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A New Sociological
Imagination

Olli Pyyhtinen





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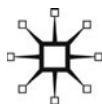
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▶ **More-than-Human
Sociology: A
New Sociological
Imagination**

Olli Pyyhtinen

Professor of Sociology, University of Tampere, Finland

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Introduction: Bringing Imagination Back In

Abstract: *This chapter outlines the topic, main objectives, and structure of the book. It identifies the pathologies distorting the traditional virtues and calling of sociology, and suggests how the sociological imagination needs to be restructured. To render sociology responsive to the ever-more complicated world, the chapter argues that it is important, first, to take seriously the share of objects and materials in the constitution of our living together; second, to liberate sociological thought from the reifying mode of thought by beginning from relations, alloys, and assemblages; and, third, to refute the micro–macro model and attend to the multiplicity of scales on which things exist.*

Keywords: matter; Mills; relations; scale; the sociological imagination

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The book at hand is a call for a bolder, more creative sociology. The prevailing sociological modes of speaking and thinking are not particularly imaginative. Sociology has by and large gotten stuck in a reactionary anthropocentric ontology and remains trapped in reifying, substantialist thought that closes entities upon themselves. Also, when trying to make sense of the world that is ever more complicated, much of sociological scholarship still relies on a largely pre-given vertical hierarchy which fixes things on just two scales, with micro-level phenomena on the bottom and large macro-scale forces and structures at the top. Sociological thought is thereby in need of restructuring. This book aspires to bring sociological imagination back to life as an adventure of ideas and experimental creation of concepts and to thus move the discipline of sociology forward into the 21st century.

Obviously, I'm immensely inspired by the critical ethos of C. Wright Mills' *The Sociological Imagination* (2000 [1959]). Challenging the dominant schools of sociology of the time, which he accused of distorting the old virtues and calling of the discipline, Mills' work presents an incitement to a radical sociology. One manifestation of the pathological distortions resulting from disciplinary closure, fine specialization and moral indifference was for Mills what he calls 'Grand Theory'. Its practitioners operate on such a high level of generality and formalism that they are unable to get down from the highest generalities to making sense of everyday experience. Mills regarded the work of Talcott Parsons as the exemplar par excellence of grand theories in American sociology. The other pathology of sociology mentioned by Mills is what he termed 'abstracted empiricism'. Parallel to the fetishism of concepts that is characteristic of grand theory, abstracted empiricism fetishizes the methods of inquiry. It reduces the practice of doing research to technicalities, and the problems it treats are largely dictated by the methodology employed. According to Mills, this approach leads to a severe 'methodological inhibition' (p. 50), by which he means that 'the kinds of problems that will be taken up and the way in which they are formulated are quite severely limited by The Scientific Method' (p. 57).¹

I feel that Mills' diagnosis of the distorted nature of sociology still holds water today, though the pathologies may now have slightly different manifestations. Today, the dominant schools of sociology are no longer grand theory and abstracted empiricism but, as Thomas Kemple and Renisa Mawani (2009, p. 235) suggest, it would perhaps be more apt

to call them ‘abstracted theoreticism’ and ‘grand empiricism’: whereas the first tends to strip theory down ‘to operationalizable concepts and hypotheses’, for the latter method amounts to ‘quantifiable and correlatable variables’. The result nevertheless remains the same. Sociologists have turned into disciplinary specialists who are able to talk only to other sociologists and social scientists. In Mills’ vision, by contrast, sociology should contribute to resolving the most significant and urgent questions of our time. It should be of relevance to both public issues and to personal troubles and experiences. It should convey its ideas to a broader audience outside the academy and, to succeed in this task, one should avoid the ‘turgid and polysyllabic prose’ that in his view prevailed in the social sciences at the time and instead present one’s work ‘in as clear and simple language as your subject and your thought about it permit’ (Mills, 2000 [1959] p. 217).

Consequently, Mills stresses the public and moral mission of social scientific studies. For him, the political task of the social scientist is ‘continually to translate personal troubles into public issues, and public issues into the terms of their human meaning for a variety of individuals’ (p. 187). Mills’ view of the post–World War II American society and his contemporaries was ‘rather bleak’ (Treviño, 2012, p. 25). It was especially the new middle class of specialists, managers and bookkeepers of which he was highly critical. Mills found the new middle class to be apathetic and indifferent. Not only did they not know their place in history and society, but they also did not even care about such matters. This gave Mills reason to describe them scornfully as ‘cheerful robot[s]’ (Mills, 2000 [1959], p. 171). According to him, in their everyday lives people are often ‘bounded by their private orbits in which they live’, and therefore they are incapable of looking at their experiences and personal troubles beyond ‘the close-up scenes of job, family, neighborhood’, in relation to and from the perspective of the big picture of society (p. 3). However, Mills argues that the life-chances of individuals are always interlinked with wider social circumstances. The experiences and fates of the individual are tied to the historical era in which one lives, and one’s possibilities of getting along in life depend not solely on oneself, but on others as well. For Mills, the sociological imagination has radical intellectual and political potential in that it can enable people to acquire a lucid understanding of what is going on in the world and how that relates to and affects their own lives. It has the ability to help people not only to better understand their place in their epoch but also to take

their lives into their own hands and become active participants in the making of history.

Accordingly, the theoretical backbone of Mills' book is the idea that the individual and society cannot be understood apart from each other. On the one hand, the individual is an upshot of society and its historical dynamics. And, on the other hand, with their lives and actions individuals also affect – to a lesser or greater extent – the making of society and the course of its history. In other words, then, for Mills the sociological imagination connects *biography* and *history*. It is 'the capacity to shift from one perspective to another' (Mills, 2000 [1959], p. 7), from the individual to the social and back. Mills maintains that the sociological imagination makes it possible to understand broad historical changes from the perspective of what they mean to the lives, fates and experiences of individuals, and what the individuals could do about the prevailing state of affairs.

In stark contrast to the then prevailing idea of a highly specialized profession, Mills portrays sociology as craftsmanship – something with which I greatly sympathize. He proposes that sociology is to be conceived and conducted as the practice of a craft. What I find wonderful about this idea is that it turns attention from the results of sociological research and from crystallized ideas and theories to the *practices* of doing sociology. It thereby proposes a turn from sociology as a dogma to sociology as a craft or practice. It emphasizes the importance of cultivating one's skill to the full and working towards the perfection of the fruits of one's thought. Thus, besides intellectual curiosity, a social scientist must possess professional pride to 'do a job well for its own sake', as Richard Sennett (2008, p. 9) defines craftsmanship.² And, instead of endorsing rigid methodological procedures and a specialization based on the technical skills of using particular methods or theories (in terms of which sociological craftsmanship seems to be widely understood today), according to Mills it is more important to stimulate and develop the sociological imagination. This is because for him imagination precedes technicalities. '[T]echnical understanding develops through the powers of imagination', as Sennett (2008, p. 10) puts it.³ In other words, to prevent them from becoming a straitjacket, methods and theories should in Mills' suggestion be employed in a manner to set the sociological imagination free. They should increase our sensibilities; create new possibilities for thinking, acting and being; and create a break with the given. A 'new idea introduces a new alternative', as philosopher Alfred North Whitehead

(1978 [1929], p. 11) suggests. And time is ripe for new ideas. We not only need to counter the aforementioned pathologies of abstracted theoreticism and grand empiricism, but also to reconsider the sociological imagination. In short, the sociological imagination needs to be revised, in relation to the transformations of life and the human condition.

Imagining matter, relations and scale differently

In recent years, there's been a widespread engagement with reassessing the sociological imagination. Besides the many articles and books engaging directly with Mills (e.g., Fraser, 2009; Kemple & Mawani, 2009; Gane & Back, 2012; Treviño, 2012; Scott & Nilsen, 2013), there are also several scholars committed to developing new ways of doing sociology so that the discipline would better respond to life in the 21st century. The key outputs include, for example, *The New Sociological Imagination* (2006) by Steve Fuller, *Live Methods* (2013) edited by Les Back and Nirmal Puwar, David Beer's *Punk Sociology* (2014), *Reassembling the Social* (2005) by Bruno Latour, Manuel DeLanda's *A New Philosophy of Society* (2006) and *A Different Society Altogether: What Sociology Can Learn from Deleuze, Guattari, and Latour* by Roar Høstaker (2014).

My own book comes close to these titles in that it shares with them the aim to restructure the sociological imagination. Fuller's *The New Sociological Imagination* obviously announces this ambition the most explicitly. However, as it centres especially on the entanglement of biological and sociological themes and discusses issues like socialism, religion and the challenge of naturalism, Fuller's book has an entirely different focus than mine. What is more, it is not accidental or just for the sake of drawing a fine line between the two books that I use the indefinite article 'a' instead of the definite article 'the' in the subtitle. The present book is intended as a kind of manifesto for *a* new sociological imagination, not for *the* new sociological imagination. While I am admittedly trying to set out something like a programme here, the book is at the same time also an exploration into what and how we *could* think. It has not been my aim to write a new *Rules of Sociological Method*, but the purpose of the book is to stimulate and enrich the sociological imagination and set it free.

This ethos is what I share with Back and Puwar's (2013) edited volume and the punk attitude of Beer (2014). However, while Back and Puwar's

Live Methods and Beer's *Punk Sociology* concentrate more on the ways of doing sociology and on the nature of sociological knowledge, mine is what you would call a 'theory book' in that it tends to focus on substantial themes and concepts.

Perhaps the closest point of comparison can be found in Latour's *Reassembling the Social* (2005), which the present book to some extent even takes as a model or paragon of some sort. With it, the book shares the effort of rethinking the social and developing an alternative social theory.⁴ I am also very sympathetic to Latour's work and take up several of its themes and insights. However, the two books differ in their substantial and analytical aims and focus. While Latour does stand as one of my most significant sources of inspiration and information, unlike Latour's the present book is not a plea for actor-network theory (ANT). Rather, it draws on a wider variety of sources and approaches, such as the work of Gilles Deleuze, Michel Serres and Georg Simmel.⁵

The insistence on the relevance of Latour and Deleuze for sociological inquiry connects the book to the works of DeLanda (2006) and Høstaker (2014), of which the first draws especially on Deleuze while the latter tries to demonstrate the relevance of Latour, Deleuze and Félix Guattari for sociological theory. However, unlike them I engage explicitly with the concept of the sociological imagination.

In this book, my main argument is that to render the sociological imagination responsive to life in the 21st century it needs to be revised in three respects:

First, we need to reassess the being, status and scope of *relations*. Our lives are marked by unprecedented connectivity, extending well beyond by our niche. By our consumption, for example, we are likely to be connected to producers, suppliers, shopkeepers and marketing campaigns; we may take part in the working conditions of workers in a sweatshop in China, in the creation or loss of jobs in a factory in Germany and in the fluctuation of prices in the global stock market; the availability of products may be affected by hot weather damaging wheat crops in the U.S. Great Plains or by international sanctions against certain countries; and, by throwing things away we contribute to the mounting masses of waste resulting from overconsumption and waste of resources on a societal scale. Prevailing sociological thinking, however, is not very well equipped to get a handle on these webs of interconnections. This is because sociological concepts tend to be reifying. As I already suggested above, the prevalent sociological imagination

is substantialist in nature: for it, the social world consists of entities of various sorts, from individuals, groups, institutions and social systems all the way to society itself. And while Mills insists on connecting the individual and society, like so many others he, too, takes them as given units of analysis. Instead of starting from individuals and their actions or from society and its structures, this book sets out to ‘liberate’ sociological thought from the reifying mode of thought by beginning from relations, associations, alloys and assemblages. While relations have of course been paid some attention in the tradition of sociology, it is only with few exceptions that they have been considered in *relational* terms. On the contrary, relations are typically understood primarily on the basis of beings, for example as something possessed and/or caused by individuals or structures. Drawing upon the work of the likes of Simmel, Gabriel Tarde and Latour, on the pages of this book (especially in Chapter 2) I argue for a relational mode of thought. Centring on interdependencies, togetherness and being-with, it places relations into the heart of sociology.

Second, we need to think *matter* differently. The sociological lens is in need of readjusting for it to become sensitive to the multiple non-human or not-only-human objects and materials – from, say, viruses, genes and tsunamis to foodstuffs, metro trains, credit cards, houses, computers and waste – as candidates for social existence. Sociological accounts of the world tend to give primacy to human agency and privilege language, meanings and culture. Mills, too, placed emphasis solely on human actors, disregarding the world of matter and materials.⁶ In contrast to this, I argue that it is pivotal to take matter and materials into account when examining the making of our common everyday world. Nothing is constructed *only* ‘socially’, but reality is produced in and by practices bringing together all sorts of agents, only some of which are humans. This is to say that the practices of construction involve not only humans with their beliefs and linguistic formulations, but they also mobilize a vast array of non-human or more-than-human artefacts, materials and flows.

Let me emphasize that the insistence on materials and material stuff as key elements of human collectivity should not be understood as a reductionist argument, as a plea for ‘materialism’. Unlike age-old materialism had it, I am not maintaining that everything is ultimately reducible to matter. Nor am I suggesting any duality of matter and discourse. Matter and discourse are ontologically interrelated;⁷ any divide between them is a product of boundary-making practices. Therefore, the widely used conceptual pair matter–discourse does not make a good point of

departure to begin with, because it cuts the world in two. The problem with such a bifurcation is that it would be utterly futile to try to define to which sphere each entity or phenomenon ultimately belongs. There is not much sense in asking whether money, the family or bird flu, for instance, are discursive or material, since they are muddled and mixed in manifold ways, consisting as much of soft signs, values, practices, norms and interaction as of heterogeneous stuff, materials and things. Matter vs. discourse is not the fundamental gap structuring the real.⁸ In the practices of doing research, too, one never jumps directly from discourse to matter, from language to the world, but one proceeds on an intermediate path (see Latour, 1999a).

To take seriously the share of objects and materials in the constitution of our living together implies an approach very different from that which analyses matter in terms of mass, volume, or molecular make-up. It is to interrogate objects and materials in terms of their powers, that is, what they are *capable* of. Matter and materials – from technology, commodities and edibles to UV rays, storms and chemicals, just to name a few – are endowed with generative, inventive powers and dynamism. While we have always been entangled with various materials and objects, in our own era technological and bio-scientific advancements have multiplied the amount of non-human things and materials around us and alongside us.

Third, and finally, the book stresses that we need a new *scalar imaginary* for sociology. Sociologists have typically conceived the world in terms of two levels (of analysis), the micro and the macro. Such bifocal scale risks reductivism. As I will argue in more detail later, the micro-macro distinction is often assumed as a transcendental model in accordance to which phenomena are ordered. Attempts at bridging the gap between them do not abolish the verticality but only reproduce it or adjust it.⁹ Consider for example Mills, who emphasized that sociological studies cannot confine themselves to either individuals or society alone, but that it is important to connect the two, for the one cannot be understood without the other. As he writes: ‘The sociological imagination [...] in considerable part consists of the capacity to shift from one perspective to another, and in the process to build up an adequate view of a total society and of its components’ (Mills, 2000 [1959], p. 211). Such a shift from the individual frame to the social context, however, implies a *jump* from one level to the next, and thereby misses important steps, as the scales of entities are much more varied than the assumed ‘micro’ and ‘macro’. As

Latour notes: 'All too often social theory still inhibits this utopian world where the zoom is possible. It really believes that we can slide from the biggest to the smallest, and then wonders how the microscopic – face-to-face interaction – manages to remain meaningful despite the crushing weight of the macroscopic' (Latour & Hermant, 2006, p. 59). Instead of jumping scales from the contextualized to the context it is therefore important to follow the relays of actions and associations. I will argue that entities are best examined as assemblages through the connections of their components and their connections to other assemblages and their components. With regard to scale, this is to say that we need to 'change the very vehicle that serves to study totalizations' (Latour & Hermant, 2006, p. 96): no zooming in and zooming out, but travelling in and through conduits. The occurrence of each relation needs to be explained and tracked carefully.

Given the above sketched lines of enquiry, it goes without saying that the 'new' sociological imagination proposed by the present book is of a particular kind.¹⁰ For example, the reader will notice that I have picked several of my examples from science and technology studies (STS). The choice has to do not only with the fact that I have done some research within the field and have all the greater interest in it (we all have our soft spots and biases), but I also think that STS literature has made a significant contribution to social theory and opens paths to the reconfiguration of the sociological imagination. Further, I also substantially draw from authors, such as Whitehead, Deleuze and Serres, whose work is usually thought to lie outside the disciplinary confines of the social sciences. Mills, for his part, would probably have considered these thinkers as representatives of 'grand theory'. However, as I see it, Whitehead, Deleuze and Serres, like Latour, are in fact *empirical* thinkers in a quite radical sense, for they do not philosophize from abstract principles, but rather always stress that the abstract must itself be explained. For them, the aim of philosophy, to quote Deleuze, is not to 'rediscover the eternal or the universal, but to find the conditions under which something new is produced' (Deleuze & Parnet, 1987, p. vii). I find this idea instructive for sociologists as well.

It should also be noted that the sociological imagination proposed on the pages of the book at hand is not a product of my sheer imagination. Nor is it, frankly, absolutely 'novel', that is, something hitherto completely unprecedented. Rather, I draw my key insights from ideas and tendencies already effective in the social sciences and philosophy today; the concepts

presented have already been developed in some seminal contributions to the social sciences and philosophy. The seeds of the new sociological imagination featured in this book can be found in them. It is only that in most cases the concepts and modes of thought have not really made it to the mainstream yet, but have rather likened a subterranean undercurrent¹¹ – to a great extent precisely due to the aforementioned prevailing schools of sociological thought, abstracted theoreticism and grand empiricism, with their anthropocentric, substantialist and micro–macro perspectives.

As the book draws from an array of thinkers and disciplines, its ‘method’, if you will, resembles a process of *assemblage*: it gathers ideas, concepts and materials from most heterogeneous sources and tries to create something novel out of them.¹² While the authors and their ideas I use in the book (e.g., Simmel, Elias, Tarde, Serres, Latour, Deleuze, Whitehead and Strathern) are definitely not complete strangers to the sociological tradition (on the contrary, some of them have in fact even been fairly influential), their immense potential in helping us reconfigure the main questions and concepts of contemporary sociology has nevertheless not yet been actualized to the fullest. What is more, while there exists previous scholarship on these authors and even works that try to utilize their concepts and ideas, what makes this book distinctive is not simply that it draws on the whole horde instead of singling out one or two authors, but it also employs the ideas that it takes up explicitly to the end of restructuring and renewing the sociological imagination. My explicit aim is to think ‘with’ my sources and also beyond them.

The structure of the book

I will begin by outlining in Chapter 2 a relational approach that I term *rhizomatic*, taking its label from the concept of the ‘rhizome’ by Deleuze and Guattari (1987). I’m calling it ‘rhizomatic’, since by referring to pervasive connectivity and insisting on the necessity of starting in between, in the middle of things, the notion of the rhizome steers social theory away from the individual vs. society problem. For rhizomatic sociology, the individual vs. society is a falsely stated problem, since the opposition treats the two as separate terms and does not acknowledge their fundamental interrelatedness. In the tradition of social sciences, the focus on the figures of the individual and the

communal subject has tended to exclude the relational mode of the social. This exclusion may even be said to betray a shortfall in thinking common to the entire Western tradition. According to Jean-Luc Nancy, it is ‘a fundamental disposition of our whole tradition’ that ‘between two subjects, the first being “the person” and the second “the community”, there is no place left for the “with”’ (Nancy, 2008, p. 5). On the one hand, the approaches that take individual subjects as their point of departure regard the relations between individuals as merely relations of exteriority, which do not touch the constitution of the individuals themselves. And, on the other hand, the theories premised on the notion of society or community tend to neglect the ‘with’ in favour of a pure interiority, achieved in the hyper-existence of society or in a harmonious community that unites individuals who are assumed to share a common substance. The chapter argues that, instead of starting from individuals and their actions or from society and its structures, one must start from the between, from witness, in the middle of things, and trace chains of associations.

Chapter 3 takes up the issue of scale. It argues that the scales of entities are much more multiple than those of the micro and the macro, ranging from the tiniest grains of existence and sub-individual flows to transnational, global processes. What is more, the chapter argues for a relative understanding of scale instead of an absolute one. The scale of a given thing is not pre-given and fixed, but something made. The chapter discusses the multiplicity of scales and the practices of producing and sustaining scales through three examples: the scales onto which the city of Paris extends its existence; the manufacture of a can of ready-made food; and, finally, a stock trading disruption that took place at the New York Stock Exchange in 2012.

Chapter 4 makes explicit and fleshes out the more-than-human sociology developed in this book, an approach which commences from the idea that we need to take seriously the effectivity of various non-human or not-only-human things and materials. The chapter argues that matter is not passive or dead, just waiting to be endowed with meaning, but in itself active. Importantly, acknowledging artefacts, technology, animals and waste, for example, as integral parts of society makes us realize the heterogeneity of the elements society is made up of. Society does not exist apart from material things and forces and is not made only of two ingredients such as agency and structure or individuals and institutions, but it involves a wide range of heterogeneous materials in its constitution.

Finally, Chapter 5 concludes by critically reassessing the future of sociology and Mills' vision of the promise of the sociological imagination. It also spells out the implications of the kind of sociological imagination suggested on the preceding pages.

Notes

- 1 Obviously, Mills did not think very highly of abstracted empiricists. In the book, he ridicules them just as relentlessly as he did grand theorists. According to him, 'Those in the grip of the methodological inhibition often refuse to say anything about modern society unless it has been through the fine little mill of The Statistical Ritual' (p. 83).
- 2 In a melancholic and beautiful book *A Mathematician's Apology* (1998 [1940], p. 79), G. H. Hardy defines professional pride precisely in relation to the idea of craftsmanship. For Hardy, professional pride amounts to 'anxiety to be satisfied with one's performance, the shame that overcomes any self-respecting craftsman when his work is unworthy of his talent'.
- 3 Here Sennett is not talking about sociology per se, but to me his ideas on craftsmanship apply to the practices of doing sociology as well.
- 4 For another recent effort to rethink the social, see Halewood (2014).
- 5 This of course does not in itself make my approach radically different from that of Latour's, since both Deleuze and Serres have substantially influenced his work.
- 6 See also Kemple & Mawani (2009) for a critique of Mills' anthropocentrism.
- 7 Of the so-called new materialist thinkers, Karen Barad (2007, pp. 151–2), for example, has stressed that 'materiality is discursive (i.e., material phenomena are inseparable from apparatuses of bodily production; matter emerges out of, and includes as part of its being, the ongoing reconfiguring of boundaries), just as discursive practices are always already material (i.e., they are ongoing material [re]configurings of the world)'.
- 8 Instead of the supposed opposition or reconciliation of materiality and discourse, it is therefore better to begin with a rich world of materials, as I will argue in more detail in Chapter 4.
- 9 Over the past 20 years, there been many efforts, especially in North American sociology, to provide a micro-macro linkage (see e.g. Ritzer, 1990, 2011; Barnes, 2001; Ryan, 2005).
- 10 The supposedly neutral nature of Mills' original concept is illusory, too. It does not present a view on sociology from nowhere, but the book is a statement to debates and disputes of its time. Accordingly, Mills considered *The Sociological Imagination* as 'something about my own kind of sociology

and against the current dominant schools' (cited in K. Mills & P. Mills, 2000, p. 228; emphasis in the original).

- 11 Of course, over the past twenty years, relational modes of thought, for example, 'have moved closer to the mainstream' and at the moment perhaps 'occupy a less subordinate place in the space of sociological approaches' (Emirbayer, 2013, p. 210). However, as relational ideas and concepts have gained broader acceptance and are being widely circulated, there lies the danger that they are used unthinkingly, routinely, in an automatic if not even dogmatic manner, and so we might lose something of the liveliness, vibrancy and creative potential of the relational approach. This gives me all the more reasons to sympathize with Mustafa Emirbayer's (2013) call for revitalizing the original spirit of relational thinking as 'fighting words'. As Emirbayer observes, 'substantialist assumptions are incorporated [so] deeply in our everyday and scholarly discourse alike' that 'it is difficult to imagine their being supplanted anytime soon' (p. 210). Therefore 'epistemological vigilance' (p. 211) is still needed, he emphasizes.
- 12 See Shaviro (2009, p. 147) on assemblage as a practice.

2

Turn to Relations

Abstract: *This chapter discusses the challenge presented by relational thought to familiar and common sociological categories. In particular, it argues for a specific kind of relational approach that it calls rhizomatic and explicates the ways in which it revises the prevailing – still dominantly substantialist – sociological imagination. Rhizomatic sociology conceptualizes the relational field in terms of ‘lines’ and associations of various kinds. What is more, it places emphasis on constant modulation, multiplicities and the connectivity of heterogeneous entities, be they organic or non-organic, human or non-human. The chapter also explores how the establishing of connections is always accompanied by exclusion and disconnection and touches on the issue of how entities are irreducible to their actual relations and yet they are constituted by relations.*

Keywords: Deleuze and Guattari; multiplicity; relationality; rhizome; rhizomatic sociology; substantialism; withness

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Social theories are traditionally divided between individualism and holism. The two standpoints are already in principle irreconcilable: whereas individualism explains wholes by their parts, according to holism a whole is always more than the sum of its elements. However, despite their antagonism, they have one thing in common: both are *substantialist* by nature. By this I mean that both individualism and holism perceive the world in terms of self-subsistent entities or substances. Rational-actor and norm-based models of social actions provide an example of methodological individualism. In the last instance, they depict individuals as ‘self-propelling, self-subsistent entities’, with the difference that whereas the first consider action in terms of individuals aspiring to rational goals, for the latter the individuals act in conformity with social norms and ideals (Emirbayer, 1997, p. 284). Holistic viewpoints, by contrast, insist that we can understand and explain individual actions only as part of and by a larger social context or structure.

In recent years, an alternative to both individualism and holism has been presented by a variety of relational approaches, which have gained in popularity in sociology. They do not claim to solve the problem of the individual and society, but refute it altogether as a falsely stated problem. While relational ideas can already be found in the work of Auguste Comte, Georg Simmel, Marcel Mauss, Gabriel Tarde, George Herbert Mead, Karl Marx and Norbert Elias, for instance, and Pierre Bourdieu (1998 [1994]) called his method of inquiry relational, it was only with the publication of Mustafa Emirbayer’s article ‘Manifesto for a Relational Sociology’ in 1997 in *The American Journal of Sociology* that relational sociology began to take shape as an explicit, self-conscious programme. We can detect the spread of relational ideas in the popularity of notions like ‘network’ (e.g., Castells, 2000), ‘actor-network’ (e.g., Callon, 1986; Law & Hassard, 1999; Latour, 2005) and ‘rhizome’ (Deleuze & Guattari, 1987). Scholars have also begun to re-read their eminent predecessors along relational lines (the reawakened interest in Elias’ so-called ‘figurational sociology’ and the relational re-readings of Marx serve as examples). Moreover, an increasing amount of books on relational sociology have appeared recently, such as *Towards Relational Sociology* (2011) by Nick Crossley, Pierpaolo Donati’s *Relational Sociology: A new paradigm for the social sciences* (2011) as well as the edited volumes *Conceptualizing Relational Sociology: Ontological and Theoretical Issues* (Powell & Dépelteau, 2013) and *Applying Relational Sociology: Relations, Networks, & Society* (Dépelteau & Powell, 2013). The perspectives outlined in these books and also implied by the aforementioned

notions vary greatly but they also have significant similarities. What they have in common is a thoroughgoing relational understanding of the world. They give primacy to relations and processes over ‘isolated individuals or external and solid structures’ (Dépelteau & Powell, 2013, p. xvii). Relational sociologies reject any substantialized entities such as actors or structures as starting points and ultimate units of enquiry. The approaches regard individuals as inseparable from the networks they are embedded in. Further, Emirbayer (1997, pp. 287–8), for instance, suggests that structures are nothing but ‘empty abstractions apart from the several elements of which they are composed,’ and societies ‘nothing but pluralities of associated individuals.’ Thereby, relational sociologies tend to dissolve both substantialized actors and substantialized structures into dynamic relations and fluid processes.

In this chapter, I discuss the challenge presented by the relational viewpoints to familiar and common sociological categories. I wish to explicate in particular the ways in which relational thinking restructures the prevailing – still dominantly substantialist – sociological imagination. What is more, I also put forth and argue for a specific kind of relational approach that I call *rhizomatic sociology*. Why ‘rhizomatic’? The idea draws from the concept of the ‘rhizome’ by Deleuze and Guattari (1987), who use it to address connections and connectivity.¹ I regard the concept useful for several reasons. First, in contrast to the conventional idea of a network present in, say, much network analysis, the notion of the rhizome does not conceptualize the relational field in terms of interconnected points or knots, but in those of ‘lines’ – lines of movement, lines of growth and lines of life, for instance. A rhizome is not a closed system or unified structure, but an open system ‘susceptible to constant modulation’ Deleuze & Guattari, 1987, p. 12). Instead of assuming an underlying deep structure or some prior overarching unity (such as Society), a rhizome is constituted by local connections. Second, the notion of the rhizome gives us a broad sense of just how pervasive connectivity is. I find the concept helpful in overcoming the more or less anthropocentric bias of much relational sociology – and thus opening the path to a more-than-human sociology. Materials and things are implicated in every relation between humans. There simply is no relation without them and no ‘human’ that would exist in and by itself, outside and irrespective of the world of materials. Unlike the concept of society, which is usually restricted to sociality between humans alone, rhizome is a term that pays attention to the connections of heterogeneous entities, be they organic or non-organic, human or non-human. (I will present

a more detailed critique of anthropocentrism in Chapter 4.) Third, the notion of the rhizome draws attention to the fact that anything is a multiplicity, consisting of lines and constituted by connections. Instead of closing entities upon themselves, it breaks things open and dissolves them into relations. Rhizomatic sociology invites us to change our ways of thinking and speaking of individuals, structures and society alike: it considers individuals as intersections of processes and flows; structures as composed of dynamic relations; and society as a relation of relations.

I will start by discussing connectivity as a necessary point of departure for sociological accounts and then explicate what this means for how we understand action. After that I will examine how rhizomatic thought leads to conceiving every entity as a multiplicity. The last three sections of the chapter centre on the nature of relations. First I argue that not all relations are of the same kind, but they are heterogeneous. I will address the heterogeneity of relations by means of various prepositions, each signalling a specific kind of relation. Then I take issue with the idea of endless connectivity implied usually also by the notions of the rhizome and the actor-network and suggest that the establishing of connections is always accompanied by the gesture of exclusion and disconnecting. And the final section probes the paradox of how relations always seem to leave something out and yet there is nothing outside relations, but all entities are constituted within a relational field.

Witness

We are bound to misunderstand the nature of sociological problems unless we acknowledge the fact that we exist amongst others. In our being we are not only directed *toward* others, but we are also always already *with* others.² We are always in the company of others, and this makes being always plural, as Nancy argues in his eloquent book *Being Singular and Plural* (2000). The being of a singular being always implies something other than itself; it is not possible for the single being to 'be its own foundation, origin and intimacy' (Nancy, 2000, p. 12). Nancy's arithmetic of being is: 'one equals more than one, because "one" cannot be counted without counting more than one' (p. 39). For the sociological inquiry this means that we must always begin from a multiplicity (of people or, rather, more-than-people, as I will argue later in Chapter 4). In *What is Sociology* (1978, p. 121) Elias insists in a like manner that the

‘image of man [sic] needed for the study of sociology cannot be that of a singular person, a *homo sociologicus*. Rather it must be that of people in the plural; we obviously need to start with the image of the multitude of people, each of them relatively open, independent processes’. For Elias, we exist only in what he calls ‘figurations’, that is, webs of interdependencies with other people.

Being implies an originary *withness*. Each and every entity constitutes itself in relations: any entity is composed of parts standing in some relation to one another and is affected by other entities. This is also to say that any entity involves its outside as one of its components; the influences and effects of others do not distort its being but participate in defining it. Nothing exists solely in and by itself, but entities are what they are only in and through their relations with others. Take human subjects, for example. Even our most personal gaits, ideas, desires and beliefs have first come from the outside. An infant learns to speak by hearing and learning how others use words, we are subject to influences when it comes to the products that we buy, the parties that we vote for, and the music that we like, and what we regard as good and desirable in life does not stem from the bottom of our souls, but stands in accordance with ideas and standards more or less shared by several members of a community we either belong to or wish to belong to. Not even love stems originally from the inner depths of our heart. We have come to know romantic love by seeing couples in love and by watching movies and television shows as well as reading novels and magazines, for instance.

Accordingly, in relation to this dependence on the outside, the great insight of Gabriel Tarde was to treat *imitation* as a basic sociological fact. Tarde (1903, p. xiv) understands imitation as ‘the action at a distance of one mind upon another’. The influence can be willed or not willed, just as imitation can be conscious or unconscious, passive or active. Tarde suggests that social life is ultimately based on imitation: ‘wherever there is a social relation between two living beings, there we have imitation’ (p. xiv). Tarde’s work has often been dismissed by sociologists as merely psychological. However, the criticism misses the crucial point that for Tarde the relations come first and the psyche second. Tardean sociology is a kind of inter-psychology exploring the affective processes and relations between minds. Instead of being endowed first with some primordial interiority closed-off from the outside world, we gain a psychological interiority only through relations with the outside; the interior is produced by the exterior. Later Latour – who regards Tarde as an eminent predecessor

of the actor-network theory developed by himself and his colleagues – adds to this Tardean scheme extra-psychical mediators: ‘We might end up gaining some “intra-psyche” only if we are entering into a relationship with a lot of “extra-psyches”’ (Latour, 2005, p. 216). That is, the subject and the psyche are composed of and held together by pre-subjective or extra-psychical elements; there is no subject without ‘subjectifiers’, and no psyche without ‘psycho-morphs’. Let me quote a passage by Latour, which elaborates the idea:

But what about me, the *ego*? Am I not in the depth of my heart, in the circulations of my brain, in the inner sanctum of my soul, in the vivacity of my spirit, ‘an individual’? Of course I am, but only insofar as I have been individualized, spiritualized, interiorized. It is true that the circulation of these ‘subjectifiers’ is often more difficult to track. But if you search for them, you will find them all over the place: floods, rains, swarms of what could be called *psycho-morphs* because they literally lend you the shape of a psyche. (Latour, 2005, p. 212)

Besides suggesting that there is no given natural subjective interiority, the emphasis on a crowd of subjectifiers makes another important point with regard to the constitution of the self. Namely, the ‘outside’ should not be identified with ‘society’ or ‘social context’, but it is important to understand it in a different scale and in more concrete terms – more ‘locally’, if you like. It is not some invisible all-encompassing macro structure that makes us into subjects. We are not the products of a constantly present ‘Society’, exceeding our own assumedly small and feeble existence, but we are constituted by a horde of elements and materials, entangled in the same local connections as we are. These others are in principle no smaller or bigger than ourselves. As Latour puts it in *Paris: invisible city*: ‘Yes, the self is clearly overtaken but not, as formerly believed, by a Society of which it constituted a cell, a limb, a person, an individual. What surpasses it is the multitude of these beings’ (Latour & Hermant, 2006, p. 69).

To be sure, relations have a constitutive role not only in the acquisition and existence of a psyche, but in the subsistence of all entities. It is in and through relations that entities receive their properties and effectivity, which makes them essentially mixtures and compounds (Serres, 2008, pp. 27–9). Things are folds. I follow here thinkers like Deleuze and Serres, who emphasize the ‘fold’ (*le pli*) as the origin, germ, and core of things, whilst stressing that each fold is also in itself an assemblage and compound of other folds (Deleuze, 2006; Serres, 1994, p. 49). Importantly,

the notion of the fold suggests that relations should not be conceived as connections between self-subsistent and self-enclosed substances. Entities are not interconnected points at rest, but they are dynamic crossroads of relations; they are constantly changing assemblages of lines or trajectories, which remain the same – unchanged – only as long as the relations between their parts and the relations that they come to have with other entities hold together. They have a more star-like shape than a pointillist one (Serres, 2007a). The centre, as Latour (2005, p. 177) remarks, is traversed ‘by many radiating lines with all sorts of tiny conduits leading to and fro’. Human individuals, for example, are like ‘targets’ for effects and flows: we are constantly bombarded by a swarm of bacteria, signs, opinions, viruses, images, beliefs, tropes, clichés and desires, defining us, situating us, naming us, putting us into motion and making us live; we also radiate and spread outwards what we receive and take in (Latour & Hermant, 2006, p. 42).

Overflow of activity

Insofar as being-with is constitutive of our being, the being of an individual is always supported, even constituted, by something *other* than him- or herself. The individual is not complete and self-consistent in itself, but is traversed by lines, threads and forces, and thus exists only in relation with others, in a relational milieu, as was illustrated by the formation of an intra-psyche, for example. Thus, ‘the other’ is a crucial component in the structure of being; being-with-others is essential to the constitution of being. As Simmel puts it in the piece titled ‘Gesellschaft zu zweien’ (‘Society of two’), the basic ontological condition of human existence is that ‘the single human being is not alone on earth but becomes determined through being-with-others’ (Simmel, 1992a, p. 348). Being-with is nothing added to being. It is no supplement, but being is always already given as being-with.

The emphasis laid on witness radically changes our basic assumptions about action, too. The key to action is not to be found from a specific agent or some local site, because action is always dislocated, dispersed and distributed (Latour, 2005, p. 166). We act only in and through relations in that we are not able to make anything just by ourselves, but our action is dependent on the efforts and contributions of several others. Let us think of art, for example. *Art Worlds* (2008 [1982]) by Howard Becker

powerfully challenges the common individualistic and artist-centred views of the process of making art by looking at the connections, associations and alliances that make it possible for the artist to make the work. According to Becker, art, like any human activity, always involves the cooperation of many. He treats art as a *collective* undertaking; an artwork is according to him ‘the product of people acting together’ (p. xi). That is, the artist is hardly ever able to make everything just by oneself, he/she has to rely on the activities of several people. Instead of the artist standing as an autonomous and isolated source of one’s work, the works become what they are ‘through a network of coordinated activities carried on by a lot of different people’ (p. xii). The artist is dependent on an array of people, flows and materials.

However, the important thing is that rather than merely doing *less* oneself because of being dependent on the activities of others, the artist, as paradoxical as it at first may seem, is actually able to do *more* due to the connectivity.³ The strings do not make the artist less active, not to speak of making him/her a puppet of some sort, but they enable one to become an active art-making subject in the first place. It is not by diminishing the number of connections, then, but by multiplying them that we get at the heart of artistic creativity. Dependence upon relations does not lessen the creativity or personal freedom of the subject, but the first are a precondition of the latter. Creativity is distributed along rhizomatic relations instead of residing within the artist.⁴

The notions of ‘actor’ and ‘agency’ are therefore misnomers in that they assume a source of initiative. They are captive of what anthropologist Tim Ingold (2013, p. 100) has called a ‘logic of embodiment’, for they close the beings that act in upon themselves. In *Making* (2013, p. 96), Ingold claims that ‘the entire question of agency rests on a false premise’. The notion of agency suggests that someone or something is capable of acting due to possessing an agency. For Ingold, such an assumption is simply false. Provided that we must join forces with a hoard of people, materials and flows whenever we act it is according to Ingold utterly ‘perverse’ to causally attribute action to an ‘agency’, of which the action would be the effect (p. 96). I feel that Ingold gives us workable means to undo or reverse the logic of embodiment. He proposes a way of considering action not in terms of the possession of agency, but in those of being ‘possessed by’ and ‘immersed in’ action (p. 96–7).⁵ In other words, we must turn from constitutive agency to the ways in which agency is constituted. Karen Barad (2003, pp. 826–7), for example, remarks along

similar lines that agency ‘is an enactment, not something that someone or something has.’ Further, in *Reconnecting Culture, Technology and Nature* (2000), STS scholar Mike Michael suggests that we should not think of action in terms of agents, be they human or non-human, but we should move away from the subject and predicate thought altogether.⁶ As he states: ‘Instead of humans and non-humans we are beginning to think about flows, movements, arrangements, relations. It is through such dynamics that the human (and the non-human) emerges’ (Michael, 2000, p. 1).

To explore the overflowing of activity let us think of something as simple and mundane as taking a shower. I would assume that for most of us, the gesture of turning the knob is an absent-minded, even automatic act not requiring much conscious reflection. For those of us living in the Western world, it is also pretty self-evident that when we rotate the knob, clean water gushes from the shower and caresses and cleanses our skin. However, for us to be able to splash the water onto our face in order to awaken our sleepy eyes and let its rain pour on us, a number of elements and connections already need to be set in place. The moment we take a shower we are connected to a specific hybrid, folding, or mixture of human civilization and nature. As Italo Calvino eloquently puts it in his short story ‘The Call of the Water’ (2009, p. 206), the solemn act of taking a shower ‘puts me in touch with [...] thousands of years of human civilization and with the birth pains of those geological eras that gave our planet its shape’. This to say that there are different temporalities, places and activities folded into my action and making it possible. It is only thanks to the labour and inventions of various generations before me that I am able to wash up by simply turning on a tap and have clean water running out of the wall. Dams, the summoning of water to tanks, the Romans and their aqueducts as well as engineers with their equipment, calculations and know-how – all are required. And the water that comes out of the tap gushes from a place more distant than the wall and is basically as old as the earth itself, having circulated the earth for billions of years. What is more, there is a series of complex technologies and infrastructures required, from sluices, tanks, pipe work, sensors, control boards and drains that condition the luxury of having running clean water of adjustable temperature. Not a single drop comes from the tap unless these technologies and infrastructures are stabilized and function properly. Calvino describes the journeys of the vagabond water fantastically, in a manner that makes a mortal sociologist die of envy:

There! In response to my summons the water climbs the piping, surges in the siphons, raises and lowers the ballcocks that control the flow into the cisterns, as soon as a pressure-change attracts it, it rushes there, sends out its message along connecting pipes, spreads out across a network of collectors, drains and refill tanks, presses against reservoir dams, runs out from purifiers, advances along the entire front of the pipelines that bring it toward the city, having collected and stored it in one phase of its endless cycle, perhaps trickling from glacier mouths into rocky streams, perhaps pumped in from subterranean strata, draining down through veins in the rock, absorbed by cracks in the soil, fallen from the sky in a thick curtain of snow rain hail. (Calvino, 2009, pp. 206–7)

So, what at first seemed a solemn, isolated act is connected to a vast rhizome of humans, innovations, artefacts, materials and flows. To have water running out of a tap by simply turning a knob is a ‘miracle’, and in order for it to be ‘renewed everyday’, Calvino notes, ‘a series of complex conditions have to be met’ (p. 206). And, while pipes, drains, tanks, control boards and so on make it possible for me to take a shower, the reasons *why* I take a shower in the first place (and why the infrastructure of water supply is built) are connected to culturally shared hygiene rules as well as to normative conceptions of cleanliness, concerns about health and ideas of water. A person with poor hygiene is regarded as not only abnormal but also repulsive in the eyes – and noses – of others. Taking a shower could therefore be described as a disciplinary technique, in the sense Michel Foucault (1991 [1975]) used the term, that is, as a practice by which people are subjected to certain rules of conduct, technologies of power and control mechanisms aimed at regulating, sustaining, transforming and improving the body and its powers. While no one particularly pushes me to the shower, I could choose never to wash up only at the very likely cost of social exclusion (not to speak of the risk of catching infectious diseases). There are also normative ideas related to energy efficiency and environmental friendliness regulating how much (heated) water I should use, as our use of water affects the natural environment.

To attend to the act of taking a shower the inquirer is thus led away from the shower box to other places, other times and other actions, along chains of associations. Any given action is ‘overflow[n] with elements which are already in the situation coming from some other *time*, some other *place*, and generated by some other *agency*’ (Latour, 2005, p. 166). When I act, I myself am folded in the foldings of different spatialities, temporalities and processes of actions. The example of running water

also illuminates the fact that actors are not necessarily aware of all their dependencies and of all the activities, relations and materials their own action relies on. My action is circumscribed and made possible by the efforts and achievements of several others whom I do not know and who are not physically present in the same space with me nor do they come from the same time. I do not know personally the people who have built the pipelines, tanks, collectors and exchangers, nor the ones who have installed them, not to speak of the staff working at the water supply plant, and I know barely anything of the Romans who invented the aqueduct; I am not even informed of who fixed the broken shower in my flat before I moved to it. What is more, when I take a shower, my action is regulated by and connected to normative ideas of good hygiene and energy efficiency, to concerns about the environment and to codes of conduct. Of course, these ideas, concerns and codes do not exist at the other side of matter and materials, but are entangled and intermixed with mundane practices and objects.

All in all, the rhizomatic approach proposes thus a *decentring* of action. Provided that our action is made possible and circumscribed by others, we are not the sole source of our action, but action is always 'dislocated'. It is 'borrowed, distributed, suggested, influenced, dominated, betrayed, translated' (Latour, 2005, p. 46). As it dislocates and decentres action and dissolves substance into relations, rhizomatic sociology starts from the between, from the in-between, in the middle of things.⁷ It removes the focus from individual actors to dynamic relations. Instead of beginning from isolated individuals or structures external to them, it takes relations or, even better, *events*, as its starting point. When something happens, we cannot account for its occurrence by looking at delimited and discrete actors, but we must follow how the event is distributed in and through relations. The event always occurs in-between, between the assumedly independent and disparate individual actors. Each relation sets and assumes a space of betweenness, a space in between what is related. When two people look at each other, engage in conversation or exchange emails, for instance, their communication presupposes and produces a space in-between, a midway across and through which the effects and messages must pass. The association does not take place here or there, but here *and* there, in *between* the poles connected by the relation; it is movement from pillar to post. The between, the space in-between, is not, however, itself localizable. It does not exist at some specific location. Instead of inhabiting a definite place or having a fixed spatial identity,

it is rather a path of movement and renewal, a non-site, a no-where or a no-place, a place outside all places. As Deleuze and Guattari (1987, p. 25) phrase it: ‘*Between* things does not designate a localizable relation going from one thing to the other and back again, but a perpendicular direction, a transversal movement that sweeps one *and* the other away, a stream without beginning or end that undermines its banks and picks up speed in the middle’. The between is therefore not secondary vis-à-vis the people, things or places connected, but the qualities and abilities of the relata are produced and emerge in the in-between, in the encounters and folds, while it is also in that very same in-betweenness, in the excluded middle, that those beings meet their limits, transcend themselves, unravel and may even be annulled.⁸

Multiplicities

Things have no substance beyond their associations and intermeshed becomings. There is no substance to entities other than difference and event, the occasion of their associations. They are grounded in multiplicity; each singular being is a multiplicity in itself. Substantialism is bound to suppress the principle multiplicity, as it subjects each multiplicity to identity, unity and the same. It considers the world in terms of discrete entities. In contrast to this, Deleuze’s (2006, p. vi) suggests that ‘[s]tates of things are neither unities nor totalities, but *multiplicities*’. The individual self, for example, is no final and absolute element with a fixed essence, but a composite, a contingent and changing congealment of trajectories or lines. We can find this idea already in the sociology of Simmel. He suggests that the human individual is a ‘multiplicity’ (*Vielheit*) (Simmel, 1989, p. 127), an ‘assembled being’ (Simmel, 1997, p. 323): the individual is a coming together of various forces, relations and forms. Simmel argues that this insight presents one of the most important preconditions for laying a ‘rational basis’ for a science of society (Simmel, 1989, p. 127).⁹

To think entities as multiplicities instead of units calls for a new mode of thinking, a different sociological imagination compared to the prevailing one. ‘The multiple’, as Serres (1995b, p. 5) notes, is no ‘epistemological monster, but on the contrary the ordinary lot of situations, [...] our common object’. We live amongst multiplicities and are ourselves multiplicities. ‘Sea, forest, rumor, noise, society, life, works and days, all common multiplicities; we can hardly say they are objects,

yet require a new way of thinking' (p. 6) To take multiples or multiplicities as the object of inquiry is to examine alloys, mixes, confusions and assemblages. It is to examine them without reference to a prior or more basic unity. And, when one does so, the composite nature of entities is laid bare. They are dissolved into relations, into a horde of elements themselves of a composite nature.

What was noted of the individual above also applies to community and society. Under the unity of the seemingly homogeneous entities of community and society we find a heterogeneous multiplicity of materials, flows and relations. Again, I find the work of Simmel informative here. Simmel dissolves all things into reciprocal effects and processes. In *Soziologie* (1992b, p. 18), he asserts that, 'in empirical sense, [any] unity is nothing but interaction of elements'. Society, too, is for Simmel nothing but 'reciprocal effects of its elements' (Simmel, 1989, p. 130). It does not pre-exist the relations between individuals, but is co-existent with them. As Simmel puts it in *The Philosophy of Money*:

Society is not an absolute entity which must first exist so that all the individual relations of its members [...] can develop within its framework or be represented by it: it is only the synthesis or the general term for the totality of these specific interactions. Any one of the interactions may, of course, be eliminated and 'society' still exist, but only if a sufficiently large number of others remain intact. If all interaction ceases there is no longer any society. (Simmel, 2004, p. 175)

Admittedly the societies known by us have become fairly stable over the course of their history, formations relatively independent of their singular members. And Simmel remarks that there are also different degrees to association – from fleeting encounters in a café or on the street to institutionalized, stable formations such as family or the state, for example (Simmel, 1992b, p. 18). In a sense, then, there is 'more' society to the durable, territorially ordered socio-historical conglomerate of individuals called the nation-state than, say, to a chance, ephemeral and non-recurring togetherness of tourists lying at one moment next to each other on the beach only to part company and soon to be thousands of miles apart. Accordingly, broadly understood, society designates a fabric of interdependent relationships, a *relation of relations*. In *Grundfragen der Soziologie*, Simmel maintains that society refers to interrelated frequent and intensive relations of reciprocity. It is a 'third or intermediate element between the abstract-universal and the concrete-individual' (Simmel, 1971, p. 243). Nevertheless, Simmel stresses that society is no

autonomous, static object at rest, but fluctuating, dynamic reciprocity between individuals. Society owes its durability to a multiplicity of relations that have been made stable. Society is thereby a term that may be given to a more or less stabilized social formation instead of being in itself an explanation of stability (to emphasize the processual and dynamic nature of society Simmel employs the verbalization ‘association’ [*Vergesellschaftung*] over the noun ‘society’ [*Gesellschaft*]). Thereby, Simmel radically reverses the conventional view: instead of examining how social relations take place in society, he proposes that sociology should study *the society in social relations*, that is, examine how society is actualized and produced in and by concrete relations between people.¹⁰

What are the implications of examining entities – such as the individual and society – as multiplicities? First, it means that nowhere do we hit upon the truly elementary. It is thus crucial to preserve openness and not to suppress multiplicity under some pre-given unity or principle of identity.¹¹ Individuals, for instance, are no final elements or absolute unities of the human realm. Each individual subject is itself a composite or assemblage composed of heterogeneous pre- or sub- and supra-individual elements, flows and relations, such as energy, materials and information in their various forms.¹² The individual is therefore a contingent point of stoppage to end the process of dissolving beings into relations. It is out of habit that we tend to start from individuals and treat them as the sources of action, values, opinions and so on. While the individual surely is something given to our experience in the sense that these motleys or conglomerates bearing a proper name tend to appear to us as unities, this is not necessarily so, but things could also be otherwise. ‘The irreducibly individual recedes like the horizon, as our analysis advances’ (Serres, 1995b, p. 3). The process of dissolution is in principle endless. It depends on the problems one is posing and on the scale of analysis, which composites one treats as if they were the most elementary, final elements that there are.

Of course, premised on being-with, sociology does not just celebrate pure multiplicity for the sake of multiplicity, but it investigates how a multiplicity is structured and stabilized into a collective or community. For sociological analysis, the crucial task is to trace how the diffuse horde comes together and forms a collectivity, that is, how the collective is gathered or *collected*. To attend to the constitution of community necessitates the exploration of the *in-common*, what its elements share or have in common and how they build a common world. In relation to this, Latour (2005, p. 259) suggests that ‘sociology, contrary to its sister anthropology, can never be content with a plurality of metaphysics; it

also needs to tackle the ontological question of the unity of this common world'. This leads us to the difficulty of the thought of multiplicities. Ultimately, the greatest challenge in the rhizomatic dissolution of entities into composites of relations lies in the necessity to simultaneously meet two opposite aims: while attending to multiplicity, one also needs to take seriously the fact that the subjects actually usually experience the multiples, such as the individual and society, as unities. Their experiences cannot be simply explained away, but they need to be incorporated into the analysis, because they matter in and for the constitution of our common world.

Nevertheless, and this brings us to the second point, the principle of multiplicity reminds us that there are no natural unities, but each unity is an achievement, produced by processes and dynamic relations. The idea of unity as a product of relations undoes any natural divide between the exterior and interior of entities. For example, an organic body, as Simmel argues, is held together by the fact that its organs exchange energies more regularly and intensively with each other rather than with any other entities (Simmel, 1992b, p. 18). Further, bodies are able to subsist only in relation to their surroundings.¹³ No living body is a naturally integrated, self-maintained form, but each is able to exist only insofar as it takes in, restores and discharges energy, materials and information. The entire substantialist tradition that understands entities as self-enclosed substances and by ascribing them an essence is thus mistaken in this regard. The principle of multiplicity stresses the labour and effort it takes to produce and maintain assumedly 'natural' unities. This helps us resolve the dialectical opposition of the one and the multiple. Based on the law of non-contradiction, it would at first seem that an entity cannot be both, but it must be either or. While we may experience things as unities, it is important to pay attention to the stabilization work to which any unity owes its existence. The unity of any element hides behind itself the multiplicity of interdependent sub-elements. Thereby, one makes a multiplicity not by adding or summing up, but by subtracting; the formula of the multiplicity is $n-1$ (Deleuze & Guattari, 1987, pp. 6, 21).

Heterogeneity of relations

In sociology, the term 'relationship' is usually preserved for intersubjective connections imbued with meaning and expectations guiding future

(inter)action. As I do not want to restrict my focus on the relations between humans alone for reasons that I will spell out later (in Chapter 4), I employ the notion of *relation*, because it usually has a somewhat broader scope than that of ‘relationship’. By relations I simply mean connectivity and connectedness: links, connections or associations. However, to be precise, let me stress that I do not mean that relations would just connect already existing entities, but the properties and capabilities of the entities largely depend on the relations.¹⁴ Relations accomplish their ontology, that is, participate in constituting what the entities are, what they are for and what they are capable of. In much sociology, relations are conceived in terms of connections *between* elements. The problem with this kind of perspective is that it logically entails that the connected elements are conceived as being separate not only from each other but also from their relations (Larson, Petch & Zeitlyn, 2007, pp. 216–7; Ingold, 2011, p. 70). While such an approach is bound to begin with a separation, the rhizomatic sociology that I argue for has the aforementioned constitutive withness or fundamental entanglement as its point of departure.¹⁵ ‘Relations spawn objects, beings and acts, not vice versa’ (Serres with Latour, 1995, p. 107).

Nevertheless, even though I commence from an originary withness, I do not assume that establishing relations would happen automatically. Whilst nowhere does one exist apart from and outside of relations, establishing relations also requires effort, which is always a paradox. As we argue elsewhere with my colleagues, ‘making connections, especially *good* ones, and making them hold together is a difficult, laborious and uncertain task. One easily fails in it’ (Veijola, Germann Molz, Pyyhtinen, Höckert & Grit, 2014, p. 144). While there are some relations that precede the subject and are in this sense *given*, weaving relations is demanding and costly. Needless to say, it may not always have to be me who has had to do the work; in fact, as I am reliant on others, I can never do *all* of it. However, for me to be able to enjoy the easiness of (establishing) links (think of a fast internet connection), a number of other associations, connections and elements need to be set in place. In order for them to function properly, they need to have been stabilized by the efforts of other actors.

The often-suggested candidates for a general model of relations include, for instance, communication (Luhmann), exchange or reciprocity (Simmel; Mauss) and trials of strength (Latour). However, if we reduce all relations to one basic model, our sense of relations remains deprived.¹⁶ To gain a rich understanding of the specificity of relations it

is important to acknowledge their heterogeneity and distinguish different types of relations. All relations are not of the same kind, but there exist many kinds. They vary for instance in duration and size. Whilst some relations, such as a mutual glance (see Simmel, 1993, p. 280), are caught up with their event and may thus be over the moment they happened, others gain a more durable form or structure. Further, while some remain more local in their existence, others may spin over the entire globe and have wide-ranging effects. We can think of 'size' also in terms of the materials that the assemblages involve. The collectives of astronomy and astrology admittedly resemble each other insofar as both involve celestial bodies, the earth and humans, but the first differs from the latter in that it is lent support by many more people, things and materials. Whereas astrology relies on an interpretation of highly ambiguous maps and their signs and 'houses', the findings of astronomy have research groups, telescopes, observatories, advanced methods and theories, funding, universities and academic journals with their peer-review practices as their allies.

As regards the heterogeneity of relations, philosopher and literature scholar Rodolphe Gasché has listed a few examples of the many shapes or kinds of relations. His catalogue includes: 'Encounter, arrival, address, contact, touch, belonging, distance, accord, agreement, determination, measuring, translation, and communication'. Gasché stresses that though the types may overlap and sometimes imply one another, they are nevertheless irreducible (Gasché, 1999, p. 11). The multiplicity and variety of relations has also to some extent been acknowledged by sociologists. Simmel, for one, discusses and analyses several forms of social relations in his work, ranging from cooperation, competition, conflict and warfare to fashion, gratitude, secrecy, money, prostitution, domination and subordination. It should be noted, however, that their variety notwithstanding all these relations are for Simmel ultimately forms of one base concept of relation, that of *Wechselwirkung*, 'interaction' or 'reciprocal effect'. In contrast to the idea of social life being based on reciprocity, some scholars have stressed for example the primacy of giving.¹⁷ But to say that all relations are based on free giving would remain just as universalistic and reductive, as it would reduce the heterogeneity of relations to one single model.

How to address the heterogeneity of relations, then? As I see it, a fruitful and promising approach is offered by Serres. According to him, philosophy is by and large poorly equipped to tackle relations, for it has

traditionally spoken in terms of substantives or verbs. Elias (1978, p. 112), too, notes that:

Our languages tend to place at the forefront of our attention substantives, which have the character of things in a state of rest. Furthermore, they tend to express all change and actions by means of an attribute or a verb, or at least as something additional rather than integral.

Substantialist thought is therefore unsuitable for conceptualizing the fundamental entanglement of entities. It starts from separated, isolated things at rest, to which change or interconnectedness is added ‘almost as an afterthought’, as Elias (1978, p. 111) remarks. To start from the interconnectedness requires and presents a very different mode of thought. Serres’s suggestion is to make use of *prepositions*. They ‘work at inflecting and declining the verbs and nouns of our language’ (Serres, 1995a, p. 140). Importantly, prepositions indicate relations that precede any fixed positions, being in this sense, literally, *pre*-positions (Serres with Latour, 1995, p. 105). At the same time, however, the prefix *pre*- can be understood as also referring to how relations are to some extent staged by the ingredients standing in between. According to Serres, prepositions are connectors, ‘like postmen running down the street to distribute letters, or like custom officials watching over ports, or like travelling salesmen, all of whom we refer to as *pré-posés* – pre-settled, if you like’. There is no connection without mediators and mediation. ‘Weaving space, constructing time prepositions, [prepositions] are the precursors of every presence. ... In fact, dare I say it, the *pré-posés* are there even before the fact of being there’ (Serres, 1995a, pp. 145–6).

Prepositions point to a way out of substantialist thought. The movements and gestures of a ballet dancer, which is an example used by Serres, only make sense in relation to the empty space that surrounds him or her. The dancer ‘precedes articles. Adept at all positions, he expresses pre-positions. [...] He indicates *towards, to, on, by, in, out of, behind, before, close to, under, during, after before, despite, against, except* All space, all time, all circumstances, relations and relationships. A universal mediator’ (pp. 127, 129). So, the question is, ‘When we watch a piece of ballet, are we like naïve simpletons who look at the finger of the person who’s pointing, rather than the object at which it is pointing?’ (p. 127)

The relations Serres studies in his books include, for instance, relations of *translation*. They are more central than others, as translation serves for him in a larger sense even as a kind of general model or guiding principle

of thought. Translation is expressed by the preposition *across* and it appears at the occasion of mediation, that is, when something is being transmitted or transported, for instance, from one language to another, between sender and receiver, or from one place to another. The notion of translation refers to the fact that no mediator is a perfectly loyal, passive instrument of action. On the contrary, every channel and every medium modifies, mutates and transforms what is transmits and transports. A message does not travel through an empty space, but the space across which it must pass is always a 'space of transformation', as Serres explains in *The Parasite* (2007a, p. 70). The mediator posited in between always generates something new. A translation of a text, for example, is a process of rewriting. No translation is identical with the original text, but a new creation and thereby always also 'betrays' it to some extent.

Thereby, while being a prerequisite of relation, any mediator also comes in between the connected poles or stations and interferes. Accordingly, Serres calls this relation *inter-fERENCE*, expressed by the preposition *between*. For Serres the figure par excellence of interference is the parasite, which I will discuss in the next section. As for other possible ways of interfering, the third may, for instance, come in between two conflicting parties and act as a referee, reconciling the conflict (Simmel, 1992b, p. 125). In addition, it may also reinforce the bond between the two parties, as in the case of a common enemy or a new-born child. Money provides yet another example of an interfering third. Today, many of our relations and valuations are significantly mediated and affected by money and monetary interests. Money simultaneously decreases and increases our distance to objects: while bringing an enormous amount of objects at our reach – as they become purchasable with a sum of money – money also comes in between us and the objects of our desire (Simmel, 2004).

As my final example I will mention the preposition *with*, which for Serres expresses communication or contract. In a sense, it is more generic than the others in that it may not only give an expression to a unique relation, but it also is a common denominator of all relations. Even relations of competition, struggle and conflict are also forms of being-with; this owes to Simmel's sharp observation that those forms of relations that oppose individuals or groups to one another also bind them together. It is precisely being-with that is played out in these forms of being-against (Pyyhtinen, 2010, p. 101). I am necessarily along with others; there are no occasions of being where being would not be constituted by withness.

Cutting relations, excluding parasites

The analytical strength of the notion of relationality – the in principle infinite dissolution of substances into relations and attending to the wide chains of associations that was mentioned above – also betrays its weakness: there seems to be no endpoint to the enumeration of associations and interdependent entities. Deleuze and Guattari (1987, p. 25), for example, write that ‘the fabric of the rhizome is the conjunction, “and ... and ... and ...”’. However, if connectivity is endless, where does one stop? After all, an analysis needs to end somewhere; it cannot take all relations and entities into consideration.

I feel that the idea by the anthropologist Marilyn Strathern (1996) of *cutting* relations proves helpful in tackling this. Strathern argues that in reality networks do not extend ad infinitum; that they have limits. For Strathern, claiming ownership is a typical and significant means of cutting networks. As her example, she uses the discovery of the hepatitis C virus. The virus was detected by a Californian corporation in 1987 by using a blood test. Subsequently, the corporation applied for a patent for the test, which it also got. What was new was not the technology used – it was standard – but the novelty was the genetic sequence of the virus, which made the identification of DNA an integral part of the blood test. In advance, it was not at all clear who could claim ownership of the invention. Researchers had been investigating hepatitis C for 12 years before the virus was isolated, and even in the corporation in question a large research group had been involved in the project. The patent, giving its owner(s) exclusive rights over the invention, cut the amount of people entitled to ownership. While the invention rested in many ways on prior research done by others – as scientific research is always reliant on the convergent efforts of many people – the patent truncated these others. The researchers on the payroll of the corporation had not done all the research, but they had good grounds for their claim, since they were able to plausibly argue to have ‘solved the problem’. Thereby, a large segment of the network was excluded. ‘The long network of scientists that was formerly such an aid to knowledge [became] hastily cut’ (Strathern, 1996, p. 524).

The case of the discovery of hepatitis C illustrates that exclusion and the cutting of networks is as crucial a means to organize our relations to people and things as are inclusion and connecting (Strathern, 1996, p. 523). Indeed, inclusion goes hand-in-hand with exclusion. An

amorous relationship is an obvious example. Italian sociologist Francesco Alberoni (1982) has suggested that falling in love is a process of uniting what was separate and separating what was united. The intimate togetherness of two necessitates that third parties (not only exes and affairs, for example, but also work, friends and, as any parent knows, children, too) do not interfere. Two can be together only insofar and as long as all possible thirds are excluded.

There is thus an excluded third to every relation. A relation can be inclusive only inasmuch as it is exclusive. The notion of the *parasite* by Serres (2007a) lays bare the interplay of inclusion and exclusion. At first, the choice of words may seem odd, given that from the science called parasitology we have come to know the term parasite as referring to small invertebrates, such as tapeworms, fleas, vermin, flukes and lice. However, in French the word *parasite* means also 'static' or 'noise', of which information theory discusses. And of course, it is not uncommon to also speak about social parasites, when we think of people living at the expense of others. In fact, Serres proposes that, as it 'uses the vocabulary of the host: hostility or hospitality' (Serres, 2007a, p. 193), the language of parasitology 'bears several traces of anthropomorphism' (p. 6), and thus its understanding of parasitic relations is to a great extent shaped by our sense of ancient customs and habits related to hospitality, table manners, hostelry and relations with strangers.

In *The Parasite* (2007a), Serres plays with all these three meanings of the word. First, in its biological sense, a parasite is an organism feeding on another without benefiting its host in any way. Second, in the anthropological sense, a parasite is an abusive guest, who takes without giving anything in return. Unlike the biological parasite, the social parasite does not necessarily live *in* its host, but just *by* it. The etymology of the word 'parasite' is informative here. In it, as Serres remarks, the prefix *para-* means "near", "next to", measures a distance. The *sitos* is the food' (p. 144). Third, in information theory, the parasite designates noise, static, a break in the message. The neighbouring function of eating is making noise: the open mouth that eats also emits sound. Obviously, there is no immediate connection between the three meanings, but Serres stresses that they only share a similarity of form. Each of the three meanings displays a relation of a similar kind: *a simple, irreversible arrow* (p. 8). The parasite is the one who or that which *intervenes* and *interrupts*.

We tend to think relations as being dyadic in their basic form, that is, as connections between two. We conceive of communication, for

example, as taking place between the sender and the receiver, picture exchange as a transaction between two parties, model conversation on the basis of a dialogue, and perceive there being two sides to every struggle, conflict and war. Serres's theory of the parasite, by contrast, presents the *triad* as the elementary form of relations. A relation is never a matter of only two elements, but every relation is a constellation of at least three members. As soon as there are two, the parasite is in between them in the position of the third. Communication, exchange and dialogue, for instance, are possible only on the condition of excluding the parasite, which makes them derivative of a more basic relation, the parasitic one. And, the adversaries are able to hold up a debate or a struggle only if they manage to work together to keep noise and all possible intervening third parties at bay (Serres, 1995b, p. 9). Thus, as they fight against one another, they are at the same time fighting against a mutual enemy, as they at least tacitly join their forces to exclude others.

It is important to understand that the parasite is not external to a system, only a transitory, marginal nuisance, but part of the system itself. It is at once necessary for the system and an obstacle for its proper functioning (Serres, 2007a, p. 79). The total elimination of parasites could be attained only by exterminating the system. For example, whilst regional accent, mumbling, stammering and cacophony tend to disturb oral communication, just as writing is liable to the noise of spelling errors, ill-drawn graphs and bad penmanship, speech and writing could be rid of perturbations of this kind for good only at the expense of eliminating voice and graphs that are essential to speech and writing (Serres 1982, pp. 66–70; see also Pyyhtinen, 2014a, p. 74). As long as there is a relation, the parasite is there as well. To eliminate all noise, one would have to also eliminate the channel of communication itself. In communication, a message is sent using a channel. The channel works properly only provided that it disappears into immediately. As soon as it is there, it does not work anymore but has turned into noise. In other words, as Serres puts it: 'If the relation succeeds, if it is perfect, optimum, and immediate; it disappears as a relation. If it is there, if it exists, that means that it failed. It is only mediation. Relation is nonrelation' (Serres, 2007a, p. 79). The channel in between, in the position of the third, is simultaneously a precondition of the communication and a parasite disturbing it. The third doubles itself, as it were, into an included and an excluded third, a 'mutual friend' and a 'mutual enemy'. The first is an element presupposed by that relation (e.g., common code,

mediators), the latter an element excluded from the relation, a he or she or that or they that is left out.

To recap, Serres's theory of the parasite is important for the thinking of relations in at least three respects. First, it suggests that the most basic and elementary form of relation is the triad. There is no relation simpler than that. In fact, for Serres, any thing, be it a subject or an object, is always a constellation or assemblage involving at least three members (Serres, 2007a).

Second, the parasite highlights how all relations border on disorder. A borderline needs to be set up to establish order within and close it off from the disorder of the outside. Order is possible on the condition that chaos is excluded, while chaos, of course, exists only in relation to order. Order is established only in relation to the excluded third. Chasing away the parasite is a precondition of any relation. Community or the collective thus bears an ambiguous relation to violence: while it shields us from violence, it is also produced by violence. The peacefulness of any community constitutes itself by and in relation to the violent act of excluding the parasites (see also Pyyhtinen, 2014b).

Third, while order necessitates exclusion, no system is ever inviolable. The parasites keep flowing in and the 'background noise never ceases' (Serres, 1995b, p. 13). Whilst representing the other or outside of the system, that which is excluded from it, the parasite is still an integral part of the functioning of any system. 'There is no system without parasites. This constant is a law' (Serres 2007a, p. 12). The collective and the parasite thereby share the same root. The parasite is 'the essence of relation' (p. 79); simultaneously a condition of possibility *and* impossibility of the collective, both the ground and interruption of associations. Because all attempts at the permanent and absolute exclusion of parasites are doomed to fail, ordering is bound to remain unfinished and incomplete. To maintain order, the gesture of exclusion has to be repeated incessantly, again and again. At the same time, however, the very gesture of establishing order simultaneously also creates disorder. The 'processes of ordering and disordering' go hand-in-hand, as Michael (2000, p. 29) remarks. Information security provides a good everyday example. In his PhD thesis, Jukka Vuorinen (2014) draws attention to problems inherent in information securing. While information securing admittedly preserves order, it is also an act of disordering as it disturbs and interrupts the user with its constant and irritating update requests and reboots, for instance. This illustrates nicely how the very act of establishing an order

to some extent disturbs the functioning of the system it tries to protect. And, because ordering can never be absolute, total exclusion would be as unattainable as total inclusion. In all relations it is therefore crucial to find a balance between inclusion and exclusion; all relations are structured along their contradiction.

Actuality, abstraction and enactment

While I have argued for relationalism in this chapter, let me emphasize that I nevertheless do not suggest that entities would be nothing over and above their actual relations at each present moment. Instead of exhausting an entity, the relations cover it only a partly; there is always something missing. Let us think of a couple madly in love, for example. The lovers may truly feel that they simply could not live without each other, and they may form so tight a togetherness that the way in which each partner is seen by oneself and by others is to a great extent defined with reference to their unit, the ‘we’. Nevertheless, this is not to say that each partner’s being would be completely exhausted by their relationship, but both have properties and an existence independent of it.

However, with the irreducibility of beings to their actual relations I do not imply that beings would possess a ‘hidden’ essence. Something like this is suggested by Martin Heidegger, who considered ‘being’ in terms of concealing-revealing (see e.g., Heidegger, 2008). The sociological conception of *homo duplex*, that is, the human being as essentially a double, attests to an interplay of hiding-presencing not dissimilar from that fashioned by Heidegger. Simmel, for example, argued that humans have ‘ever had a dualistic nature’ (Simmel, 1957, p. 541). On the one hand, the individual is according to him defined via the social or the cultural, in terms of one’s roles in the relations or social circles one is part of. Yet, on the other hand, Simmel thinks that the unique person, what one is in one’s essence, remains hidden behind the social mask (Simmel, 1999, p. 415). Durkheim, too, subscribed to the idea of ‘double-man’ (Turner, 1984, p. 20). In *The Division of Labor in Society* (1933, p. 130), Durkheim suggests that there are ‘two contrary forces’ acting in each human being: the one societal – which he terms ‘centrifugal’ – and the one individual – which he calls ‘centripetal’. ‘There are in each of us, [...] two consciences: one which is common to our group in its entirety, which, consequently, is not ourself, but society living and acting within us; the other, on the contrary,

represents that in us which is personal and distinct, that which makes us an individual' (Durkheim, 1933, pp. 129–30). Thus, as he puts it in *The Elementary Forms of Religious Life* (1973, p. 162), he thinks that humans lead a 'double existence': social and individual. While the first makes us nothing but a member or extension of society, the other is rooted in our organisms. Later, Elias referred to this hidden essence of the individual with the concept of '*homo clausus*'. He lamented that the majority of sociological conceptions tend to perceive the human being as closed in upon oneself, with 'his [sic] core, his being, his true self appear [ing] as something divided within him by an invisible wall from everything outside, including every other human being' (Elias, 2012, p. 515).

So, the idea of *homo clausus* suggests a divide, a kind of wall or barrier, between beings-in-themselves and their appearance. Whilst I do not think that entities would be exhausted by their actual, present relations each moment, against the notion of *homo clausus* I insist that the things-in-themselves are not hidden from us. As Latour puts it: 'Things-in-themselves are actually things that you reach, which is always a paradox' (in Latour, Harman & Erdélyi, 2011, p. 80). We do not get at what an entity is by stripping it away of its relations and detaching it out of its environment.¹⁸ In such a situation we would be left with nothing but what Whitehead (1978 [1929], p. 29) calls a 'vacuous actuality'. No thing exists in and by itself, as if in a vacuum, unconnected to other things. We never encounter anything out of its specific circumstances.¹⁹ Things are never devoid of relations, but *to be is to be related*; entities become what they are by entering into relations, by affecting and being affected by others. Relatedness has primacy over quality. There is no substance to things other than their event, their actualization in relations. Deleuze's (1988, p. 32) idea of the 'event' as 'one with the essence of the substance of a thing' would also be an apt formulation of how rhizomatic sociology conceives entities.

Of course, every relation involves a particular 'abstraction' (Whitehead, 1978 [1929], p. 160) or 'selection' (Shaviro, 2009, p. 49) of the thing, as it extracts, actualizes and brings to the fore some of its properties while excluding and leaving out others. For example, in front of a class, *in relation* to my students, I stand above all as a teacher and sociologist, not as a father, husband, son, friend, music lover, bibliophile or chess fanatic, which I may be in other circumstances and in relation to other people and things. The matter is not merely about roles nor is it only human relations that involve abstraction. Abstraction is an ontological quality of

all relations. A sail for instance, 'abstracts' the wind in that it swells due to its force irrespective of the current smell, temperature or moisture of the wind. And when writing this, my typing abstracts the features of the word processor on my laptop, as I use only a small amount of the 1,500 features or so that it has.

To conclude, whilst each relation actualizes an entity only partially, it is also true that entities exist and persist only in specific surroundings and circumstances, in relation to other things. The identity of a thing depends on its relations; it is able to remain the same only insofar as and as long as its relations hold and remain the same. While a thing may break with (some of) the relations that have constituted it and caused it to emerge, it is not that entities would become and be made to be only once and then be complete. Their becoming is never finished; they never stop becoming, and in their becoming they enter into new connections and drop others. To me, one of the significant contributions of science and technology studies (STS) in this respect is the idea of *enactment*. It suggests that entities are enacted in and through relations and practices, so that they come into being and vanish along with the practices which produce it (Mol, 2002). Let us think of waste, for example. Nothing is waste inherently, but things such as foodstuffs become waste through expulsion and abandonment. This concept connects to the famous idea by Mary Douglas (2000 [1966], p. 36) that dirt is 'matter out of place'. There is no waste without a system or an order. The two always belong together. Order is established by excluding waste, and waste is the result of this exclusion, the separation of the desirable from the unwanted and the valuable from the worthless. Therefore, there need not be any physical changes in the biomass itself in order for food to become waste, but foodstuffs are *made* into waste by the act of being discarded. And we tend to regard the food that is placed in a bin as rubbish, as inedible, dirty and disgusting, even. So, the act of binning basically gives groceries a new ontological identity. However, their status can of course remain indeterminate, complex and malleable. For example, the dumpster divers digging at and salvaging other people's rubbish may find it edible and usable. They actualize the potential overlooked by others. By taking the materials out of the rubbish bin and into their house, and by cleaning the items and cooking them, they make rubbish into food. So, what we are dealing with here is not only about endowing one and the same object with a new interpretation, but the practices enact a new object with a whole new set of relations compared to, say, the rubbish discarded in

the bin as worthless and useless excess (or as a resource of value for the waste management firms and placed under their property rights). The dumpster divers not only give a new meaning to the stuff, nor do they act merely in complete ignorance of questions of cleanliness and hygiene. Instead of completely abolishing or suspending the boundary between clean and dirty, they constantly redefine and move that boundary. By sorting edible foodstuffs from the inedible and by washing them, peeling potatoes and carrots for example, or freezing them in a fridge, they enact a very concrete transubstantiation of the foodstuffs.²⁰ All this is to say that there is no autonomous essence to entities that would pre-exist their relations to others. They become different whenever they leave assemblages or enter new ones. Of course, sometimes these transformations or becomings may be so delicate that they are hardly observable. However, entities and their materials ‘happen’ and go through transformations each and every moment. They only seem to be fixed and remain the same. The world is a process of becoming.

Notes

- 1 To put it briefly, Deleuze and Guattari (1987, pp. 7–12) see six principles as characteristic of rhizomes: (1) connectivity: ‘any point of a rhizome can be connected to anything other, and must be’; (2) heterogeneity: a rhizome establishes connections between entities, materials and flows of various kinds; (3) multiplicity: a rhizome undermines the opposition between one and many; (4) a-signifying rupture: a rhizome may be broken at any point; and, finally, (5) cartography and (6) decalomania: a rhizome is to make a map without adhering to a structural or generative model and without tracing an underlying structure.
- 2 Nancy (2000, p. 3) praises Heidegger for having been the one who first elucidated the essentiality of the ‘with’ for being. And indeed, in *Being and Time* (1962) Heidegger maintains that ‘being-with’, *Mitdasein*, is essential to *Dasein*. However, Simmel stressed the idea of being-with before Heidegger. In his sociology, Simmel commences from the idea that human beings do not exist as isolated and separate entities, but being is always already *being-with*. Existence is essentially co-existence. In *Soziologie* (1992b [1908]), Simmel stresses that even being-alone is essentially ‘being-with-others’. It is not the sheer absence of social relations but their presence, which is then removed: in being-alone, the influence of others is merely cut off and their presence is turned from actual into ideal or potential. Being-alone thus does not amount to the absolute absence of relations, but it is a form of relation

- in itself, a way of standing in relation, in which others are excluded after carrying out real effects on the person (p. 96).
- 3 We could also conceptualize this with the wonderful term ‘enabling constraints’ that Erin Manning and Brian Massumi have coined (Manning, 2009; Massumi, 2011).
 - 4 Cf. also the discussion around distributed cognition and the extended mind (e.g., Hutchins, 1995; Malafouris, 2013; Clark and Chalmers, 1998).
 - 5 The formulation ‘immersed in action’ comes from Whitehead (1938, p. 217).
 - 6 Of course, I am fully aware of the performative paradox involved in arguing for the necessity of dissolving disparate entities into relations while nevertheless referring to several proper names and also frequently using the personal pronouns ‘I’ and ‘we’ in this text. However, it should be acknowledged that, in the last instance, all these names and pronouns are merely shorthand. The beings to which they refer are no less heterogeneous and made of bits and pieces of relations than any other entity. For more on this matter, see Michael (2000, pp. 14–16).
 - 7 Cf. Deleuze and Guattari (1987, p. 25): ‘A rhizome has no beginning or end; it is always in the middle, between things, interbeing, *intermezzo*’.
 - 8 The way that the human geographer Gunnar Olsson (2007, pp. 6, 17) has considered the excluded middle in terms of an ‘unruly space’, a ‘zero-point’ and ‘abyss’ is both very apt and beautiful.
 - 9 Even though I refer here to Simmel, the thought of multiplicities has its roots especially in French philosophy. It began to take shape around the turn of the 20th Century in the work of Tarde and the philosopher Henri Bergson. In his neo-monadology, which pushes Leibniz’s monadology in new directions, Tarde (1999 [1893], pp. 72–3) grounds the being of monads in difference. Contrary to how Leibniz saw them, for Tarde monads are not self-subsistent and self-propelling, but they exist only in relation to others, to what they themselves are *not*. Bergson, who followed Tarde in the professorship of modern philosophy at the Collège de France in 1904, regarded all fixed forms and beings as expressions and achievements of a pre-individual and dynamic life force, *élan vital*, and of duration, *durée*. In *Time and Free Will* (2001), Bergson also distinguished between qualitative and quantitative multiplicity, with the first referring to duration and the latter to space and spatiality.
 - 10 However, the problem with Simmel’s approach is that it tends to be micro-reductive. Local interactions cannot be taken as the ‘foundation’, as it were, of the social, because they are always connected to other sites which *make* them local.
 - 11 Nor should one let the principle of multiplicity become a ‘univocal signifier’, operating in much the same way as the principle of identity (see Butler, 1989).
 - 12 I will return to this in Chapter 4.

- 13 In Chapter 4, I will examine this by discussing how our bodily capabilities develop in relation to elements outside the body.
- 14 Michel Callon (1998, p. 8) makes a similar point with regard to networks.
- 15 Ingold (2011) has in this context employed the notion of ‘meshwork’ to stress that the relational field is not made of interconnected points, like the concept of network suggests, but of intermeshed lines, with each of the assumedly separate knots or points of networks being a constellation of lines.
- 16 Anthropologist Alan Page Fiske (1991) has suggested a somewhat more refined model. According to Fiske, the whole spectrum of forms of social relations can be described in terms of four elementary models: Communal Sharing, Authority Ranking, Equality Matching and Market Pricing.
- 17 Pierpaolo Donati (2003), for example, suggests that ‘*it is important to understand that exchange is based on free giving and not vice versa*’ (italics in the original). For the critique of exchangism, see Graeber (2012); Pyyhtinen (2014a); Elder-Vass (2015).
- 18 The approach I am suggesting is thus diametrically opposed to the so-called object-oriented ontology (OOO) developed by Graham Harman and Levi R. Bryant, among others, insofar as OOO starts from the assumption that ‘the way to establish a realist philosophy of things is not to shift from individuals toward process, flux, genesis, dynamism, or pulsion, but to establish a new model of individual entities as free of all relation, and hence as cut off from each other and from their own histories’ (Harman, 2008, p. 374).
- 19 Whitehead phrases this in terms of *experience*. He stresses that there is nothing outside experience. As he famously puts it in *Process and Reality* (1978 [1929], p. 167): ‘apart from the experience of subjects there is nothing, nothing, nothing, bare nothingness’. Let it be noted that Whitehead is using here the notion of experience in a wide, non-anthropocentric sense: he suggests that all entities, and not only humans, should be understood as experiencing subjects. Human experience is for him only one – and not even the primary, exemplary – case in the wide variety of experiences found in the universe.
- 20 See Lehtonen and Pyyhtinen (2015).

3

Matters of Scale

Abstract: *This chapter discusses the misgivings of the micro-macro problem and argues that scales are much more varied and multiple than the dual model usually assumed by sociological analyses. The problem with the shifting between the individual's point of view and the social context, suggested for instance by Mills, so the chapter argues, is that it ignores the laborious work of mediation and thus misses crucial steps. What is more, by assuming a fixed, pre-given scale, the bifocal model remains blind to the practices of producing scales. Abandoning the micro-macro distinction, the chapter opts for an altogether different scalar imaginary, discussed through three examples: the city of Paris; the manufacturing chain of a can of cheap, ready-made food; and a stock trading disruption at the New York Stock Exchange. It gives sustained attention to how scales are enacted and maintained in associations involving heterogeneous elements, from humans with their sayings and doings to technologies, things and materials.*

Keywords: micro and macro; local and global; scale; scaling

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The utility of 'scale' as an analytical concept has in the past few decades become a topic of invigorated debate in human geography. In the debate, much of what has usually been taken for granted about the nature of this core concept of the discipline has been under scrutiny. Scholars have, for example, drawn attention to the problematic naturalization of many of the metaphors – such as 'local', 'national' and 'global' – used to talk about geographical scale as 'categorical givens' (Howitt, 1998) and, challenging the assumption of scale as pre-given and fixed, argued for its production or construction (Brenner, 1998; 2001; Howitt, 1998; 2003; Marston, 2000; Fraser, 2010). Some have even gone as far as to suggest abandoning the very concept of scale in human geography (Marston, Jones & Woodward, 2005; Jones, Woodward & Marston, 2007).

While sociologists clearly make use of several scalar concepts and many sociological notions entail a scalar aspect, scale itself has remained somewhat under-theorized within the discipline. We could probably live with this just fine, if scale did not hide behind the micro-macro distinction in disguise of nested vertical hierarchy.¹ In sociological literature, the micro-macro binary usually conflates size and level. George Ritzer (2011, p. 545), for instance, affirms that '[w]e can clearly think of the micro-macro linkage in terms of some sort of vertical hierarchy, with micro-level phenomena on the bottom, macro-level phenomena at the top, and meso-level entities in between.' The problem with such vertical hierarchy, however, is that it is assumed in advance, as something like a transcendent model. And, once set in place, it offers itself so naturally to us that it is difficult *not* to conceive the world along its contours (Marston et al., 2005, p. 422). By presupposing that phenomena are placed on two levels only – and sometimes even privileging one of the two scales – the viewpoint remains inattentive and blind to both how processes crisscross various scales and how scales are produced in action.

What can we do about this problematic verticality, then? How to mend it? We have basically three alternative strategies. The first is to affirm the vertical hierarchy while adjusting or complicating the micro-macro divide. Mesosociology is the most paradigmatic case here. It bridges the micro level of individuals and the large-scale macro forces and structures by drawing attention to the intermediate (i.e., *meso*) entities and processes between them. One version of mesosociology has been suggested by Ritzer. He emphasizes the micro-macro *continuum*. Ritzer asserts that '[t]here are no clear lines between the micro social units and the macro units. Instead, there is a continuum ranging from the micro to the macro

ends' (Ritzer, 2011, p. A-13). At the micro end he situates 'individual actors and their thoughts and actions' and at the macro end of the continuum 'such large-scale social phenomena as groups of societies (for example, the capitalist world-system), societies, and cultures'. Finally, in between the two are for him 'a wide range of meso-level phenomena – groups, collectivities, social classes, and organizations' (ibid.) In its crudest form, mesosociology would appear to do nothing more than add an extra level to the vertical hierarchy. But Ritzer's approach is more refined, as he rejects the idea that the world would be organized into levels. He writes: 'the social world is not really divided into levels. In fact, social reality is best viewed as an enormous variety of social phenomena that are involved in continuing interaction and change' (pp. A-12–13). Ritzer retains the hierarchical scale only as an analytical tool, as a heuristic abstraction. He insists that while there exist no distinct levels or layers in the world, 'the micro-macro issue is subsumable under the broader issue of levels of analysis' (p. 545). However, I find this solution unsatisfying, as it, too, remains trapped in the vertical epistemological frame of ordering and thus remains susceptible to the same problems as the nested binary hierarchy.

A second potential solution is offered by efforts to marry the vertical micro-macro distinction with a horizontal network approach on socio-spatial relations, processes and entities. I regard the Deleuzian-inspired *assemblage theory* by philosopher, writer and artist Manuel DeLanda as one of the most prominent of such proceedings. In *A New Philosophy of Society* (2006), DeLanda develops a multi-scale social ontology, which conceives the world in terms of several successive scales. He argues that instead of there being only two scales, the terms 'micro' and 'macro' should be understood as relative terms so that any given entity may appear as either micro or macro depending on whether it is understood as part or whole. As he writes: 'the terms "micro" and "macro" should not be associated with two fixed levels of scale but used to denote the concrete parts and the resulting emergent whole *at any given spatial scale*' (DeLanda, 2006, p. 32). An example by Dean R. Gerstein (1987) that DeLanda references suffices to illustrate this. Gerstein asserts that a 'fundamental distinction such as that between micro and macro must be general and analytical, not tied to a fixed case. By this standard, the individual person, household, or firm cannot be treated intrinsically micro, and the society, nation, or economy as unalterably macro'. Instead, Gerstein suggests, 'The overall status or role of a given family

member (ego) may be macro relative to ego's relation to a certain kin group member, but micro relative to the status or role of ego's lineage in a marriage exchange system; the marriage system in turn may be micro relative to a mythic cycle' (Gerstein, 1987, p. 88). So, DeLanda's understanding of the micro-macro distinction is quite different from how Ritzer saw it. Unlike Ritzer, who rejected the ontological idea of the as world organized in levels, DeLanda genuinely thinks that things exist on different levels – thus the label 'multi-scale ontology'. And, whereas Ritzer equated the micro with individual and the macro with society, DeLanda is highly critical of this kind of rendering of the terms and insists that they are relative instead of being tied to a fixed layer.

The key concept of DeLanda's multi-scale ontology is 'assemblage', which he defines as a whole whose properties emerge from the interactions between its parts (DeLanda, 2006, p. 5). Instead of assuming a pre-given nested hierarchy, he works out the succession of micro and macro scales in a 'bottom-up' manner (DeLanda, 2006, p. 32) by looking at any assemblage as an emergent property of the interactions producing it. Thereby, micro assemblages may become components of larger macro assemblages, which emerge from the interactions of their parts. According to DeLanda, assemblages are emergent in the sense that they are irreducible to the components of which they are composed. What is more, he asserts that once actualized, assemblages may affect their components. However, despite DeLanda's efforts at avoiding the too simplistic pre-given succession of scales which would render it, so to speak, 'a Russian doll or a set of Chinese boxes' (p. 33), his multi-scale ontology does not manage to rid itself of the hierarchical understanding of scale. As John Paul Jones III, Keith Woodward and Sallie A. Marston (2007, p. 273) note, instances of hierarchical discourse frequently reoccur within DeLanda's writing: 'while DeLanda is clearly at pains to avoid conceptualizing successive layers of scale ... they continuously resurface as transparent and critically preemptive objects, cemented into a ranking of appropriate processes'. He not only treats scale as a 'hierarchical given', but in his analysis also gives primacy to 'the classic analytical objects of scale', thus significantly delimiting the scalar objects examined to a relatively small number (*ibid.*). As DeLanda (2006, p. 6) states, 'starting at the personal (and even subpersonal) scale, [he] climbs up one scale at a time' from interpersonal networks and institutional organizations to cities and 'all the way to territorial states and beyond' (DeLanda, 2006, p. 6). For all the emphasis given to processes of connectivity and to the

creative actualization of the virtual in his analysis, all the conventional objects of scale are there, pretty much in just the same place as always.

The third possible position toward the hierarchical understanding of scale is to abandon the micro-macro distinction in its entirety, which is chosen in this chapter. The rhizomatic perspective discussed in the previous chapter leads into a very different scalar imagery compared with the micro-macro paradigm. It insists on giving sustained attention to the differential associations and processes between and across various scales. The micro and the macro are all too crude and impoverished conceptual tools to attend to the richness and messiness of the world. Things do not fit into these neat categories, but are mixed. Therefore, instead of jumping from the micro to the macro and back, the rhizomatic approach emphasizes the need to form a chain as continuous as possible of the thousands of tiny conduits linked to one another – this is an important point I take from Latour (2005). One should travel along these conduits and follow through what kind of a terrain and which sites they lead and pay attention to what kind of entities and materials are involved in their weaving. The problem with the spatial abstraction to which the vertical hierarchy of the micro-macro leads is that it ignores the laborious work of mediation and misses crucial steps. Instead of being pre-given, scale is produced and sustained. What is more, it is not only humans who effectuate and maintain scale, but various non-humans such as technologies, too, participate in the production of scale. Because of the emphasis on the production of scale the rhizomatic approach has many resonances with some of the aforementioned recent geographical contributions. However, while in geography scale has been understood almost exclusively in spatial terms, rhizomatic sociology stresses the need to also incorporate various temporal scales and the movement to and fro between them into our accounts of the world. However, I confess that in this chapter temporal scales will come up only briefly, as the chapter will focus on problematizing the conventional micro-macro and local-global distinctions, but I will return to the issue in the concluding chapter.

In what follows, I will discuss the rhizomatic take on scalar imagination by way of three examples: the city of Paris; the manufacturing chain of a can of cheap, ready-made food; and, lastly, a stock trading disruption at the New York Stock Exchange. The examples will problematize many ideas of scale that are usually taken for granted in sociology both in terms of size and level. They will show the frailty of any categorical divides between the local and the global as well as of the equation of

the local with the micro or small scale, on the one hand, and the global with the macro or large scale, on the other. I will conclude the chapter by summing up the main implications of the examples for the sociological understanding of scale.

Reassembling Paris

Paris: invisible city (2006) by Latour and photographer Émilie Hermant offers an alternative sociological approach to thinking about cities and what they are composed of.² Akin to how *Invisible Cities* by Italo Calvino, to which the title of Latour and Hermant's book pays homage, discovers the dream-like qualities of cities, *Paris: invisible city* explores the somewhat hidden or secret Paris usually remaining out of sight in the postcards, travel guides, books, or tourist snapshots of the city.³ Latour suggests that the famous City of Light seems to be so self-evidently 'open to the gaze of artists and tourists, so often photographed, the subject of so many glossy books' that we easily forget the amount of effort involved in maintaining it every day and making it visible (Latour & Hermant, 2006, p. 1).⁴ Hence, Latour and Hermant attend to the work and problems of engineers, technicians, demographers, police officers, operators, civil servants, laboratory scientists, the city's inhabitants, shopkeepers, waitresses, tourists and café owners, for example, in reassembling Paris and visualizing it. The book shows Paris as remarkably rich in materials, relations and scales. It takes its reader behind the scenes, as it were, to places like offices, control rooms and the police station in which the flows constituting Paris are monitored. It also pays attention to such mundane objects as sensors, computer screens, maps, sewers, pipes, cables, plugs and paper slips and their share in the process of reassembling the city.

No wonder then that Latour insists that all of Paris cannot be glanced at once, in one view. This is because all views are partial and limited. As he describes this in more detail:

At first it seemed simple: to encompass all of Paris in a gaze we simply needed to be high up, to stand back. But where should the camera lens be put? At the top of the tower of Montparnasse? No, the view would be too squashed. At the top of Montmartre – which would have the advantage of not seeing the hideous Sacré-Coeur? Yes, but the partial view would be too oblique. At the bottom of the catacombs? We'd see only a narrow corridor, partially lit. From the blind eye of a satellite camera? We'd get only one view. (pp. 28–9)

A satellite photo, for example, is not very detailed. Although nothing would seem to escape its pervasive, all-encompassing gaze, it is nevertheless unable to capture the multiplicity of all the places, people and circulations that make up the whole of Paris. Accordingly, Latour refutes the idea of ‘panopticon’ developed by the British reformist Jeremy Bentham and famously discussed by Foucault in *Discipline and Punish* (1991 [1975]). Bentham’s panopticon was a design of a prison that would allow total surveillance of its inmates. Architecturally, it was a machine of visibility, ‘a system of light before being a figure of stone’ (Deleuze, 1999, p. 28): large, panoramic windows of the central tower gave a view to the cells, situated in a circular building surrounding the tower. Because of having both an inner and an outer window each cell would be backlit to enable constant visibility and observation of the inmates. To counter the idea of the all-seeing view of the panopticon, Latour introduces the notion of ‘oligopticon’. It is not possible to see everything, at a single glance. Rather, what Latour suggests with the notion (with the Greek term *oligo* meaning ‘little’) is that seeing little is a prerequisite of seeing well. The ability of oligoptica to display and render the city visible is ‘proportional to their deliberate blindness’ (Latour & Hermant, 2006, p. 28).

Every totalization of the city is dependent on and presents what Whitehead would call an ‘abstraction’ (Whitehead, 1938; 1978 [1929]; see also Stengers, 2008). They extract some elements out of the abundance of the real Paris and form a whole out of that. Thereby, ‘every panopticon is an oligopticon: it sees little but what it does it sees well’ (Latour & Hermant, 2006, p. 48). For example, police officers are able to keep watch and control the flow of traffic in the whole of Paris thanks to a traffic-light regulation system. They can see all the roads in the city on a huge computerized screen. It is precisely because the screen extracts only a very limited set of features from the wealth of the Parisian traffic that the system can be so effective. It displays the roads in tricolour arrows (green, orange and red). The PC shows nothing of individual drivers as flesh-and-blood humans, or of the brand, registration plate or colour of the cars. The singular drivers are of interest only in terms of ‘the molecule of information they form, along with their vehicle, as they set off sensors in the road every five hundred metres’ (p. 78). Analogously, pollsters at a marketing research group are able to extract an opinion of Parisians on some matter only provided that they exclude everything else:

[They do not] want to sound out the kidneys and hearts of their volunteers or hear about their sons-in-law’s snubs, their grandchildren’s teeth, or the

Alzheimers that have just sliced through their aged fathers' neurones. In the little booth it's in vitro that the information is extracted from the pollee. All that's wanted are reflexive reactions to the rapid succession of logos of different brands ... After three-quarters of an hour the pollee will be asked politely to go. Having left the agency she/he can become a consumer again, a user of public transport, a driver or a roadhog, a good or a bad mother; none of that concerns the pollsters anymore. (p. 24)

What is more, besides covering only a tiny bit of the wealth of Paris, each and every oligopticon does not capture the same Parisians nor the same Paris (p. 79). On the contrary, their materials are different. The sensors at the water supply do not capture the same flows and circulations, the same actions and relations as those of the traffic control office, the EDF dispatcher watching over the electrical grid, the questionnaires collecting opinions, or the data Météo-France uses to forecast weather. Each of these oligoptica is only 'locally complete' (p. 68). None of them covers all of Paris all alone just by themselves, and each sums up only a part of the whole.⁵ While the images provided by them are without doubt totalities of some sort in themselves – as in the case of the entire network of Parisian roads, for example, displayed on a screen – they nevertheless are only 'small wholes that each form a bit of Paris' (p. 45).

Accordingly, the whole of Paris does not present itself one fixed frame or context within which the lives of Parisians would take place, but it is composed of a multiplicity of circulations, mobilities and connections. It is a product of constant reassembling and summing up that needs to be repeated again and again. The process of reassembling can never be finished. Paris is 'seized in its movement of renewal' (p. 99). It is important to note, however, that Latour does not fetishize flow and spatial openness, as some flow enthusiasts and fans of philosophies of becoming do.⁶ He does not privilege flux and fluidities at the expense of being, blockages and permanencies. This view is most clear in how he sees oligoptica operating in a negative manner: they are able to totalize the city only insofar as they extract, leave out and thus establish boundaries. The circulations of which Paris is composed do not flow absolutely freely, as oligoptica participate in the constant spatio-temporal ordering of the city.

As each oligopticon totalizes or sums up only a part of the whole of Paris, to encompass it one needs to somehow connect these scattered totalizations to one another. In other words, what is called for is a summation of the various summations (p. 60). And this is achieved,

Latour suggests, ‘in the montage of images, a transformation of images, a cross-cutting view, a progression, a formatting, a networking’ (p. 29). We therefore need to be on the move. For if we are tied to a fixed spot, Paris remains invisible to us. It is only by moving sideways along a chain of associations and between images, ‘from one local and provisional summation to the next’ (p. 57) that we are according to Latour able to visualize it and render it visible. In the end, it does not therefore matter that much where one starts, because the pulsating network of Paris can be accessed from whichever point. One just needs to keep moving and follow relations, without missing a step.

It is important to note that, just like the oligoptica explored by it, the book *Paris: invisible city* itself provides no panoptic view of the city. The totality of Paris that it compiles and gathers out of the summations that it links to one another is no ‘meta-sum’ (to use a term employed by Latour himself (p. 59)), but an oligopticon of some kind in itself, created by specific sensors and vehicles: sociological concepts, Latour’s penmanship and Hermant’s camera. The pages of the book do not cover all of Paris. Rather, there is a vast reserve ‘occupying all that unknown space that none of the networks considered in these pages cover’ (p. 103). Even when all the oligoptica discussed in the book are brought together, the resulting frame occupies only a tiny space of all of Paris. There is always something left out, something missing.

Ultimately, *Paris: invisible city* is not only about Paris and not even about cities. It tries to reconfigure sociological theory. Latour writes: ‘We can have a goal other than that of unveiling the real structures concealed by the common people’s illusions’ (p. 95). Just as *Paris: invisible city* does not examine Paris as an overall fixed frame or ever-present context, sociological theory, so the book suggests, should not have Society⁷ as its ultimate object of study. What locates, orders, carries, enables and translates action is not Society but numerous associations, mediators, objects and materials – the matters of scale. It is only by following the precarious conduits and links between various actions, entities and materials that the ‘slipping token’ of the social becomes visible (p. 5). And, when we follow the circulation of the social along the associations made, we never meet the pure forms of the individual and Society, but mixtures, alloys and confederations composed of a multiplicity of heterogeneous elements. According to Latour, there are such entities as individuals and Society only at ‘low temperature’. This is not to deny that in their everyday lives people actually believe in the independent

existence of Society as an objectified, reified entity and act accordingly. Society is indeed 'real', insofar as it is resistant to the resistance of other actors and has concrete effects on them. Therefore it cannot simply be written away or disregarded as fictive. However, it is only as long as it is successfully stabilized and maintained that Society may appear as 'one'. As soon as its stability is shaken and when things get heated up, rigid and stiff unities are dissolved into multiplicities, into dynamic assemblages of heterogeneous materials. To begin from the individual and Society would therefore be an unfruitful point of departure and lead to an inaccurate picture of our collectives and interdependencies.

Latour also wishes to do away with pre-given and absolute scale. Usually sociological studies tend to take certain assumptions of scale more or less as givens. It is as if they knew beforehand and *a priori* what counts as 'small' and 'big', or 'micro' and 'macro'. Latour, by contrast, argues that the 'frame has the same dimension, in a sense, as the object it frames. The big is no bigger than the small' (p. 9). He reminds us, as the exploration of oligoptica perfectly illustrates, that 'totalities are summed up in narrow temporary places' (p. 96): the overview of the entire road network of Paris, for example, appears on a computer screen, the data summing up the opinion of Parisians is located at some hard drive at an office and the flow of water to the homes of Parisians is controlled at some control room at the water supply plant. Instead of big or small, micro or macro, it is, according to Latour, therefore better to speak of 'linked or separate, aggregated or disaggregated' (p. 50). The connections are primary and the connected entities secondary.

Manufacturing the global

The documentary film *Canned Dreams* (2012) by Katja Gauriloff, which examines the contemporary globalized food industry, displays some of the virtues of the best sociological analyses: it succeeds in telling us a great deal of the world by focusing on the mundane, concrete and seemingly insignificant. By following the manufacturing process of a can of ravioli and the work that goes into it, the film manages to get hold of globalization, industry, exploitation of workers and animals as well as global inequality, for example. It takes a critical look at its topic, but Gauriloff is much more subtle in her criticism than, say, the likes of Michael Moore and Morgan Spurlock, whose films also belong to the loose genre of

socially aware documents. *Canned Dreams* is less sensational and also completely devoid of authorial commentary, leaving thus more room for the audience to form their own opinions and interpretations. However, unlike Nikolaus Geyrhalter's *Our Daily Bread* (2005), for instance, which is another great critical food film, it does not merely silently observe the sites where food is produced, but lets its subjects speak. In *Canned Dreams*, nine food-industry workers across the world share their lives, dreams, problems and aspirations with the viewers. The story of each is heard as a voiceover while the camera films them at work.

By tracking the journeys of a can of ravioli and the ingredients out of which it is composed, *Canned Dreams* renders visible the global manufacturing chain behind a commodity seemingly as simple as a can of cheap, ready-made food. The ingredients of this traditional 'Italian' dish travel no less than 30,000 km across the world before the tin can finds its way to the shelf of a grocery store in Finland: the aluminium for the can is quarried in open-pit mines in Brazil, the pork comes from piggeries in Denmark and Romania, tomatoes are plucked in Portugal, beef is butchered in Poland, eggs are produced in France, the wheat for the pasta is from fields in Ukraine and the olive oil is made in Italy. Then the ingredients come together in a factory in France, where the can of ravioli is manufactured, and finally it is placed on a supermarket shelf in Finland.

To a certain extent, the film comes to embody and visualize the new scalar imagination suggested in this chapter. First of all, it addresses thorough-going connectivity. The movie succeeds in depicting how our lives are interconnected to an unprecedented degree through various sites. Each supposedly local or micro interaction is anchored to and conditioned by a network or meshwork of relations. Not only are we dependent on an enormous amount of people in our everyday lives, but the relays of action are also extremely long. The majority of people upon whom we rely on in our most mundane activities are not visible to us the moment when we act, nor do we know them personally. On the contrary, these people may live in faraway places and their action may even be carried from a different time. And yet they are present, in a sense, when we act. Their presence is lent to them by mediators, which make it possible to 'act at a distance' (Latour, 1987). When we buy a can of ravioli, we are instantly connected via long chains of associations and mediations; for instance, to workers toiling at the open-pit mines in Brazil in hazardous working conditions; to a pig farmer in Denmark;

to poorly paid women picking tomatoes on a field in Portugal; to a butcher slaughtering cattle in Poland; to a French egg farmer; to a man in Ukraine harvesting wheat; and to a woman, close to her retirement, putting all her soul into her work at the mill and thinking that people should appreciate bread, just as they should appreciate life; to an old man in Italy taking pride in his olive trees that bear fruit to others;⁸ to a butcher in Romania who, having slaughtered over 10,000 or 15,000 animals so far in his career, prays to God for forgiveness; as well as to a young woman at the same workplace trying to get by with two young children and whose dream is to become a beautiful bride; and to factory workers working in the company producing the ravioli, not to speak of all the people who transport the ingredients by lorries and on ships. The can of ravioli is an assemblage with the effort of all these people folded into it, transported via several conduits and mediators. A lot more than just dreams or ravioli is canned inside.

As each local site is connected to others, their connectedness extends the sphere of our being by wrenching us off our local existence. Instead of being 'there', as Heidegger thought, we are rather out-of-there, deterritorialized from the 'there' of our existence. We never exist and stay put in one single place, but we are always dislocated, always here *and* there, always on our way, moving along (Serres, 1994, pp. 63, 65). And, because of this pervasive connectivity, our actions also have far-reaching effects. For instance, through what we consume we may participate in, say, maintaining the use of child labour in supply chains, in actions that pollute the earth, or in the exploitation of local farmers. However, at the same time, the length of the strings of attachments suggests that we need to reconsider ethical responsibility in terms of distributed action. Because the relays of mediators are indeed so long and complex it would take one an incredible amount of time, effort and resources to investigate into the production chain of each and every product, not to speak of having any considerable control over the dispersed assemblages one potentially takes part in. Accordingly, the individual's ethical responsibility, as Jane Bennett (2010, pp. 37–8) suggests, may come down to 'one's response to the assemblages in which one finds oneself participating': to disentangling oneself from assemblages that possibly do harm to animals or the environment or exploit other human beings, for example, and attaching oneself to assemblages that one may judge as tending toward noble ends. While action is 'distributed across a mosaic' (p. 38), one is able to choose one's assemblages, at least some of them.

Canned Dreams also succeeds in demystifying and dissolving the 'global' as some mysterious overarching and absolute macro scale assumedly leaving its mark on the local. The film makes visible the globalized industry of food production by turning attention to local sites. The global scale, the film wonderfully shows, is no all-encompassing context, but a product of a particular connective process of local sites, accomplished in the alloys of humans, materials and things. Instead of being a container encompassing local interactions, the global is assembled, stabilized and maintained in and through the connections between local sites. To come to existence, it necessitates movement from place to place. When trying to dispel the isolation of local interactions, it is important not to jump to some all-embracing and invisible social context and back, as Mills pictured the sociological imagination. Instead, one should attend to 'the many local places where the global, the structural and the total were being assembled and where they expand outward thanks to the laying down of specific cables and conduits' (Latour, 2005, p. 191). In a sense, then, the global is just as 'local' as the places in(-between) which it is put together, but the size of the local varies and interactions also need to be localized; that is, framed and made local before they can appear as such. The local does not automatically and necessarily equal small, but it can also be large. Or, the other way around, one could also say that small things like a can of ravioli, are 'the real material of globalization' (Thrift, Tickell & Woolgar, 2014, p. 1). The circulation and journey of the tin can and what goes into it assemble the vast network of the global food industry.

It is precisely by moving from place to place, in a manner not dissimilar from multi-sited ethnography, that the documentary is able to trace the global structure and how it is manufactured in the relays and conduits via which the can of ravioli and its ingredients circulate. Thereby, the film shows how the global itself is a token that circulates along the chains of the network together with the travelling vagabond ravioli. It gives us occasional glimpses of the conduits and means of transportation. For instance, there is a scene of a truck leaving the piggery courtyard in Denmark. The truck has a picture of a smiling pig on its side and is full of pig carcasses hanging from the roof inside. In another scene, the tomatoes grown in Portugal are packed into green barrels and a worker pens 'France' on its side. After this, the camera shows a red truck driving along a highway. The truck reappears shortly in two other scenes, first when it is driving at a dock in France and later on a highway in Romania.

Ultimately, this points to the fact that it is not enough to attend to the local sites themselves that structure the global chain, but it is equally important to render visible the particular conduits and relays of action *between* the local sites. This is because the network holds only as long as the relations between the sites hold: ‘if you cut a structure-making site from its connections, it simply *stops* being able to structure anything’ (Latour, 2005, p. 176). In a sense, then, the connections and the movement between places are primary and the places themselves secondary. Of course, due to genre conventions, in *Canned Dreams* the gaze of the documentarist seems to travel lightly. Whereas it would perhaps take a making-of the film to show how the documentarist and her team have tracked down the production sites and followed the connections between them, a sociologist would need to incorporate such a making-of into one’s study and show all the labour it has taken to establish the connections between the sites. Instead of jumping from site to site, one must travel slowly, laying the continuous connections between the sites.

Stock trading disruption

On 1 August 2012, The Knight Capital Group generated chaos at the New York Stock Exchange (NYSE), for it had accidentally released test software code – meant to be used in a controlled environment – into an actual production environment.⁹ Because of the incidence, Knight Capital was suddenly buying stocks for a high price and then selling them for a lower price. As a result, it lost \$440 million in just half an hour and there was a major disruption in the prices of almost 150 companies listed on the NYSE. The software failure is a good example of an observation made by several STS scholars: that accidents, disruptions, breakdowns and catastrophes are excellent objects of study, as they render visible the elements and connections necessary for an entity to exist (see, e.g. Latour, 1987; 2005; Pels, Hetherington & Vandenberghe, 2002; Bennett, 2010). As long as everything works fine, the mediators disappear in the background and the entity may appear to us as a unified whole. However, as soon as something goes wrong or breaks, a multiplicity of beings, elements and associations reappears. Think of a car. As long as it drives us to where we want and no problems occur along the way, the driver does not need to think about the internal engineering and mechanics of the vehicle. They remain ‘black-boxed’

(see Latour, 1987). However, if the car abruptly breaks down and stops, what formerly seemed like a natural, given unity, suddenly becomes an unstable and fragile assemblage of such elements as the key, engine, transmission, gasoline, suspension, gear, wheel, tyres and lights. And, if it turns out that the problem with the car has to do with the motor, it itself is dissolved into an assemblage of heterogeneous elements and the same holds for the transmission, suspension, gears and so on.

Analogously, because of the software failure, the agents in the financial markets were no longer able to take for granted the operation of electronic trading and of the programmes used. The massive meshwork of connections and activities was not only laid bare but also problematized. The incidence forces us to consider, for instance, our dependence on electronic trading and overall on the global financial markets in our everyday lives. And, to make sense of the world, where a single software failure is capable of destroying the trust that is at the heart of a complex global economy, it is evident that standard sociological explanations won't do. We cannot really grasp the multi-scale, distributed nature of the trading disruption and its effects by holding on to such accustomed conceptual tools as 'agency' and 'structure' or 'micro' and 'macro', not to speak of explaining it by 'capitalism', 'technocracy', or 'risk society', for example (Lehtonen, 2013). While the notions of capitalism, technocracy, or risk society are all too vague to be able to give an account of the specificity of the event, the conceptual pairs agency and structure or micro and macro try to fit things into a fixed frame and on a set scale. Such a scale is problematic, because it would be extremely hard and ultimately futile to try to determine which is which: Is the software agency or structure? What about Knight Capital? Or the NYSE? Or electronic trading, for example? Further, the notions of micro and macro will not be of much help, either. Surely, by its accidental release the software code was taken on to a new scale (global economic markets) and yet it would not be very apt to call the controlled environment micro and the real production environment macro. For one thing, the software was not produced right there on the spot at the moment of release. On the contrary, its very production involved a diversity of temporalities, places and activities folded into it. Second, the global financial markets do not exist independently of the local or the micro but, combining global breadth with local interaction, they could be understood as what Karin Knorr Cetina and Urs Bruegger (2002) have called 'global microstructures'. With the term, they refer to 'patterns of relatedness and coordination that are global in scope but

microsocial in character and that assemble and link global domains' (Knorr Cetina & Bruegger, 2002, p. 907).

Consequently, the software failure (like the other two examples discussed, the reassembling of Paris and the manufacture of a canned product within the global food industry) unsettles accustomed ideas of what counts as big or small. Its size or scale was entirely dependent on the chains of associations and relays of actions it was part of, for it is they that determined the scope of its effects. Unconnected, that is, had it not accidentally been made operative at the NYSE and if high-technology and electronic trading did not have such an important role in today's economy, the software code had indeed remained relatively small. However, once it was connected to the stock market, to the global financial markets and to people all around the world, it gained in scope and significance. It had potentially an 'impact on the everyday lives of millions of people who have no interest in nor personal relationship with the New York Stock Exchange' (Lehtonen, 2013, p. 51). So to sociologically examine what the stock trade disruption was about, what were its actual and potential effects and what kind of relations of accountability it revealed, one need not jump from the local to the global or from what takes place in a trading room to capitalism. Instead, one must pay attention to an assemblage of the heterogeneous elements involved, from software, computers, traders, companies, risks, trust and money, for example, to the role of Knight Capital in the NYSE, the significance of electronic trading in the stock market, or how the global financial market affects other markets and the everyday lives of people today. A software code in a Wall Street trading room is indeed connected to the 'whole world,' but not in terms of a micro setting embedded in a macro social structure. On the contrary, the connections are made 'through the tiny but expeditious conduits of millions of bits of information per second, which after having been digested by traders, are flashed back to the very same place by the Reuters or Bloomberg trading screens that register all of the transaction and are then wired to the "rest of the (connected) world" to determine someone's net worth' (Latour, 2005, p. 178).¹⁰ The stock trading disruption shows how our lives are to a great extent dependent on technologies and economic arrangements we have no immediate relation with. Yet the global breadth of technology and relations is not revealed by zooming out from local sites, but it unfolds only as one pays attention to what happens in local sites and as one moves between sites, from one to another. The global financial markets are not

dissociated from the local, but they are made global only on computer screens, in the bits of information along the conduits, in the transactions between traders in trading rooms and in the concrete effects the price of oil, for instance, has on our lives.

An altogether different scalar imaginary

How does the scalar imaginary illustrated by the examples of the reassembling of Paris in and by various oligoptica, the circulation of a can of ravioli along the supply chain of the global food industry and a software problem in the stock exchange market compel us to reassess and change the conventional sociological understanding of scale?

First, it suggests that we need to abandon the micro-macro distinction and the vertical hierarchical model of scale it entails. Relations and processes should not be fixed on an *a priori* hierarchical scale, but scale should be treated as an open question, an object of empirical enquiry. Instead of being embedded in a pre-given hierarchy of scales, entities and fluxes are often much too heterogeneous and messy to fit the pre-given compartmentalized categories offered by the labels micro and the macro. Importantly, the refutation of verticality does not, however, automatically imply reliance on a pre-determined horizontal scale. The point cannot simply be to replace the vertical imaginary of the micro and the macro with a horizontal one – that of networks, for instance. This is so because such a move would just implant things within another transcendent model. We should avoid reliance on ‘*any* transcendent predetermination’, as has been argued by Marston, Jones and Woodward (2005, p. 422).

This takes us to the second implication of the proposed scalar imaginary. Refuting scale as a categorical given directs our attention to how scales are made and sustained in practice. Instead of pre-existing interactions, scales are enacted, performed into existence. Woolgar and his colleagues (in the ‘From Scale to Scalography’ event they organized at the Saïd Business School 8 July 2009) have coined the term ‘scalography’, which – despite its awkwardness – is wonderful in that the methodological stance suggested by it turns scale from a matter of fact into a *matter of concern*. When scale is treated as an object of empirical inquiry, the analysis foregrounds the work that goes into producing, constructing and maintaining scale. All kinds of agents, from architects (A. Smith, 2004; Yaneva, 2005), administrators (Kaljonen, 2009) and participants of political

struggle (Jones, 1998) to social scientists both rely on and construct scales. ‘Human actors, whether individuals, social groups, or governing bodies’ as Alistair Fraser (2010, p. 332), suggests, ‘“produce” and “use” scale in all manner of attempts’, be it ‘to create some sort of advantage, to establish associations, connections, or solidarities across social divides, or to represent their interests (to be heard or seen) amidst oppressive or otherwise difficult conditions.’ Agents may, for example, rescale things (Harvey, 1996), bend scales (Smith, 2004), or jump scales (Smith, 2009; Glassman, 2002).

However, while being a frequently used ‘representational trope’ (Jones, 1998, p. 27), scale is not only a matter of epistemology, but also an ontological issue. Relations and associations configure scalar ontologies. Take the global scale, for example, which was discussed through the documentary film *Canned Dreams*. Rather than preceding the relations between the local sites as an all-encompassing framework, the global is produced in and through those connections. Which also means that the global would cease to exist were these localized connections for some reason eliminated.¹¹ The global only exists through a manifold of connections between local sites. And it is not just humans who produce scales; non-human or not-only-human things and materials, too, contribute to these processes of *scaling*. Scales are produced and sustained in the associations between humans, sayings, doings, technologies, objects and materials. A city, for example, does not exist separately from maps, the drawings of city planners, the infrastructure of buildings, streets, water pipelines and the electricity grid, population figures, or finance. Produced in and through different circulations, flows, sites and elements, it is *all* of these materials and processes together. In and through these matters and processes the scale of the city also varies. A city may take many forms, scales, shapes and properties.

Third, all this is suggestive of the importance of attending to the multiple elements or mediators involved in producing and maintaining a collective. Even the global is ultimately made of ‘tiny’ materials and mediators. When studying how local interactions are implanted in global processes and also being constitutive of them, we need to ditch the method of zooming in and zooming out that goes with the shift of perspective suggested by Mills, for instance. Instead of changing vehicles and jumping from local interactions to a global context, we must follow continuous connections leading from one local interaction and mediator to another and from an occasion and site to other sites, other

times and other agencies ‘through which the local site is *made to do something*’ (Latour, 2005, p. 173). With reference to their term global microstructures, Knorr Cetina and Bruegger (2002, p. 908) propose that ‘[i]f the hallmark of microsociology in the past was its emphasis on local social forms, then we should extend the field to corresponding research on genuinely global social forms’. The old microsociological assumptions of the autonomy of local interactions and of their confinement to a demarcated site are simply no longer adequate in a world where our interactions are simultaneously constitutive of global structures and instantiated in them. Instead, it is worthwhile to attend to the emergence and production of those structures by attending to local connections. Global structures do not exist apart from concrete practices and as if elsewhere, but need to be constantly made and remade in and by them.

Notes

- 1 As it happens, in sociology scale thereby echoes the etymological origin of the term. The word is derived from the Latin *scala*, ‘ladder’.
- 2 Although the book has not been published in English, there is an English translation of the French original (by Liz Carey-Libbrecht and corrected by Valérie Pihet) made available on Latour’s personal website, see: http://www.bruno-latour.fr/sites/default/files/downloads/viii_paris-city-gb.pdf. Whilst in what follows I reference the plain text, the book has also been converted into an interactive website furnished with pictures.
- 3 Cf. Calvino (1974, p. 44): ‘Cities, like dreams, are made of desires and fears, even if the thread of their discourse is secret, their rules are absurd, their perspectives deceitful and everything conceals something else’.
- 4 As is well-known, the renovation planned and executed in the 1860s by Napoléon III’s architect and city planner Georges Eugène Haussmann created the Paris of today, famous for its wide, tree-lined boulevards and expansive gardens. Whereas the pre-Haussmann Paris was thought to be a dark, suffocating and dirty place, as if a ‘subterranean city’, as one contemporary described it (Rice, 2000, p. 9), Haussmann opened up the city to gaze.
- 5 We could add that, as they’re focused on gaze, the oligoptica also leave out all that which falls outside the register of sight, that is, the tactile, the odoriferous and the sonorous or the phonic, for example.
- 6 For a more detailed discussion and critique of the fetishization of flow and becoming, see Marston et al. (2005, pp. 423–4).
- 7 In *Paris: invisible city* Latour systematically writes Society with a capital S. With the capitalized notion, I refer in this book to the idea of Society as an

all-encompassing, overarching structure or unity existing independently of individuals.

- 8 The elderly Italian man, however, makes an appearance only in one of the deleted scenes included as extras in the DVD.
- 9 I draw this example from Lehtonen (2013), who has discussed it in relation to infrastructures and the mediators of our welfare.
- 10 See also MacKenzie (2006).
- 11 This is, of course, very similar to Simmel's take on society (see Chapter 2).

4

More-than-Human

Abstract: *This chapter suggests that the relation of sociology to materiality is by and large characterized in terms of a forgetting of materiality. Sociological accounts have tended to privilege language, discourse, and culture and assign primary dynamism to the human realm. Against this, the chapter develops a more-than-human sociology, which commences from the idea that we need to take seriously various non-human or not-only-human materials and things as integral elements of our collectivities. Society does not exist apart from material things and flows, but it involves a wide range of heterogeneous materials in its constitution. In conclusion, the chapter argues that this insight has radical implications as to how we perceive matter, human relations and ultimately what it is to be human.*

Keywords: anthropocentrism; Latour; materiality; materials; matter; more-than-human; Serres; the human

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We live in a material world, in a world that is hot, cold, hard, soft, rough, silky, resistant, fragile, dusty, glossy, solid, fluid, trembling, calm and filled with noise; a world of materials, flows, confusions, mixtures and alloys. It shakes our bodies, themselves composed of matter; makes our skin shiver; fills our mouth and may turn our stomach; it roars and hums in our ears. We smell its fragrance and stench in our nose, are astonished by its beauty and repelled by its ugliness. We have the material world around us, along us and within us. We have it in artefacts as well as in natural forces, as much in the infrastructures we rely on daily as in the food and commodities we consume, in the surplus materials we discard and in the necessary physical foundations for life that we find in nature, such as air and water. What is more, what makes our own present era different from the preceding ones is that it abounds with things of human design and manufacture, made possible by industrial progress and easy access to fossil fuels. Never before in human history have we had so many things. They seduce us in advertisements and shop windows, present themselves as necessary for us, pile up in our homes and take up space in closets, cupboards, cellar and attic. However, all this abundance has as its reverse side the mounting masses of waste that stand as the uncelebrated 'bastard monuments' of the economic progress and wealth of the rich Global North.¹ Landfills, marine debris concentrates like the Great Pacific garbage patch, carbon dioxide emissions, nuclear waste and pollution raise great environmental concerns and pose a serious threat to our mode of living as much as to the earth itself.

Attending to matter and materials is therefore crucial for understanding the constitution of society and our way of life in the 21st century. Nevertheless, our immersion in the world of materials and our intimate everyday entanglements with things has largely remained absent in sociological accounts of the world and of our lives. In fact, most of the history of the discipline in relation to materiality amounts to hardly anything more than a *forgetting* of materiality. Sociologists, as Latour (2005, p. 82) asserts, seem to 'consider, for the most part, an object-less social world'. The 'masses' are missing from sociological analyses (Latour, 1992). Materials and things have persisted 'outside the relational circuits that determine society' (Serres, 1995b, p. 91).

This blind spot has made a great deal of sociology more or less anthropocentric. Sociological accounts have tended to privilege language, discourse and culture and assign primary dynamism to the human realm. In contrast to this view, in this chapter I argue for a *more-than-human*

sociology. It designates three radical breaks with the prevailing sociological imagination. The first break is to think of matter differently. Things and materials are not inert and passive; they are dynamic and may have active and productive agentic effects. Second, more-than-human sociology is also about taking seriously the effectivity and role of various non-human or not-only-human things and materials in human collectivity, as prerequisites of our being-with. Acknowledging technology, natural resources and waste, for example, as an integral part of social life makes us realize the heterogeneity of the elements of which society is made. Society does not exist apart from material things and flows. It is not made only of two ingredients such as agency and structure or individuals and institutions, nor is it maintained by the social skills of humans alone, but it involves a wide range of heterogeneous materials in its constitution.² Third, integrating matter and materials into our view ultimately compels us to rethink what it is to be human. Foregrounding matter flips the perspective from the constitutive human subject to the ways in which the human is constituted in its various entanglements with forces, flows and forms outside it. If we take our entanglement and foldedness with our environment seriously, we cannot limit the numerous others we depend on in our existence and activity to other humans alone. In everything we do we are entwined also with a variety of non-human or not-only-human elements and materials. They are always already present and implicated in the human.

Vagabond matter strikes back

The predominant understanding of matter in modern Western culture, as Diana Coole (2010, p. 92) remarks, is to regard it as ‘essentially passive stuff, set in motion by human agents who use it as means of survival, modify it as a vehicle of aesthetic expression, and impose subjective meanings upon it’. This is true for everyday experience and perception as it is for social sciences and philosophy. We tend to perceive the physical world as consisting of relatively static and permanent things or objects such as houses, streets, bikes, trees, grass, gravel, tables, record players, bottles and tea cups at the state of rest. According to Whitehead (1978 [1929], p. 209), the whole history of philosophy attests to the fact that the mind ‘tends to ignore the fluency, and to analyse the world in terms of static categories’.

In contrast to this, the so-called ‘new materialist’ thinkers have recently tried to ‘imagine matter quite differently’ (Coole, 2010, p. 92). They reject the idea of matter as passive and inert, distinct from active and free human subjects. As Coole and Samantha Frost suggest in their introduction to the volume *New Materialisms*, ‘an overriding characteristic of the new materialists [is] their insistence on describing active processes of materialization of which embodied humans are an integral part, rather than the monotonous repetitions of dead matter from which human subjects are apart’ (Coole & Frost, 2010, p. 8). Far from being passive and dead, objects and matter are in constant variation and have an on-going historicity. Every object is a series of events. In *The Concept of Nature* (1964 [1920], pp. 165–7), Whitehead counters the passivity of matter by taking Cleopatra’s Needle as his example. The over 20 metres tall obelisk, covered with hieroglyphs, is situated in London on the North bank of the river Thames. First of all, the obelisk has not stood at its current place forever from the dawn of ages, but it has a production history. It is an Ancient Egyptian obelisk sculpted by human hands around 1450 BCE. In 12 BCE it was moved from Heliopolis to Alexandria, and it was only between 1877 and 1878 that it found its way to London. Second, it is also unlikely that it will last forever, but some day it will probably cease to exist. Third, it is not that Cleopatra’s Needle would remain impassive and fixed outside these events of carving and moving, but Whitehead insists that it actively happens and goes through transformations each and every moment. It only *seems* to be static and immobile. A physicist, looking at the life of nature ‘as a dance of electrons’, could tell us how the obelisk gains and loses new molecules every day. However, its constant movement and renewal through time is also visible to the bare eye in its slow wearing away, in how it gets dirty or is occasionally cleaned. In fact, the ‘mere standing-in-place’ of the obelisk, as Steven Shaviro (2009, p. 18) suggests, is every second ‘an event: a novelty, a fresh creation’.

Deleuze and Guattari have referred to the dynamics of matter and its tendency to variation with the idea of ‘vagabond’ matter (Deleuze, 1979; Bennett, 2010, p. 50). What we eat, for instance, is a temporary congealment of different materials extracted from plants and animals that have travelled through food industries and supermarkets and via our fridge, stove and the plate to disintegrate again in our body; they get into our blood circulation, erode in our belly, mutate into flesh, make their journeys through the intestines, transform into energy and movement;

and, finally, they come out as excrement usually to be flushed down the drain and processed at a water treatment plant, for example.

Saying that matter and materials are active is to say that they *do* something. And this is to approach matter very differently compared to looking at its mass, volume or atomic or molecular constitution, for example. It is to understand matter not in terms of what it *is* but what it *does*.³ Instead of trying to tell what matter is by nature and by defining its primary qualities, this is to understand matter in non-essential terms, that is, not as an essence of substance, but as something whose properties are defined by its relations and thus susceptible to change. To focus on what matter is capable of is to examine its potentialities and the ways in which it, for example, makes possible, supports, mediates, transmits, translates, resists or prevents our actions, and how it is effective in relation to other materials.

Humanistic critics (e.g., Bloor 1999; Vandenberghe, 2002; Elder-Vass, 2008) have objected to the idea of the activity of matter by arguing that even though technology, for instance, may have an effect on our actions and relations, the intentionality and purpose behind the supposed 'action' of devices nevertheless remains entirely human. After all, it is humans who have designed and built them for a specific purpose, and therefore the supposed actions of these non-humans are possible only because of humans, so the argument goes. All in all, action is usually believed to necessitate intentionality, purposefulness, will and the like. While video cameras, airplanes and fridges, among other things, admittedly enable humans to do things they would not be able to do without them (e.g., record moving images, fly, restore foodstuffs and keep them fresh and edible), humanistic criticism refutes the idea of non-humans acting in their own right, on the grounds that they are not 'intentional' agents.

However, this critique has three great weaknesses. First, it assumes the existence of something like purely 'human', separate from our entanglements with the world and its materials. I will discuss this in detail in the last section of this chapter, focusing on how we have never been only human, but let it be noted already here that the human is a mixture, a 'starry centre of threads' (Serres, 2008, p. 29). The interior of the subject is a product of the exterior.

Second, there are various non-humans, such as animals, plants and bacteria or earthquakes, meteors and storms that need no human intervention whatsoever in order to be effective in the world. On the contrary, it would be a delirious case of human hubris to assume that all

natural phenomena are ultimately caused by human actions. In fact, it is quite safe to assume that, as argued by Bennett (2010, pp. 151–2, note 38), ‘humans need nonhumans to function more than nonhumans need humans, for many nonhumans – from a can rusting at the bottom of a landfill to a colony of spores in the Arctic – fester or live beyond the proximity of humans’. For instance, minerals, water and sunlight do not need humans in order to nourish plants and animals, but eco-systems get along fine (or even better) without humans.

Of course, while saying this, it is true that the actions of humans have an ever-greater effect on nature. Some have even argued that all the things of the world are human-made artefacts in that humankind affects the world on the global scale (Hodder 2012, p. 4); while being not-quite-human they are also never-quite-non-human. For example, Patricia Yaeger (2008, p. 332) suggests that ‘molecular garbage’ has polluted soil, water and air to the extent that ‘we can no longer encounter the natural untouched or uncontaminated by human remains. Trash becomes nature, nature becomes trash’. Humans have disseminated their trash to every corner of the world. In fact, some geologists, anthropologists and philosophers have asserted that we are witnessing a beginning of an era that they call the *anthropocene*, the era of the human. The notion undermines the nature/culture divide and suggests that humanity has a new mode of being-in-the-world. It has risen to the level of the earth. Instead of being-there the human is now being-everywhere. While previously our physical existence was bounded by locality, with rather weak effects on the world in its entirety, according to Serres (1995c) humanity is now becoming a physical variable in the physical system of the earth; we literally *weigh* and in that sense are comparable to the tectonic plates. We have created and have at our disposal what Serres (1995c) calls *world-objects*, such as the atomic bomb, satellites, nuclear waste and the World Wide Web, all of which have one or more dimensions compatible with one of the world’s physical dimensions. Our giant megalopolises extend from Dublin to Milan, from Baltimore to Montreal and across The Five Dragons in South-Asia (a view from satellites on a fine night shows this clearly; see Serres, 1994, pp. 61–2); our actions pollute the earth, disturb the albedo, the circulation of the water, the median temperature and the formation of clouds and wind; and we have created weapons of mass destruction capable of creating megaton damage (Serres, 1995c, pp. 16, 18). In short, we have become the masters of the earth and of the world (Serres in Serres with Latour 1995, p. 171).

However, our own mastery escapes our mastery, Serres suggests (p. 171). Even though we may rule the world to an increasing degree, we do not have the world as our passive object. Quite the contrary, we ourselves are subjected to – or objects of – the world that is of our creation (Serres, 2014, p. 47). This means that ‘we finally depend on things that depend on us’ (p. 28). Yes, we are partly responsible for creating the world and to some extent it behaves as if we had made it. However, it is equally true that what we produce returns to us in the form of new givens, conditioning our everyday life, institutions and relations with each other and to nature. Waste is a good example. According to some estimates, the world cities produce about 1.3 billion tons of municipal solid waste annually, a volume which is expected to rise to 2.2 billion by 2025 (Hoornweg & Bhada-Tata, 2012). The rubbish that we bin, the faeces that we flush down the drain, the stuff that we throw away does not vanish, but it *remains*. It sticks with – and to – us as unavoidable excess becoming part of nature and generating problems for generations to come. Plastic trash is ubiquitous all over the marine environment. It has been estimated that more than 5 trillion pieces of plastic are afloat on oceans, weighing over 250,000 tons (Eriksen et al., 2014). And not only the things we have created but natural forces, too, may backfire in unexpected and dark ways. Just think of the melting polar ice causing the sea level to rise; a tsunami or a tornado killing tens if not even hundreds of thousands of people; an ash cloud caused by a volcano eruption putting air traffic on halt in a whole continent and thereby also shaking many of the elementary infrastructures of our way of life; or highly infectious pandemic diseases such as Ebola or the avian flu forcing health officials and governments to resort to extensive control practices, travel restrictions and protective measures. It is about time that we integrate these outbreaks, fluxes and journeys of vagabond matter into our analyses of the social world.

The unruly non-human world relates to the third problem with the human-centred notions of action. Things, not even human-made things, are not sheer passive and transparent means of human action. We do not have full control over them, but they have independent lives irrespective of us, and because of that we are always to some extent surprised by what they do. Besides the natural disasters and diseases listed earlier, breakdowns and accidents such as electricity grid blackouts (Bennett, 2010, pp. 24–38) traffic accidents (Law, 2004, pp. 93–4; Virilio, 2007), illustrate this well. In them we can feel the ‘force of things’ as they ‘strike back at us

with unexpected violence' (Pels, Hetherington & Vandenberghe, 2002, p. 1; see also Latour, 2000). There is thus an element of *surprise* in the action of materials and things. No entity is a perfectly loyal instrument of action, as was noted in Chapter 2. Michael (2000) provides a good illustration of this with his wonderful examination of walking boots. They do not merely act as simple means of conveyance and as faithful intermediaries. While walking boots are a necessary element of hiking in rough terrains, as they make possible for a hiker to climb rocky hills or snow-covered slopes, for example, footwear may also interfere with the relation of the human body and the natural environment. When they do not fit perfectly, walking boots may seriously disturb the immersion of the body in nature by making walking very painful. Instead of the boot being an almost intangible intermediary in-between the foot and the surface of the earth, ideally making possible the smooth, unproblematic correspondence of the movements of the foot with the shapes and forms of the ground, by making every step agonizing it becomes a disturbing third party ruining the very possibility of an enjoyable walk. The lesson to learn here is that each entity modifies, transforms and mutates what it mediates, transports and transmits. To draw on Latourian parlance, all these 'mediators' bring about a 'translation' (Latour 1986, pp. 267–8).⁴

Thus, things are not the inert, passive and lifeless 'objects' we often mistake them to be. But to say that they are active is not tantamount to granting them intentional properties or consciousness. Rather, attending to the concrete occasions in which non-humans, objects and materials are active and produce effects provides us a way of reconsidering action and activity. Instead of attributing action causally to 'agency' (resulting, e.g., from the faculties of the mind) of which it would be the effect, rhizomatic, more-than-human sociology looks at action in terms of relations, assemblages, confederations and flows. This is not to deprive human agents of intentionality or cognition, nor is it to deny the existence of several crucial differences between humans and non-humans. Humans do have certain specific features such as introspection, the capability to make one's own experiences the object of one's cognition, but cognition or intentionality should not be privileged when conceptualizing action. Intentional action is only one particular case of all the different kinds of action and activity. We would not ascribe intentionality to a heavy wind knocking down trees, to a bridge carrying trains over a river, or to the dose of alcohol going to one's head, yet they are active and have concrete effects. We need to challenge the very privilege accorded to

intentionality, free will, mind and the like when thinking of action and agentic effects.

Objects, things and quasi-subjects

So far I have used the words ‘object’ and ‘thing’ interchangeably, but the two terms have some important differences in connotation. The etymology of ‘object’ tells much about how we usually understand the term. Derived from Latin *ob-* ‘against,’ ‘before’ and *iacere* ‘to throw,’ the word designates something present, put or literally thrown before, against or in front of us. Objects are conceived as relatively stable pieces of matter that stand or are placed before the subject. What is more, the expression ‘pieces’ in pieces of matter is revealing. We tend to think of objects as ‘bounded essences,’ that is, as having fairly clear boundaries and therefore a separate existence.

Take a television set, for instance. On the face of it, it appears pretty obviously as a bounded substance, as a box or panel made of plastic and placed on a shelf or hanging on the wall. However, in closer examination its separateness becomes much less evident. Whilst a TV can also be used as a design element, it is its connections that make it work.⁵ We do not usually mean by the expression ‘watching television’ that one watches the box itself and its black, lifeless screen. In order to work, the television set needs to be part of a sociotechnical assemblage. If I want to watch some telly, the device needs to be plugged into a power socket and electricity circuit. And, in order to be able to receive and display broadcasts, the TV also needs to be connected to an outdoor or indoor antenna, or to the cable network. And of course television signals transmitted over the air by radio waves or through fibre-optic cables in the form of light pulses are needed as well, just like broadcasters, who need a license, money, staff, equipment and premises. And, lastly, I also need to locate the remote control, which, with much anger and frustration, is so often missing. So, what at first seemed like a clear-cut, distinct and isolated box, is in fact (connected to) a complex assemblage of materials, things, practices, flows and people. Work and efforts of engineers and television manufacturers, standards, decisions by censors, parental and paediatrician concern about television viewing, production companies and advertisers, among others, are present and mixed in with its functioning. What is more, the domestication of a television set in homes has crucially modified and

transformed leisure, people's living rooms, how the members of family are together as a family and communicate with each other, and, together with the sofa and the remote control, even produced a new kind of agent, namely the 'couch potato'.⁶

All this is displayed brilliantly in *The Royle Family*, a BBC television sitcom. Almost all of the episodes are situated in the living room where the members of family are gathered on the sofa to watch telly together, often irrespective of whatever is on. The television set gathers the family together and acts as the centre of all family activities, from eating snacks and meals to talking. The irony and brilliance of the sitcom lies of course in its being ultimately a meta-level narrative and a mirror of sorts: at homes, the viewers are gathered on the sofa to watch a bad television show about people gathered on the sofa at home to watch constant reruns and kill brain cells. While the viewers can try to adopt ironic distance towards the characters, ultimately any feelings of moral superiority are made impossible by the fact that one cannot help but see oneself in the members of the Royle family. Like a mirror, the characters tell you what you essentially are: nothing but a couch potato, just like them. What adds to the irony is the fact that the sitcom shamelessly celebrates couch potato-ness in its plain boredom and wastefulness of time and life. But unlike the slightly overweight working class members of the Royle family, who are able to indulge themselves in watching television and flipping through channels, the audience cannot but feel slightly guilty for just watching telly. Couch potato-ness fits ill with being 'fitter, healthier and more productive',⁷ all of which are aims imposed by techniques of bio-power upon us.

Indeed, besides being themselves gatherings and folds, things also gather people around them. The etymology of the term 'thing' expresses this well. Derived from the Old Scandinavian word *ting* and the Old High German term *Ding*, 'thing' originally referred to a gathering or a judiciary assembly to deliberate on a matter under discussion (Heidegger, 1971, p. 170). It is indeed fitting to think of a thing as a *gathering*, an assemblage of different kinds of elements, forces and relations. But a thing also gathers humans together around itself; gathering is a matter of to-gethering. The thing is what, literally, *collects* the community together. This is underlined nicely and aptly by the concept of the 'collective' employed by Serres and later adapted by Latour, for instance.⁸ The body, *collect-*, of the French word *collectif* is also the root of the verb *collecter*, 'to collect'. For the constitution of a community or collective it is necessary to have an

element that collects the many into one. Serres terms this thing 'quasi-object'. With it, he refers to the idea that objects are essentially mixed. They do not consist only of matter, but they are equally constituted in and by relations, both in their internal make up (each object being only a temporary arrangement of various components and materials bound to dissolve sooner or later) and in their dependence upon external entities.

A frequent example of the quasi-object appearing in Serres's books is the ball.⁹ In the sociological and philosophical literature, games are usually treated as examples of rule-governed behaviour. There is no denying the fact that one cannot play football, for example, without certain rules; the rules make the running and the kicking of the ball into a game. And yet, it is precisely the movements of the ball that those rules deal with and come down to. Without the ball, there is no game. The ball is the centre around which the game shifts and lives: 'Around the ball, the team fluctuates quick as a flame, around it, through it, it keeps a nucleus of organization. The ball is the sun of the system and the force passing among its elements, it is a centre that is off-centred, off-side, outstripped' (Serres 1995b, pp. 87–8).

Thus, the ball and the game are co-produced. On the one hand, the ball receives its meaning, abilities and force only in the midst of the game, in touches, kicks and hits, in being passed on from player to player or stolen by one from another. What is more, the ball that is in the attacking zone becomes hot and dangerous, in contrast to the controlled, relatively harmless and safe ball moving back and forth in the middle of the pitch. On the other hand, it is the circulation of the ball, its travelling from player to player, that assembles the individual players into a game. In the movements of the ball, the collective at once expands and contracts, spreads out and comes together. As the players serve the ball, it connects them with each other and welds their team together: instead of everyone looking out for themselves, the players play for their team. But in its movements, the ball also connects the teams in their rival aims: it makes the teams play against each other.

It is important to understand that the ball itself is no passive object, an inert piece of matter. It moves and is active, though not solely by itself, for nothing ever does, but only in and thanks to relations. In a sense, the ball is 'quasi-subject'; it itself is playing, playing with the players, as they play ball. The best and the most skilled players 'serve' the ball and its movements; when the 'preceding one is shunted aside, laid out, trampled', the next one carries on (Serres, 1995b, p. 88). To play ball is to make

‘oneself the attribute of the ball as a substance’ (Serres, 2007a, p. 226). It is only the really bad players who treat the ball as if it was only an object and are therefore clumsy with the ball, or they are too selfish and hold it all to themselves. Besides weaving the collective, the ball also stands as a sign of the subject: ‘it marks or designates a subject who, without it, would not be a subject’ (p. 225). When completely detached from the ball, the player is in the dark. The ‘I’ is a token passed between players: the one who has the ball is marked. He/She is ‘marked as the victim’, as the one to be chased and tackled (p. 226). Hence, it is thanks to the ball that we know in the game ‘how and when we are subjects and when and how we are no longer subjects’ (p. 227).¹⁰

In sum, objects are not detached from humans and their relations, but they are always part of our everyday life, implicated in our relations and providing them with stability. One of the important contributions of STS has been to show how various material artefacts hold the social together. Human relations need to be backed up and stabilized by non-human mediators ranging from commodities to architecture, from tools to texts, and from infrastructures to money. ‘Many features of the former society, durability, expansion, scale, mobility’, Latour argues, are ‘actually due to the capacity of artefacts to construct, literally and not metaphorically, social order’. He stresses that artefacts do not ‘reflect’ the social order, ‘as if the “reflected” society existed somewhere else and was made of some other stuff. They are in large part the stuff out of which socialness is made’ (Latour, 2000, pp. 113–4). And objects themselves cannot be properly understood when stripped of their relations; it is in and through their relations that they ultimately receive their qualities, meanings and affordances. According to Serres, the constitution of the collective and the object are simultaneous. One cannot have one without the other: there is no collective without an object, and no object without the collective.

From materiality to materials

In recent discussions and debates on matter and stuff, the focus has largely been on ‘materiality’ (e.g., Graves-Brown, 2000; Hetherington, 2003; Miller, 2005), ‘material culture’ (e.g., Stocking, 1985; Miller, 1987; Hicks, 2010) and ‘objects’ (e.g., Harman, 2011; Bryant, 2011). However, as long as our focus is on the materiality of objects, as Ingold (2011) argues,

it is extremely difficult if not altogether impossible to grasp the constitution of material things or follow the changes that matter goes through; in other words, its vagabond, variable quality. This is because objects – whether conceived as material realizations of mental representations, projections of intentions or as of bearers of signification – are already crystallized out from the flows of materials and their transformations (Ingold, 2011, pp. 23, 26).

In a recent article I studied the technical research of *Madonna of the Pinks* (*La Madonna dei Garofani*), a painting attributed to Raphael and belonging to the collection of the National Gallery, London (Pyyhtinen, 2013).¹¹ Long dismissed as a copy, a National Gallery curator rediscovered it in 1991. After careful technical and art historical research the National Gallery declared the work an original by Raphael and subsequently purchased the painting to its collection in 2004. In my analysis I foregrounded the material factors involved in the research process. The investigation into the originality of the painting conducted by the National Gallery scientists did not bring incorporeal minds into contact with the material world, but the ideas, representations and interpretations of the scientists resulted from their practical engagement with a world of materials: they worked not only with sophisticated research instruments such as infrared reflectography and energy dispersive X-ray spectrometer EDX, but also with such physical properties of the painting as colour pigments, varnish layers and chemical particles.

Interestingly, what the scientists were working on was at once *more-than-object* and *less-than-object*. It was ‘more’ in the sense that the researchers did not preoccupy themselves exclusively with the artwork as an assumedly clear-cut, well-defined and isolated object, but they were facing a diffuse and messy assemblage, consisting for example of other paintings attributed to Raphael, auction catalogues, bills of sale and letters that make mention of the painting. The authentic painting does not exist solely in and by itself, but only in relation to these and many other things and their materials. Still, at the same time, what the researchers worked with was also ‘less’ than an object in that the technical research dissolved the crystallized, fixed object into an array of precarious, vague materials. In the research process, textures of paint, varnish layers, colour pigments and their chemical particles, the cracks and tree rings of wooden panels occupied the front stage. The investigation advanced, as it were, from materials to an object. By studying materials and their properties, the scientists tried to produce a well-defined

and stable object of recognition, which could then be identified to a named individual artist: Raphael. Technical research is an apparatus of identification, with the production of recognizable artworks attributable to a proper name as its chief aim. Thereby it serves the needs of the art market as well, for only clearly identified, determined works have any considerable monetary value in the market.

Vis-à-vis the notions of materiality and material culture, the case suggests a reorientation in and of our approach on matter, a move from self-enclosed, clear-cut objects and homogeneous materiality to the vibrant flows of *materials*. If the artwork was treated merely as a crystallized object in its stubborn physicality or as a bearer of meaning, we could not get at its material constitution. Works of art – just as any other objects – have an on-going historicity: at every moment they are becoming something else than what they are (Barad, 2003, p. 821; Ingold, 2013, p. 31). While the more object-centred approaches such as the ‘object-oriented ontology’ – also known by the acronym OOO – (see e.g., Harman, 2009; 2011; Bryant, 2011) tend to treat material stuff as something crystallized and imprisoned in objects, the case of *The Madonna of the Pinks* invites us to break things open. The assumedly solid objects closed in upon themselves only temporarily imprison the materials within an organized form (Ingold, 2011; 2013).

By stressing materials and material flows over non-human actants, I am also breaking with Latour and actor-network theory (ANT) here. First, the human/non-human distinction reduces the wealth and heterogeneity of materials that are not human – from bacteria and viruses to dogs, whales, storms, trees, the Gulf stream, stars, gravity, dust, computers, food, scrap metal and electricity – to one single term (Serres, 2007b, p. 804; Lehtonen, 2009, p. 283, note 26). Second, with all its talk about humans and non-human entities (or humans and non-humans *as* entities), ANT is not entirely free from the logic of embodiment mentioned in Chapter 2. While it stresses how any entity is a gathering or assemblage, the very term non-human actant is to some extent reifying and suggestive of an object-based approach. Not all that is material resides in things or objects (Ingold, 2011, p. 23). The material vitalism of Deleuze and Guattari is helpful in conceptualizing this, as it explicitly counters the logic of embodiment implied by the focus on material objects or non-humans. Deleuze and Guattari define matter as ‘the unformed, unorganized, nonstratified, or destratified body and all its flows: subatomic and submolecular particles, pure intensities, preital and prephysical free

singularities' (Deleuze & Guattari, 1987, p. 43). Vis-à-vis the fluxes of materials, objects are more like points of stoppage or dams temporarily restraining and blocking their flow. The processes of becoming have primacy over the states of being through which they pass (Massumi, 2009, p. 37).

Let me illustrate this last point by taking an example from a case study I did a few years ago at the Wäinö Aaltonen Museum of Art (WAM) in my hometown Turku in Finland (see Pyyhtinen, 2012). I examined the making of an exhibition titled *Nest of Light* by a Finnish sculptor Pekka Jylhä. Jylhä's art is conceptual, but instead of displaying abstract forms his works address ideas and big question of human existence through concrete objects such as balloons, darts, beach balls, fishing rods, oil lamps, or a stuffed pig looking at itself in a mirror. What is more, Jylhä works with a remarkably wide range of materials. His pieces display the fur, feathers, flesh and staring eyes of stuffed animals, cloth, wood, gas, liquids such as water and milk, air pumps, air, motors, steel, iron, bronze, stone, steam, rubber, concrete, fire, sound, light, crystals as well as paint. *Trembling and Honouring* is a work of especial interest in relation to the issue of the ceaseless becoming of materials. It is a piece with a white stuffed hare holding a milk tray and trembling so that the milk frets but does not spill over. As we all know very well, in room temperature milk starts to go off after a while. And when it does, it begins to stink. Therefore the milk of the piece had to be sucked off the tray each day after closing hours by using a hypodermic, and each morning before the opening hours new milk was syringed on the tray. As the local newspaper *Turun Sanomat* reported of the daily procedure:

Every morning before the doors of the museum are opened he [the museum technician Mr. Niemi] strolls through the exhibition rooms and prepares the works so that they are representable.

- First, I fetch the milk, he says and disappears into the staff recreation room. On the side of the fat-free milk carton it reads 'bunny', written with drawing ink.
- It has to be fat-free, otherwise it would start to smell, Niemi says. (*Turun Sanomat* 21 April 2007)

So, only fat-free milk for the bunny. Nevertheless, not even the change to fat-free stopped the milk from smelling after a while. The spoiling of the fat-free milk, too, eventually transgressed the being of the piece. And it did that in a manner that was clearly perceptible: its rhythm of transformation was much faster than that of the stone in the Cleopatra's Needle

presented earlier. The assumedly solid object closed upon itself only temporarily imprisons the material flows within its organized form. The example suggests that there is nothing inherently solid or hard in matter. ‘Materiality’ does not make objects automatically durable, inflexible and solid. Ingold (2013, p. 103) illustrates this nicely by taking a clay pot as his example. He writes: ‘It is not just because it is made of the material stuff of clay that the pot lasts longer than the gestures with helped to shape it. The pot retains its form only because it has been fixed by subsequent processes of drying and firing’. The durability of any thing is a practical accomplishment, something produced in practices (cf. Gomart, 2002; Lezaun, 2012; Woolgar & Lezaun, 2013), and it also relative to other things and their materials (Lehtonen, 2009, pp. 285–6), not something that could be accepted as a given.¹²

We have never been only human

Besides inviting us to reconsider our ways of being together in relation to things and materials, by dissolving the boundary-line between the human and the non-human the foregrounding of matter also produces new understanding of what it is to be human. Human action cannot be properly understood apart from objects, materials and material flows, but the latter can even be understood as the other side of the powers of humans, without which our actions would not be possible. Serres (2015) has called this perspective *pragmatogony*. Derived from the Greek terms *pragma* (thing, matter) and *agnos* (that which is begotten, created), the neologism refers to the idea of humans being produced by the things that they produce and join forces with. We have no inherent capabilities. Instead of humans standing as the sole creators of things, the materials and objects with which we are entangled significantly shape our capabilities and what we are.

The human is thus constituted in relation to its ‘outside’ (Pyyhtinen & Tamminen, 2011). Living human bodies are configurations of flows, relations and materials, from biochemical processes to oxygen, nerve tissue, food, water, chemicals, swarms of bacteria and technology. With its softness and elasticity the skin has without doubt the vital function of protecting the body and blocking potentially damaging intrusions, but it is equally vital that it has holes, passages and porosities through which materials may enter and leave. Indeed, in order to subsist and survive,

we constantly need to take in materials and discharge them. Bodies can ‘exist and persist only because they *leak*’, as Ingold (2013, p. 95) nicely puts it. Cut off from our surroundings and without the constant interchange of materials back and forth, we would perish. So, instead of first being some-body and only then setting ourselves in relation with the outside, our body is produced and enacted in and by various relations interminglings; it is precisely through the groupings of diverse materials that we not only come to have a body but that we also *are* a body, something bounded yet connected to our environment. What is more, to be precise, it is not only my body that unfolds in these foldings, but the world, too. Erwin Straus has examined what could be called the *co-unfolding* of the subject and the world. In *The Primary World of the Senses*, he writes:

The sensing subject does not have sensations, but, rather, in his sensing he has first himself. In sensory experience, there unfolds both the becoming of the subject and the happening of the world. I become insofar as something happens, and something happens (for me) only insofar as I become. The Now of the sensing belongs neither to objectivity nor to subjectivity alone, but necessarily to both together. In sensing, both self and world unfold simultaneously for the sensing subject; the sensing being experiences himself and the world, himself in the world, himself with the world. (1963, p. 351)

So, Straus suggests that the sensory experience does not belong to the subject, but it is primary in relation to the sensing subject and also to the object sensed. It generates both the subject and the world from itself. ‘The world makes us in one and the same process in which we make the world’, as Andrew Pickering (1995, p. 26) notes. In *The Five Senses* (2008), Serres writes about sapidity and the sense of taste in a manner that perhaps enables us to grasp this entanglement in more concrete terms. Serres inverts the Kantian notion of the subject by proposing that the ‘apprehended given does more for perception than the other way around’ (p. 155). That is, instead of the world being a creation of the subject, as Kant thought, the subject is rather a creation of the world. Wine, for example, creates taste in the subject. ‘If you taste it, it will give you your taste by giving you its taste’ (p. 155). One receives one’s taste only by mixing in with the world and its tastes. One cannot become a connoisseur of wine, one can’t really ‘know’ wine, before and without having learned to become affected by its taste. Knowledge comes after taste, sapience after sapidity.

Latour (2004) provides a more detailed account of this in relation to smell. Drawing on the work by Geneviève Teil (1998) on the training

of ‘noses’ for the purposes of perfume industry, he examines how the pupils come to *acquire* a nose through the process of the training. The ability to make out subtle differences between odours is not an inherent skill, but one obtains it only through training thanks to a specifically arranged odour kit used in the training. Containing series of fragrances whose differences go from the starkest to the smallest, the kit renders the inarticulate and dumb nose of the pupil articulate and sensitive to different scents. Beginning from a situation, where the odours produce nothing but undifferentiated reactions in the nose, which is able to make out hardly anything else than ‘sweet’ and ‘fetid’ at that point, gradually the nose learns to differentiate ever-finer scents and thus inhabit a much richer odoriferous world. While initially different odours produced the same effect and also remained without words, through training the pupils *learn* how to become affected by differences, and ‘words finally carry worlds’ (Latour, 2004, p. 210). As Latour puts it with more words:

Before the session, odours rained on the pupils without making them act, without making them speak, without rendering them attentive, without arousing them in precise ways: any group of odours would have produced the same general undifferentiated effect or affect on the pupil. After the session, it is not in vain that odours are different, and every atomic interpolation generates differences in the pupil who is slowly becoming a ‘nose’, that is someone for whom odours in the world are not producing contrasts without in some ways affecting her. The teacher, the kit and the session are what allow differences in the odours to make the trainees do something different every time – instead of eliciting always the same crude behaviour. The kit (with all its associated elements) is part and parcel of what it is to have a body, that is to benefit from a richer odoriferous world. (Latour, 2004, p. 207)

The example illustrates three important points. First, it counters what Whitehead (1964 [1920], p. 31) called the bifurcation of nature: the divide into subjective experiences on the one hand, and the objective world out there, on the other. The case suggests that as one progressively comes to acquire a nose, a richer, more differentiated world simultaneously comes to exist for the sniffing subject (let us remember here the aforementioned idea by Straus that in the sensory experience both the self and the world become actual for the sensing subject). The acquisition of the new skill simultaneously ‘does something to the odours themselves’ (Latour, 2004, p. 212).¹³ So, the odours are neither primary qualities independent of the subject, nor secondary qualities existing in the subject’s mind.¹⁴ When one looks at the training as a process of acquiring a nose, one is able to

avoid the unhappy choice between either the nose being a more or less unreliable and limited human apparatus incapable of really grasping the world as it is or the odours being sheer social constructs or products of naming. The sensitivity to the odours unfolds together and simultaneously with a richer odoriferous world.

Second, together with Serres's account of how wine cultivates taste, the example of training the pupils' noses also gives us an idea of how we exist as subjects, of where the subject resides in relations and encounters. We do not exist all at once, as if 'globally' and as a unified unit, 'emerging into existence through the act of thinking of speaking' (Serres, 2008, p. 225), as is famously announced by the Cartesian cogito 'I think therefore I exist'. Rather, if I just think, in general, as it were, without any particular object, I am no one in particular, I am no singular being; I am nothing but faculty, pure potentiality, sheer ability to think (Serres, 1995b, p. 30). But when the pupil sniffs a fragrance, he/she not only comes to have a nose, but also in a sense *becomes* a nose, comes to exist entirely in one's nose. Nose becomes conscious, as it were, in contact with the fragrance filling the nostrils, just as mouth does when we sip a mouthful and the wine gives us its taste. 'Consciousness resides in this contact' (Serres, 2008, p. 22); without the contact, there would be no nose or mouth properly speaking. The tasting subject, Serres suggests, 'exists locally, now, in and around the mouth, which without taste would not exist'. Tasting gives us a 'localized cogito', as it were: 'I taste therefore I exist' (Serres, 2008, p. 224). Interestingly, at the same time, while the subject comes to exist entirely in one's nose when one sniffs a fragrance or in one's mouth when tasting wine, in a sense nose and mouth also disappear themselves in these encounters. The fragrance or the wine becomes the focal point or the determining factor of my consciousness, I become one with the fragrance or with the wine.¹⁵

Third, the acquiring of a nose also illustrates how our bodily capabilities develop in relation with extra-somatic resources, that is, with materials or things external to and distinct from the body. To the nose, the odour kit is a kind of 'original prosthesis', to draw on the eloquent paradoxical formulation by Bernard Stiegler (1998). That is, while not being a part of the human body as we usually see it, the kit is nevertheless 'coextensive with the body' (Latour, 2004, p. 207). The notion thus suggests that there is no human as such, pure, simple and bare, detached from its relations and dependencies, as if in a natural state, but the human only exists in relation to prosthetic supplements.

For Stiegler, there is no human without technology, but the two co-emerge: ‘The appearance of the human is the appearance of the technical’ (Stiegler, 1998, p. 141). Stiegler suggests that our ancestors’ psychological interiority did not precede the exteriority of the stone tools they used in such a way that the first would have produced the latter in succession. The tool did not pre-exist in the human mind in identical form as a preconceived image or idea, which would only have needed to be ‘materialized’ later. Rather, the two were co-constituted in a movement that invented the one and the other (p. 142). It is not the idea that created the tool, but the sensory and gestural engagement with the world and its materials in a particular action (Stiegler, 1998; see also Ingold, 2013, p. 22). Prior needs were articulated with the stone of the tool, which gave recollection to the previous use of the tool. For Stiegler, then, the human is a creation or effect of one’s technical prostheses, much as we could say of the sensitive and articulate nose that the pupils came to acquire one only through their entanglement with the kit. He stresses that not only do humans invent tools, but also tools invent the human. By using the tool I not only learn something from the tool and from myself but I also become more skilled at using it, I become a skilled user. Thereby, to quote Stiegler, ‘the human invents himself [sic] in the technical by inventing the technical – by being exteriorized techno-logically’ (Stiegler, 1998, p. 141).

With the notion of technology as an original prosthesis of the human, Stiegler suggests that technology gives rise to their users by redefining their capabilities. In her study on people injured in traffic accidents, Ingunn Moser (2005) examines in detail how this happens in practice. Moser investigates how the injured people rebuild their bodily capabilities with the help of technology such as wheelchairs and specifically designed homes. What is most fascinating about her case is that it shows just how fragile subjectivity is. Though she focuses on injured people, the analysis demonstrates that there is no normal, invariant or natural able-bodiedness, but our bodily capabilities are open-ended and dependent on various prostheses. Bodily normality is something actively produced and maintained, for instance in connection to nutrition, technology, exercise and the environment, for example. And in her article Moser examines empirically in a precise manner the equipment that the injured needed to become able-bodied subjects.

So, to examine what enables us to become active subjects it is important to take into account a wider assemblage of which the one who acts

is a part. Anthropologist Gregory Bateson's famous example of the blind man and his stick illustrates this nicely:

But what about 'me'? Suppose I am a blind man, and I use a stick. I go tap, tap, tap. Where do I start? Is my mental system bounded at the handle of the stick? Is it bounded by my skin? Does it start halfway up the stick? Does it start at the tip of the stick? But these are nonsense questions. The stick is a pathway along which transforms of difference are being transmitted. The way to delineate the system is to draw the limiting line in such a way that you do not cut any of these pathways in ways which leave things inexplicable. If what you are trying to explain is a given piece of behavior, such as the locomotion of the blind man, then, for this purpose, you will need the street, the stick, the man; the street, the stick, and so on, round and round. (Bateson, 2000 [1972], p. 465)

For the blind man, then, the stick acts as a kind of original prosthesis in the paradoxical sense intended by Stiegler: it is something external to and distinct from his body, and yet, in its very extra-somaticity and supplementary nature, it always already belongs to his mental system and bodily capability in the act of walking.¹⁶ The blind man's ability to go for a stroll is highly dependent on the stick. But of course one cannot delimit the activity of walking to the assemblage of the blind and his stick alone, but the street is essential as well. It is a very different thing to walk on the smooth and regular surface of a paved street than across a rough terrain with irregular topography. The act of walking cuts across any boundaries between the human subject, the object and the environment. They are all part of the assemblage of walking.

To conclude, a rhizomatic, more-than-human sociology takes seriously our entanglement with a world of materials, and thereby it comes to suggest a new way of looking at not only matter but also the social and the human as well. First, matter is not passive and inert, but active and vibrant. It consists in flows, processes and relations rather than having a fixed substance at a state of rest. These flows and relations may only temporarily be locked up in objects; their processuality is primary.

Second, taking into account the matter around us makes it clear that human beings do not exist only among themselves, but in a rich world of materials. There is no social relation as such, devoid of matter, but all our relations are entangled with and mediated by heterogeneous materials and things that also participate in making the relations what they are. A lot more stuff goes into producing a collectivity than just agents and structure, or even assumedly self-enclosed and distinct humans

and non-humans, for both humans and non-humans are assemblages composed of various materials, relations and flows.

Third, a more-than-human sociology also suggests that we are not incorporeal minds residing in the depths of our subjectivity and only occasionally coming into contact with materiality, but we come to have our capacities and skills through engaging with the world and learning how to become affected, mobilized and put into motion by it. When we move from one scale to another we do not move from immateriality to materiality or the other way around. Never and at no point do we exit the world of materials, but we always already ‘swim in an ocean of materials,’ as Ingold (2011, p. 24) expresses it. As humans, we live in a world of active materials, and with our life and actions we participate in the world’s on-going formation. We are constituted in the processes that constitute the world.

Notes

- 1 The expression ‘bastard monuments’ is from Lehtonen (2009, p. 275).
- 2 Knorr Cetina (1997), too, notes that ‘the notion of a sociality with objects requires an extension, if not a stretching of the sociological imagination and vocabulary’.
- 3 This echoes the Spinozist question ‘what a body can do?’ Spinoza (2003, III; see also Deleuze, 1988).
- 4 Though Latour has received the notion of translation from Serres.
- 5 See also Mulkay (1979); Pinch and Swedberg (2008, p. 3).
- 6 On the relations of the body, agency, discipline, morals and technology in couch potato-ness, see Michael (2000, pp. 96–116).
- 7 The quote is from the Radiohead song ‘Fitter Happier’ on their album *OK Computer* (1997).
- 8 Latour (1999a, p. 304) notes that while the notion of ‘society’ is typically understood as an association of humans, the notion of the ‘collective’ refers to the heterogeneous confederations between humans and non-humans.
- 9 I discuss the example also in Pyyhtinen (2014a).
- 10 Of course, if we look at football as a form of professional sport, there are many more mediators and circulating tokens to it than just the ball and the playing teams, ranging from money, managers, multimillion player deals, stadiums, supporters, tickets, fan products, TV broadcastings, advertisers and advertising contracts.
- 11 The painting got its name from pinks in the left hand of Virgin Mary, portrayed in the picture as holding a naked, playful baby Jesus sitting on her lap, also having a pink in his hand and showing it to his mother.

- 12 Turo-Kimmo Lehtonen (2009) suggests that the best way to think about durability is to consider it in terms of resistance and the relative, different rhythms with which things change: the permanency of any thing is created, maintained and broken in relation to our practices and to other things. As Lehtonen writes: 'For example, a wall that is painted white imposes the whiteness and resists, to a degree, other colours. Yet this colour is not independent of temporality: it will get dirty and turn grayish, unless regular cleaning actively forestalls this process. A wall channels movements by other things and people, both by isolating and connecting. It resists these movements better than a curtain. The resistance that its color offers does not, for its part, reside in current whiteness only, but also in the aptitude this whiteness has for changing, in combination with the materials used in building the wall: what it can become with other elements and by being attached to their rhythms' (Lehtonen, 2009, p. 286).
- 13 Not dissimilarly, in *The Five Senses* (2008, p. 224) Serres writes that, once tasted, a bottle of good wine 'brings the palate and the sense of smell into existence'. Further, DeLanda (2006, p. 50) writes about how acquired skills 'increase one's capacities to affect and be affected' and 'increase one's capacities to enter into novel assemblages': 'When a young child learns to swim or to ride a bicycle, for example, a new world suddenly opens up for experience, filled with new impressions and ideas. The new skill is deterritorializing to the extent that it allows the child to break with past routine by venturing away from home in a new vehicle, or inhabiting previously forbidden spaces like the ocean.'
- 14 In *The Concept of Nature* (1964 [1920], p. 33), Whitehead asks: 'Why should we perceive [only] secondary qualities? It seems an extremely unfortunate arrangement that we should perceive a lot of things that are not there.'
- 15 What Serres (1995b, p. 30) writes of the hand is analogous to this: 'The hand is no longer a hand when it has taken hold of the hammer, it is the hammer itself, it is no longer a hammer, it flies, transparent, between the hammer and the nail, it disappears and dissolves, my own hand has long since taken flight in writing'. There is nothing obscure in this, but this is our common experience of hammering. For all its significance in our ability to use a hammer, the hand is largely forgotten in the act of hammering.
- 16 The agentic effects of the stick are of course case-specific. It does not constitute the mental system and bodily capabilities of the blind man universally, as it were, but only applies to particular actions; Bateson (2000 [1972], p. 465) remarks that 'when the man sits down to eat his lunch, the stick is no longer relevant'.

5

Conclusion: The Promise of Sociology?

Abstract: *The concluding chapter critically reassesses the future of sociology and C. Wright Mills' vision of the promise of the sociological imagination, and discusses Michael Burawoy's call for 'public sociology', a more recent attempt to address sociology's cultural relevance. As Mills' original idea of the sociological imagination has become even something of a truism in latter-day sociology, to continue stimulating thought and provoking novel insights we need new concepts and a new sociological imagination. The chapter also maintains that it is only by imagining a different sociology that we can make sociology responsive to life in the 21st century and to understanding the world in which we live as both a human and a non-human world, marked by, say, computed sociality, ubiquitous waste and global climate change.*

Keywords: Burawoy; connectivity; Mills; more-than-human sociology; scale; the sociological imagination

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In the late 1950s, Mills pictured the future of the sociological imagination as bright and shiny. He predicted that '[t]he sociological imagination is becoming, I believe, the major common denominator of our cultural life and its signal feature'. And he went on by maintaining that although many social scientists of his day were in many respects lacking the sociological imagination, 'in factual and moral concerns, in literary work and in political analysis the qualities of this imagination are regularly demanded. In a great variety of expressions, they have become central features of intellectual endeavour and cultural sensibility' (Mills, 2000 [1959], p. 14).

It seems that the man who was starkly pessimistic in his opinion of the American society and sociology alike was overly optimistic in his assessment of the fate of the sociological imagination. What has become of the sociological imagination does not quite match the vision Mills had of its position in cultural life. Quite the contrary, it is rather the sciences of the mind, which Nikolas Rose (1996) has called the 'psy' disciplines – psychology, psychiatry and psychotherapy – that by and large seem to shape the ways in which we understand and act upon ourselves and how we are acted upon by others, such as politicians, managers, doctors, therapists and other authorities. In addition, moral concerns and public matters are largely framed in terms of money and dominated by the logic of the marketplace. Environmental problems, issues of public health and education, for example, seem to always eventually come down to money and the question of 'how much?'

Surely, there have been many efforts to make sociology culturally relevant. A well-known recent attempt to break free from the disciplinary ghetto is Michael Burawoy's call for 'public sociology' (2004; 2005). Burawoy is confident that 'the world needs public sociology – a sociology that transcends the academy – more than ever'. He thinks that sociology has potential to speak to several publics: it can stimulate and inform public debate in the media, in policy-making as well as among minorities and social movements on a local, national and global level alike. And, much like Mills, Burawoy regards sociology as a 'mirror and conscience of society'. He thinks that the primary relevance of sociology lies in addressing issues like social justice, gender regimes, environmental problems, market fundamentalism as well as state and non-state violence. However, as Kemple and Mawani (2009, p. 233) note, despite Mills' and Burawoy's similarities in critical ethos and in stressing the importance of public engagement, Burawoy's plea for public sociology in

fact contradicts rather than supplements Mills' idea of the political task of sociology. While for Burawoy public sociology considerably 'depends upon the professional sociology that lies at the core of our disciplinary field' (Burawoy, 2004, p. 1609), Mills did not trust the sociological imagination in the hands of (salaried) sociologists alone, but for him it was something equally required from political analysts, journalists, critics and writers, for example. For him, 'the qualities of this imagination are regularly demanded. In a great variety of expressions, they have become central features of intellectual endeavour and cultural sensibility' (Mills, 2000 [1959], p. 14).

Burawoy's idea of public sociology has met criticism amongst professional sociologists. One of the things that have raised concerns is its normativity. Charles Tittle (2004), for example, argues against Burawoy's insistence that public sociology should promote (a certain idea of) social justice. According to Tittle, 'there is no reason to imagine that sociologists have a claim to superiority in questions of "social justice"'. To assume otherwise and to expect that people would give sociologists respect on the basis of claiming moral superiority is downright 'arrogant' (Tittle, 2004, p. 1640). Indeed, while sociologists may occasionally know *more* of some phenomena than lay people (because of having studied them), we can never know *better* than them. The knowledge that we at least think we have gives us no right to place ourselves above people and pass moral judgments – at least in our professional roles.

Whereas I think that sociology cannot self-righteously present itself as the moral conscience of society, and whereas there would be many dangers involved in promoting one's own vision of what is best for the rest, I think that as sociologists we have all the greater duty to unremittingly and uncompromisingly reassess what needs to be changed, revised or abandoned in our own thought. Hence, it is in Foucault's (1992, p. 8) terms of 'the critical work of thought on itself' (with which he specified the task of philosophy) that I picture the effort to rethink the sociological imagination in this book. This view means to complicate or *disrupt* our relation to the concepts given to us by the discipline's tradition and to explanations that have become too predictable, automatic and cheap.

The metaphor of disrupting implies, of course, that the sociological imagination suggested in this book sets itself *against* other modes of thinking. Against what does it struggle, then? As should be clear by now, one of its adversaries is substantialism. Substantialist assumptions are inscribed within many sociological discourses. As Emirbayer (1997,

p. 281) notes in his famous manifesto for relational sociology: ‘Sociologists today are faced with a fundamental dilemma: whether to conceive of the social world as consisting primarily in substances or in processes, in static “things” or in dynamic, unfolding relations’. The rhizomatic variant of relational sociology that I develop in the book suggests a mode of abstraction very different from the reifying substantialist thinking still prevalent in much sociology, despite the growing popularity of relational ideas among scholars. Instead of starting from discrete and relatively static entities, which pre-exist their relations to one another, rhizomatic sociology begins from relations, conduits and connections, that is, from an originary withness. It insists that no entity exists outside its specific circumstances, but entities are only what they are through the relations that they have to others. Things have no essence outside their relations, but they are compounds of folds. Compounds are not aggregates of simple substances, but things are fundamentally and always already mixtures, hybrids, alloys or cross-breeds. This dynamic also sets rhizomatic sociology in opposition with how economics and the psy disciplines conceive humans in a more or less atomistic manner.

Where the rhizomatic approach parts ways with a large majority of relational perspectives is their anthropocentrism. Privileging language, discourse and culture, and assigning primary dynamism to the human agents, most relational sociologies ultimately give us a fairly limited sense of our connectivity and relational make-up. One of the greatest challenges that the sociological inquiry faces today, as I have argued in this book, lies in understanding the world in which we live as both a human and a non-human world. To grasp the full range of our relations and our entanglement with the world we need to incorporate various non-human or not-only-human things and materials into sociological inquiry. There are no human relations as such, outside the world of matter and materials, but our actions and relationships are inseparably tied with a host of things and materials, which makes the latter constitutive of the first.

Let us for instance think of the new kinds of assemblages and connectivity induced by the so-called ‘platformed sociality’ (van Dijck, 2013) and ‘computed sociality’ (Kallinikos & Tempini, 2014). With their ‘like’ buttons, posts, links, images and videos, social media platforms have enabled ways of interacting that have no direct equivalent in the outside world. Not only do they transform the scale on which we act and involve entirely new mediators connecting us with one another (Couldry, 2012), but what is also new is that corporate social media, as

Ganaele Langlois and Greg Elmer (2013, p. 2) point out, have harnessed this new sociality ‘in an effort to monetize it’. The corporations draw profit out of the spaces designed for our communication.³ However, at the same time it must be kept in mind that the digital society of social media platforms, laptops, smart phones, tablets and e-books does not create some post-material environment where our relations would dissolve into words, bits and flows of information, but it increasingly results in an ‘environmental wasteland’ of pollution, hazardous chemicals and scrap metal (Parikka, 2015). Due to planned obsolescence and also because we are constantly upgrading to the latest laptop, phone or tablet, we are producing increasing amounts of e-waste often dumped within developing countries.

Indeed, that the world of humans is inextricably entangled with the non-human one is most dramatically evident in pollution, waste and global climate change. When we are with each other, we are also with pollution, waste and the climate: ‘Human togetherness implies being together *with things*’ (Lehtonen, 2009, p. 281). Our contemporary way of life is made possible, for example, by the wide-scale use of fossil fuels (e.g., in industry, transportation and houses) and by minerals mined in places like Congo and China⁴ and to be used in such technological gadgets as smart phones, laptops, flat screen TVs and electric car motors. They not only make possible many of our modern comforts, our mobility and a great deal of our everyday communication, but also connect us to the geological time of the earth, to global capitalism and to the vast amounts of toxic waste resulting as a by-product from the production of the devices.

Attending to these complicated webs of interdependence and their effects calls for a new scalar imaginary, one that radically differs from the bifocal individual and society or micro-macro model. We are unable to comprehend the size of the collectives to which we are entangled by our most mundane activities unless we take into consideration not only heterogeneous non-human materials and things but also several spatial and temporal scales and practices of scaling. We must integrate into social theory the tiny bits and pieces of the earth that we carry in our pockets in the minerals of our smart phones just as well as the global markets and global climate change, and extend the temporal scope of our accounts from the milliseconds it takes from the CPU of our computers to process information to the lives of future generations who need to live

with the waste that we (and the past generations) have produced and all the way to the time scale of millions of years in which the fossil fuels and minerals used by us have existed.

Things may exist simultaneously on multiple spatial and temporal scales. In spatial terms, this multi-scale nature of things can only be examined by laying out continuous connections from one action and local site to another and by paying attention to the effort it takes to establish and maintain even the tiniest connection (Latour, 2005), not by shifting perspective between the 'micro' to the 'macro' or for example the individual and society along a presupposed vertical scale. The multiple temporal scales of any given thing can be traced both in terms of the varying rhythms of its components and the endurance of assemblages of which it itself is a part. The materials and prostheses of my action, for instance, are not contemporaneous with it. They come from different times and have their own temporality that differs not only from the particular action, but also from my experiences, memory and finite life (Stiegler, 1998).

It is important to understand that giving things and materials a place in sociology and social theory does not at all mean that the human actors would somehow vanish from the scene; this is also why I prefer the term 'more-than-human' over 'posthuman'. More-than-human sociology is a sociology in which, to quote Pickering's take on the interplay of human and non-human agency, 'the human actors are still there but now inextricably entangled with the nonhuman, no longer at the center of the action' (Pickering, 1995, p. 26).⁵ Besides decentring the notion of an autonomous and constitutive human subject, more-than-human sociology also draws attention to the fact that there is no natural interiority to the human. Human beings – just as non-humans – are produced, layer after layer, in various foldings of heterogeneous materials. The human is a gathering, an assemblage of forces, elements and forms.

I would like to conclude with a note on the possible uses of the sociological imagination asserted on the preceding pages. Like Mills (1960), I believe that people can shape their own futures both as biography and as history. However, I'm not that certain that they need the Millsian sociological imagination for it. On the contrary, the micro-macro linkage purported by Mill's famous idea of the life-chances of individuals being always embedded in wider social circumstances may in fact be as disabling politically as it is deficient and inaccurate sociologically.

Instead of trying to link individual fates and interpersonal relations to a large-scale context or structure, one should resist the temptation to jump scales. While each individual competence and social relation is without doubt conditioned by their outside, it would be all too hasty to equate this outside with society, social context or other assumedly macro-level entity or force. The things that condition our actions are to be found in much more limited settings – in bundles of connections of various scopes between one site and another. Any given action is constituted by several others and is immersed in ongoing activity dispersed in a relational manner; in whatever we do, our actions are conditioned by the lines of this meshwork. Doing sociology provides no exception to this. Thereby I ultimately understand the sociological imagination quite differently than Mills does. Instead of being confined within the minds of individuals, I regard it as developing and emerging in connections, associations and assemblages. In fact, insofar as he considers the sociological imagination in terms of individual abilities locked up in the heads of individuals, to me Mills fails to stay faithful to his remarkable idea of the practice of sociology as a craft. Craft, even the intellectual craft of thought, cannot merely be about minds having ideas, but about working *with* various materials. Thinking is, literally, *Handwerk* (Latour & Woolgar, 1986, p. 171). It never takes place only inside, but always ‘with.’⁶ One never thinks alone, not even when one is in solitude, but always in the company of others, preceded by, joining forces with or contesting their voices. Thinking, as any action, unfolds as collaboration. It is ‘on the road, exposed to all contacts, encounters’, as Deleuze pictured the soul (in Deleuze & Parnet, 1987, p. 62). For rhizomatic, more-than-human sociology, encounters and contacts are both the object and image of thought: not only what we think but also how (along which) we think.

Encounters are bound with chance and uncertainty. Instead of clinging onto old certainties, neat categories, abstract explanations and simple models, it is crucial to preserve openness to the messiness of the world. John Law (2004, p. 2), for instance, has argued that when social scientists work to specifically resolve ambiguity and the messiness of the world by providing what they see as simple and clear accounts, they only tend to make more of a mess of it: ‘The very attempt to be clear simply increases the mess.’ Instead of rediscovering pure forms, generic types and unities, scholars need to locate contradictions, attend to hybridity and knock over barriers. What is required of them is a readiness to encounter things in their convolution, dispersion, mix and multiplicity. The will to exact,

unambiguous and objective facts tends to go hand-in-hand with the will to order (Bauman, 1990). And that is why the message of sociological studies may at times be felt as disturbing and unpleasant, especially by the authorities, since those studies tend to question uncertainties, unsettle final truths and bring out the complexity and ambiguity of things. Sociology is and should be a way of following the unfinished making of the world,⁷ of attending to the simultaneously open-ended and ordered process of formation in which things become what they are. This means also to disrupt or breach self-evidences, to realize that things are not as necessary as that, but that they could also be otherwise.

Notes

- 1 The tendency to reduce qualitative values on the quantitative values of money was already observed by Simmel in his *Philosophy of Money* (2004 [1900]).
- 2 For more on the metaphor of ‘disrupting’ and its creative potential, see Veijola, Germann Molz, Pyyhtinen, Höckert and Grit (2014).
- 3 I’m greatly indebted to Nick Couldry for pointing out the importance of social media platforms and for these sources.
- 4 See e.g. <http://www.bbc.com/future/story/20150402-the-worst-place-on-earth>
- 5 Donna Haraway has criticized the notion of the posthuman for its evolutionary emphasis. She worries that the ‘human/posthuman is much too easily appropriated by the blissed-out, “Let’s all be posthumanists and find our next teleological evolutionary stage in some kind of transhumanist technoenhancement”. Posthumanism is too easily appropriated to those kinds of projects for my taste’ (Haraway in Gane, 2006, p. 140).
- 6 This has also been stressed by the theories of ‘extended mind’ (e.g., Clark, 1997) and ‘distributed cognition’ (Hutchins, 1995).
- 7 On this, see also Kullman and Pyyhtinen (2015).

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