument to be applied consecutively and independently to each respondent in turn, generating completed questionnaires ready to be fed into an analysis machine. Micropolitically, this questionnaire machine acts as a filter on the affect economies of study events, extracting only certain data, and categorising it according to the affect economy of the instrument rather than of the event itself. Similarly, thematic qualitative data analysis is a machine that (manually, or via software) organises and reduces non-numerical

data, making it more manageable and amenable to systematic reporting. A pre-analysis code-generation affect first allocates a code to a range of similar textual occurrences, while a second aggregating affect takes each piece of data in turn and codes it according to this scheme, thus imposing an analyst-defined aggregation upon the disparate data from an event. Both these methods/machines thus use aggregating affects that categorise or simplify event-assemblage affects; this is a feature of many other machines commonly used in social inquiry (Fox and Alldred, 2015b). Analysis of a wide range of commonly used methods, tools and techniques in social inquiry has revealed the micropolitics associated with each (Fox and Alldred, 2015a). Unsurprisingly, many of these research machines shifted control of events studied firmly toward the researcher, confirming that research is in no sense a 'neutral' event.

However, while acknowledging that (as both assemblage and event) research possesses an affect economy that inevitably imposes itself and thereby alters the flows it would study, insight into the micropolitics of research assemblages and machines offers the potential to design research-assemblage machines that can limit their territorialising and aggregative effects. Each machine in a research assemblage: the data collection machine, the validity machine, the analysis machine and so on, may be reverse engineered to identify affects that may influence what 'knowledge' a particular research design or method generates. Wherever possible, efforts can be made to reduce aggregating affects, substituting wherever possible singular flows that do not disrupt the existing affective flows of the assemblage being studied. For instance, a machine that simply counts occurrences of specific human or non-human matter or the affects between these materialities has no immediate effect upon what is counted other than to produce a number. Those aggregations that remain can be subsequently acknowledged and their impacts predicted, probabilistically if not absolutely. This can alert both researcher and research users to the limits of a research study and its conclusions.

Discussion

By exploring research as a more-than-human process, this chapter has shifted understanding of research from an anthropocentric perspective toward an acknowledgment of the part that the non-human and the inanimate play in scientific inquiry, while down-playing an emphasis on human behaviour, experiences and subjectivities. Situating this re-assessment firmly

within the immanent ontology of Deleuze and Guattari has enabled an elaboration of this insight into what research does, and how it turns an event into ‘knowledge’ or policy.

First, it has enabled exploration of research as a more-than-human and relational assemblage that engages with the myriad assemblages that comprise the entirety of the natural and social world, *sans* structures, systems or mechanisms. Second, it attends to the impersonal flows of affect in these assemblages and the capacities they produce, suggesting that the task of research is not to disclose or represent an underlying and stable ‘reality’, but instead to attend to the production and becomings of fleeting, unstable assemblages. Finally, it unpacks the complex assemblages that constitute scientific research, and further dis-assembles these into a series of machines, each of which can be subjected to micropolitical assessment.

The third of these is perhaps of greatest methodological significance, as it supplies a means to peer deeply into the ‘black box’ of scientific inquiry, to identify not only the intended consequences of particular research designs or methods, but also the more-than-human *unintended* consequences, including the ways in which particular methods and designs shape the ‘knowledge’ that they generate when a method or other research technique engages with the event being explored. This is a direct opportunity afforded by the application of a Deleuzian ethological toolkit, one not available in other MTH ontologies such as Baradian ‘diffractive methodology’ (Fox, 2021), or indeed constructivist critiques of research as productive of the very events it attempts to represent (Gergen, 2004: 184). To reiterate, what is enabled is the micropolitical assessment of each element of a research design, in terms of the balance between event and research process. Every method, tool or technique used in a piece of (social) scientific research may be evaluated to assess its effects on ‘data’. Where the affect economy of a method or technique threatens to overwhelm the affects in the event, it may either be replaced, or alternatively, its effects on the findings of a research study acknowledged.

This MTH analysis of the micropolitics of the research assemblage points back to the previous discussion of Deleuze and Guattari’s differentiation between ‘major’ and ‘minor’ science models, and the contrast between the axiom-driven approach of the former and the ‘following’ methodology of the latter. Readers will recall that earlier in the chapter, two

opposing hazards in scientific inquiry were identified. On one hand, if the affect economy of a particular research assemblage overwhelms the affects in the event studied (for instance by imposing a researcher-driven selection bias or an aggregating structure upon data), then the research will re-construct the findings of the study in its own image. By contrast, if the affects in the research assemblage are inadequate to provide more than a surface account of the phenomenon being studied (for example, by exploring a very limited sample, or asking anodyne questions in an interview), then the conclusions drawn by researchers are unlikely to provide novel insights in the topic of study.

Identifying these two hazards in many ways re-makes the poles of Deleuze and Guattari's major/minor opposition. The first of these describes the kind of 'major' axiom-driven research of a natural science such as physics or astronomy or even economics, in which data are quantified and fed into mathematical formulae in order to *represent* the topic studied. The second reflects the *following* model of minor science, in which researchers effectively become part of the phenomenon they are exploring, losing their purported 'objectivity'. However, the micropolitical analysis of the research assemblage and its constituent research machines has supplied far more granularity to a more-than-human account of research than this simple dichotomy of major/minor. It has suggested that a research assemblage comprises a complex affect-economy and that within any specific research assemblage there may be affects that contribute to a major science, representational paradigm, while others promote a minor, 'following' agenda for a research project.

This more nuanced account chimes with DeLanda's (2016: 100) suggestion that – rather than a strict distinction between major and minor sciences, within any scientific discipline there are continuous fluxes of becoming-major and becoming-minor. The analysis of the research assemblage indicates that the enterprise of research is shot through with this flux of becoming, even down to the level of the specific research machines that comprise a particular research design. This assessment cuts through simplistic distinctions between the natural and social sciences: even in a discipline such as physics or chemistry there are moments of becoming-minor; even in sociology or social geography research methods and techniques may shift research towards becoming-major. On occasions (such as when assessing policy or practice options), there may be utility in pursuing scientific rigour at the expense of depth of

insight into phenomena; on others (for instance, when conducting exploratory research or surveying a new phenomenon) the insights that derive from a ‘following’ methodology can be far more important than generalisability (external validity). As such, this ontology of the research assemblage has the potential to overcome the long-standing rhetorical opposition in social research methodology between realism and constructionism. In its place, it invites a more holistic understanding of what a social science can do.

In conclusion, this chapter has picked up and run with the proposition that research can usefully be understood as a more-than-human assembling of multiple materialities, rather than an anthropocentric enterprise in which a researcher is pre-eminent. With this shift in ontological focus, research is revealed as underpinned by an affect-economy that is complex and sometimes contradictory, but whose critical assessment is crucial to any effort to make sense of – and change for the better – the natural and social world.

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