

CHAPTER 2

Examining (Big) Data Practices and Ethics

When adding the term ‘critical’ to an analysis or field of research, one may be inclined to intuitively associate this primarily with critical theory. And of course, critical theory is a decisive field of research for investigations concerned with matters of power and societal inequalities (see also Fuchs 2014, 7ff.; Feenberg 2002). However, this is not the only research line which is crucial for an understanding of *critical* research.

This chapter elaborates on the critical, theoretical foundations and approach of this book. First, following up on the initial overview of critical data studies (CDS), I take a closer look at what it means to ‘study data’. Second, given that this book is part of the series *Critical Digital and Social Media Studies* and draws on CDS, I will reflect on what it means to pursue a critical stance and approach. The subchapter ‘Critical perspectives’ pays attention to links between critical data studies and concepts rooted in poststructuralism, as well as the philosophy of science.

Since I investigate research involving big data, their conditions and ethical implications, my analysis likewise draws on insights and debates in science and technology studies (STS). Due to the critical, i.e. normative perspective and attention to power relations, I am particularly interested in the relevance of political issues in STS, as well as the possibilities and constraints for making normative arguments in this field. While STS has often been criticised for its lack of political engagement and merely disguised normativity, I discuss how certain branches and debates have embraced critical, normatively engaged perspectives. This argument will be underlined in relation to the 1990s debate on the politics of SSK, i.e. the sociology of scientific knowledge production (Radder 1998; Richards and Ashmore 1996; Wynne 1996). I also take some cues from feminist technoscience (Wajcman 2007; Weber 2006; Haraway 1997).

This broader contextualisation leads up to the main theoretical foundation of my approach. I draw on Keulartz et al.’s (2004) pragmatist approach

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to ethics for my analysis of big data-driven research practices. Conceptually, particular emphasis is put on Habermas' theory of 'discourse ethics' (2001 [1993]; 1990; see also Rehg 1994.). In employing this concept, my analysis is likewise informed by Habermas' contribution to critical theory. While rejecting techno-deterministic as well as substantive views¹¹, I unpack interdependencies between technological developments, corporate data practices and big data-driven health research, specifically in the field of public health surveillance. In consequence, this book inevitably grapples with emerging power asymmetries (Sharon 2016; Andrejevic 2014) and questions of data (in-)justice (Taylor 2017; Dencik, Hintz and Cable 2016; Heeks and Renken 2016) crucial to CDS.

The critical perspectives, theories and approach outlined in this chapter make a much-needed contribution to the field of big data-driven health research. They allow us to view ongoing big data practices and discourses in a different light, nuancing and challenging influential, taken for granted claims grounded in digital positivism. Such contributions are necessary to facilitate debates and decision-making processes which consider the advantages, disadvantages and alternatives, the realistic possibilities, risks and uncertainties of big data.

What it Means to 'Study Data'

The term critical data studies (CDS), very plainly, suggests two things: first, that scholars working in this field investigate data; second, that they do so from critical perspectives. When focusing initially on the latter part of this umbrella term, one may ask what it means to 'study data'. What kinds of subjects and approaches are examined in this field? Studying data in this context does not merely imply utilising or analysing 'data as such'.¹² Instead, CDS interrogates the embeddedness of data in (knowledge) practices, institutions, and political and economic systems. In some cases, this might be done by reflectively experimenting with big data utilisation, but critical data research goes beyond mere quantitative analyses of data. Instead, it qualitatively questions their construct- edness, affordances and implications. CDS scholars examine the complex inter- play between data and the institutions and actors that produce, own and utilise them. They might for example discuss: how social networks such as Facebook draw on user data (Oboler, Welsh, and Cruz 2012); how big data are utilised in the food and agriculture sectors (Bronson and Knezevic 2016); how genomic data arise from digital (corporate) services (Harris, Kelly, and Wyatt 2016); or how data brokers retrieve and monetise individuals' data (Crawford 2014).

The relevance of *justice* in relation to data has been – implicitly and explicitly – a key concern for critical data studies. For example, drawing on prior work on 'information justice' (Johnson 2014) and 'data justice' (Heeks and Renken 2016), Taylor suggests a framework centred on ensuring just data practices. It is aimed at countering marginalisation as well as power asymmetries, and at facilitating just approaches to data retrieval and use. In consequence, her

‘[...] approach begins not from a consideration of the average person, but asks instead what kind of organising principles for justice can address the marginalised and vulnerable to the same extent as everyone else’ (Taylor 2017, 20).

This focus on justice is also implicitly expressed in critical data studies’ broader concern with power relations and the agency of key stakeholders. Analyses may focus, for instance, on governmental big data practices (see e.g. Rieder and Simon 2016; Lyon 2014; Van Dijck 2014; Tene and Polonetsky 2012), corporate data retrieval, analysis, and use (see e.g. Bronson and Knezevic 2016; Lazer et al. 2014; Oboler, Welsh, and Cruz 2012) or big data-driven research in universities and non-profit institutions (see e.g. Borgman 2015; Gold and Klein 2016; Kaplan 2015; Franke et al. 2016, Wyatt et al. 2013, Kitchin 2013). For example, due to the dominance of media corporations in retrieving user-generated big data, research institutions are increasingly dependent on access conditions defined by these companies. And while governments are trying to regulate corporate data collection (European Commission 2014), we have likewise witnessed severe violations of users’ privacy and attempts to integrate corporate data in governmental surveillance (see e.g. Lyon 2014; Van Dijck 2014). Overlaps, collaborations, competition and conflicts emerge between actors in these different, entangled areas. Similarly, by focusing on big data use in public health surveillance, this book calls attention to interdependencies between corporate big data practices, scientific research and its ethics.

As Lupton points out: ‘While critical data studies often focuses on big data, there is also need for critical approaches to ‘small’ or personal data, the type of information that people collect on themselves.’ (2014, 4). This criticism has now been partly addressed, thanks to Lupton’s own work as well as more recent contributions to CDS (see e.g. Sharon and Zandbergen 2016; Milan 2016; Schrock 2016). This requirement is likewise considered in this book, even though I argue that small, personal data are often inseparable from big, corporate data. A main reason for this is that individuals’ potential to collect data individually is commonly tied to sharing commitments which are difficult or impossible to avoid. On the one hand, we should not forget that corporate, governmental, and scientific big data practices predominantly rely on information generated by individuals. On the other hand, these users should indeed not merely be ‘victimised’ – despite the importance of power asymmetries in big data utilisation. Instead, one also needs to acknowledge those practices through which individuals engage critically and actively with data.

As mentioned at the beginning of this subchapter, CDS stresses the embeddedness of big and small data, and the need for context sensitivity. In this sense, research in this field resembles sub-disciplines of digital media and internet studies, such as *software studies* (Manovich 2013; Berry 2011a; Kitchin and Dodge, 2011; Fuller 2003), *critical algorithm studies* (Kitchin 2017; Gillespie and Seaver 2015), and *platform studies* (Bogost and Montford 2009). Software, platform, and algorithm studies all emphasise the need to analyse computational objects and practices, not merely as technical, but as social issues. They

highlight the necessity to look beyond matters of content and to investigate the interplay between technological intricacies and social, political, and economic factors. This aim is often explicitly related to scholars such as Friedrich Kittler, Michel Foucault, Gilles Deleuze and Félix Guattari.

Kittler's work is commonly cited, since he early on theorised the interplay between software and hardware, emphasising the need for a 'proper understanding of the science and engineering realities that govern the highly fine-structured computer worlds in which we live' (Parikka 2015, 2). Fuller, among others, draws on Deleuze and Guattari's work in arguing that '[...] software constructs ways of seeing, knowing, and doing in the world that at once contain a model of that part of the world it ostensibly pertains to and that also shape it every time it is us' (Fuller 2003, 19). Similarly, algorithms are described as 'Foucauldian statements' through which 'historical existence accomplishes particular actions' (Goffey 2008, 17). More generally, software and algorithm studies alike are often linked to Foucault's conception of power, not as force which is exerted on individuals or groups, but as a dynamic embedded in and permeating societies (Foucault 1975). Similarly, such theoretical foundations tend to be crucial for the critical perspectives developed in CDS.

Critical Perspectives

Critical data studies is a field that acknowledges and reflects on the practices, cultures, politics and economies unfolding around data (Dalton, Taylor, and Thatcher 2016). Issues addressed in this field may range from the abovementioned themes such as individuals' privacy and autonomy, to data science ethics and institutional changes triggered by corporate or governmental funding invested in big data research. All these perspectives have in common that they highlight the need for analyses of big data practices which are conscious of power relations, biases, and inequalities. Likewise, they are open to an empirical engagement with societies permeated by digital data.

When reflecting on what it means – or should mean – to conduct *critical* data studies, Dalton, Taylor, and Thatcher advise caution in defining this attribute. They point out that a narrow definition restricting critical research to the domain of normative, critical theory would be counterproductive: 'When you append 'critical' to a field of study, you run the risk of both offending other researchers, who rightly point out that all research is broadly critical and of bifurcating those who use critical theory from those who engage in rigorous empirical research' (Dalton, Linnett, and Thatcher 2016).

So far, in CDS, the notion of 'criticalness' has frequently been grounded in poststructuralist theory, and in some cases established with reference to the philosophy of science. In their chapter 'Data Bite Men' (2014), Ribes and Gitelman coin the term 'commodity fictions of data' (147). Referring to Foucault's 'commodity fiction of power' (165), they aim to '[...] reveal the complex assemblage

of people, places, documents, and technologies that must be held in place to produce scientific data' (147). While Kitchin and Lauriault (2014) base their critical approach inter alia on Foucault's notion of *assemblages* and *dispositive*, they also draw on the work of science philosopher Ian Hacking. Likewise, Symons and Alvarado stress the relevance of philosophy of science for CDS. The authors argue that '[t]he assumptions governing the atheoretical turn are false and, as we shall see, studying Big Data without taking contemporary philosophy of science into account is unwise [...]' (2016, 2). Despite its potential for valuable contributions to CDS, the authors describe philosophy of science as a disregarded approach to the field so far (ibid.)

It is of course far from surprising, and perfectly valid, that a variety of academic perspectives claims to 'be critical'. In this sense, it is also not a clearly defined set of theories which is defining for the aims and possibilities of CDS. Instead, scholars in this field explore and develop multiple theories embedded in datafication. In doing so, they respond to the shared concern that unreflectively embracing technological changes related to (big) data may hinder sustainable and just techno-social developments. They do not *assume* that changes associated with big data are risky or harmful, but they scrutinise the possibility that they could be. Among the common tenets of CDS are the following assumptions, which likewise define how this book qualifies as 'critical':

- *Data politics and agency*: Data are not neutral. They have agency and they express the agency (or lack thereof) of related actors (Iliadis and Russo 2016; Crawford, Gray and Miltner 2014).
- *Data economies and ownership*: Data may be produced by many, but they are controlled by a few, often corporate, actors (Andrejevic 2014).
- *Data epistemologies*: Big data are as constructed as any other form of information and knowledge, but claims regarding their inherent superiority have contributed to a 'digital positivism' (Mosco 2015; see also Symons and Alvarado 2016).

Essentially, these assumptions highlight interdependencies between emerging technologies and (human) actors in increasingly datafied societies. Big data are as much a product of contemporary socio-technical conditions, as they are producers of such conditions. This last point reflects the idea of co-construction, which has long been a crucial concept in *science and technology studies* (STS). In the mid-1980s, the social construction of technology (SCOT) approach (Pinch and Bijker 1984) stressed that users are not simply passive receivers, but play a role in defining the meanings, successes and failures of technologies. In describing 'the mutual shaping of social groups and technologies' (Oudshoorn and Pinch 2003, 3), the notion of co-construction acknowledges that techno-social developments are neither imposed on societies nor are technological changes implemented by human actors in an entirely controlled manner (Bijker 1995).

The tenet of co-construction aims at avoiding techno-deterministic as well as substantive views. Yet one should not forget that the initial assumptions of SCOT have been criticised and revised (including by the authors themselves, see e.g. Pinch 1996; Bijker 1995): 'A central target of criticism is SCOT's view of society as composed of groups. [...] Implicitly, SCOT assumes that groups are equal and that all relevant social groups are present in the design process. This fails to adequately attend to power asymmetry between groups.' (Klein and Kleinman 2002, 30). Thus, co-construction needs to factor in the barriers to and inequalities in decision making, implementation, and acceptance of emerging technologies.

It needs to be considered that STS has a rather ambiguous relation to normative assessments of technology. At least historically, STS has been dominated by an emphasis on 'neutrality' and 'descriptiveness' (Radder 1998; Richards and Ashmore 1996). This lack of (open) normativity has also been criticised as an obstacle when it comes to political implications and necessary decisions, typical for the context of technological developments and establishments (Law 2008). Despite this tendency in earlier strands of STS, an understanding of co-construction which accounts for power imbalances can be highly valuable for a critical analysis of big data practices. It allows for a nuanced understanding of the role of actors involved in and affected by big data utilisations. Oudshoorn and Pinch (2003) emphasise the importance of neither over- nor underestimating actors' agency in technological cultures:

[T]he co-construction of users and technologies may involve tensions, conflicts, and disparities in power and resources among the different actors involved. [...] we aim to avoid the pitfall of what David Morley (1992) has called the 'don't worry, be happy' approach. A neglect of differences among and between producers and users may result in a romantic voluntarism that celebrates the creative agency of users, leaving no room for any form of critical understanding of the social and cultural constraints on user-technology relations. (16)

Acknowledging this aspect of co-construction is likewise relevant to CDS. A critical analysis of data practices requires an assessment of the interplay between human practices, institutional constellations, technological developments, and the agencies embedded and implicated within these actors.

Within STS, certain strands are particularly concerned with the conundrum of descriptive versus explicitly normative approaches to technology assessment. The quote above from Oudshoorn and Pinch is a first indication of more critical perspectives dealing with constraints, biases, and (power) imbalances. Historically, it seems especially relevant to highlight the late 1990s debate on the politics of SSK: the sociology of scientific knowledge production (Radder 1998; Richards and Ashmore 1996; Wynne 1996). The negotiations resulting from a special issue on this topic may be seen as a milestone for voicing

normativity and politics in STS. Key insights of this debate are relevant to this book, since such a critical, i.e. politically and economically conscious, perspective regarding the production of scientific knowledge is likewise needed to assess the knowledge claims posed by big data research.

Starting with the telling sub-heading ‘If You Can’t Stand the Heat...’, Richards and Ashmore argue in their article that ‘[t]he question of whether the sociology of scientific knowledge (SSK) can be, should be, or inescapably is, ‘political’ is one that has been with us since its inception in the early 1970s’ (Richards and Ashmore 1996, 219). As editors of a special issue of *Social Studies of Science* on ‘The Politics of SSK’, they brought together papers which negotiate ‘commitment versus neutrality in the analysis of contemporary scientific and technical controversies’ (220). The included articles deal with the political implications of scientific knowledge production and assessment.

While the special issue also includes defences of the need for ‘neutral social analysis’ (Collins 1995), it provides notably rich insights into the risks of neglecting political issues in scientific knowledge production. In contrast to the (back then) common STS ‘ideal of a ‘value-free’ relativism’ (Pels 1996, 277), Pels calls for the acknowledgement of ‘third positions’ in assessments of scientific knowledge production which ‘[...] are not external to the field of controversy studied, but are included and implicated in it. [...] They are not value-free or dispassionate but situated, partial and committed in a knowledge-political sense.’ (282). In this sense, the aim of my analysis is to be critical by being not only ‘normatively relevant, but also normatively engaged’ (Radder 1998, 330).

Such an approach appears to be a necessary contribution to current debates regarding research on and with big data, since their societal benefits and potential have been widely overemphasised. I see striking parallels between the ‘early era of big data’ and the historical context during which the abovementioned special issue ‘The Politics of SSK’ was published. The editors argue that it was launched at a time when SSK was ‘[...] under renewed attack from die-hard, positivist defenders of science its hitherto epistemologically-privileged view of the world and people’ (Richards and Ashmore 1996, 219). Similarly, the big data hype has been accompanied by claims concerning the obsolescence of theories and hypotheses at a time where data may (allegedly) ‘speak for themselves’.

The strengths of situated, partial and committed perspectives – conceptualised by Pels (1996) as an inevitability which one should not disguise – were raised with particular emphasis in feminist technosciences (Harding 2004, 1986; Haraway 1988). Feminist scholars have countered the assumption that relevant technology assessments can and should be symmetric and impartial (Wajcman 2007; Weber 2006). Their work serves as an important reminder that feminist critique likewise applies to how big data are being presented.¹³

For instance, Haraway argued that the common presentation of scientific knowledge as beyond doubt and revision, and allowing for generalisable objectivity, tends to create a ‘view of infinite vision’ which ‘is an illusion, a god trick’

(Haraway 1988, 583). One can clearly see how this illusion of infinite vision and objectivity is revived in current debates on big data. In contrast, and this corresponds to the critical perspective presented in this book, '[...] feminist objectivity is about limited location and situated knowledge, not about transcendence and splitting of subject and object' (Haraway 1988, 583). With regards to big data-driven research and the moralities/norms crucial to the approaches taken, particularly from a discourse ethical perspective, this also points to the question of which standpoints are systematically included or excluded.

In conclusion, in this sub-chapter I have argued that the following assumptions are relevant to my critical analysis of big data research practices. Debates on normativity in STS and the politics of SSK have brought about an idea of socio-technical co-construction, aware of power asymmetries between groups and actors. Taking cues from these early debates, I pursue a critical understanding of societal changes that neither assumes the dominance of technology nor the unimpaired impact of human actors. My perspective is critical and normative in the sense that I pay particular attention to power imbalances, issues of justice, and a potential lack of democratic structures in big data-related research, its communication, and debate. This is also closely connected to issues raised in feminist technoscience, reminding us that techno-scientific developments such as big data commonly echo the claims and promises of powerful actors, while neglecting subjugated positions.

While these are more general principles underlying my analysis, the following chapter on 'Pragmatism and discourse ethics' specifies my approach and the questions relevant to my analysis. I have opted for a pragmatist approach to ethics as proposed by Keulartz et al. (2004), with particular emphasis on Habermasian discourse ethics.¹⁴ The latter concept is particularly relevant, as it establishes justice as a normative cornerstone for discursive conditions under which (valid) social norms are formed.

Approach: Pragmatism and Discourse Ethics

In public discourses, proponents of new technologies articulate promises, and evoke hopes and expectations. In response to such discourses or to evolving socio-technological practices, positions expounding risks and uncertainties may also be brought forward. This, obviously simplified, dynamic applies for example to wearable activity/fitness trackers, an important technology for the retrieval of digital user data.

The popularisation of wearable activity/fitness trackers was accompanied by claims that the use of (and data collection with) these devices would improve users' wellbeing, health and life expectancy. It was also proposed that they would significantly decrease healthcare costs (Chang 2016; 'Wearing Wellness' 2016). It was suggested, for example, that '[...] 56 percent of those with these trackers believe that their average life expectancy has increased by a decade

thanks to their ability to monitor their vital signs on a daily basis' (Chang 2016)¹⁵. Some health insurance providers, for instance in the United States, were quick to react, and offered discounts to those customers who would be willing to provide access to their tracker data (Mearian 2015).

But there is also concern about, and resistance to, the technology's influence on contemporary and future societies. In response to the popularisation of these activity/fitness trackers and their social implications, issues regarding fairness, discrimination, privacy, data abuse and safety were raised (Collins 2016; Liz 2015). Not everyone may be able to afford such a tracker in the first place; health impaired users, especially those suffering from a restriction of motion, are excluded from insurance benefits offered for tracking an active lifestyle.

Boyd (2017) concludes an article by calling on users not to ignore the possibility that data collected via activity trackers may be used to their disadvantage: '[T]he devices could provide justification for denying coverage to the inactive or unhealthy, or boosting their insurance rates. Consumers should not assume their insurance companies will use their data only to improve patient care. With millions of dollars on the line, insurers will be sorely tempted.' Such arguments are typical for discourses surrounding emerging technologies and techno-social practices.

Conceptually, for the context of this book, big data should be understood as an umbrella term for a set of emerging technologies. As Kitchin (2014a) and Lupton (2014b) emphasise, in using the notion of data assemblages we need to account for cultural, social and technological contexts, networks, infrastructures, and interdependences that can make sense of big data. The term 'big data' does not only relate to the data as such, but also to the practices, infrastructures, networks, and politics influencing their diverse manifestations. Understanding big data as a set of emerging technology seems conceptually useful, since it encompasses digitally enabled developments in data collection, analysis, and utilisation.

Key insights regarding the dynamics of emerging technologies are applicable to current big data debates and practices. With regards to nanotechnology, Rip describes the dilemma of technological developments: 'For emerging technologies with their indeterminate future, there is the challenge of articulating appropriate values and rules that will carry weight. This happens through the articulation of promises and visions about new technosciences [...]' (Rip 2013, 192) According to Rip, emerging technologies are sites of 'pervasive normativity' characterised by the articulation of promises and fears. He conceptualises such 'pervasive normativity' as an approach 'in the spirit of pragmatist ethics, where normative positions co-evolve' (2013, 205).¹⁶ We can observe such dynamics in relation to big data too, as with the example of data collection enabled by activity trackers. These have provoked communication, arguments and debates justifying, countering and negotiating their corporate, governmental, institutional and academic/scientific utilisation.

Rip's perspective specifically, and pragmatist ethics more generally, stress that establishing new technologies is not just a matter of bringing forward 'objective arguments' regarding their superiority. Instead, they are introduced into societies in which they are discursively associated with/dissociated from certain norms and values. As indicated above, actors with an interest in the popularisation of a certain technology may that way become involved in encouraging its use. Again, the big data hype and the activity tracker example mentioned above are textbook examples of such dynamics: proponents emphasise values and norms which they deem supportive for paving the way for a technology's acceptance and utilisation (and belittle those seen as adverse).

At the same time, these positions will likely be challenged, opposed and contradicted. Pragmatism, among other fields, reminds us that the rise of big data and related research practices is not a mere matter of their technological superiority. Instead, they form a field of normative justification and contestation. Thus, such a pragmatist approach to ethics – in conjunction with the critical literature introduced in Chapters 1 and 2 – has also been chosen in this book.

As briefly introduced in Chapter 1, I draw on Keulartz et al.'s¹⁷ suggestions for a 'pragmatist approach to ethics in technological cultures' (2004, 14). This approach has been developed not as '[...] a complete alternative for other forms of applied ethics but rather a complement', aimed at a '[...] new perspective on the moral and social problems and conflicts that are typical for a technological culture' (Keulartz et al. 2004, 5).¹⁸ The term '*technological culture*' emphasises the rapid changes and dynamics which individuals experience in postmodern societies. It does not only relate to technological developments as such, but to their influence on and interaction with norms, values and social practices.

(Neo-)pragmatist approaches to ethics accommodate epistemological insights into the fallibility of (scientific) knowledge, while allowing for critical assessments of societal power structures.¹⁹ Keulartz et al. propose their 'pragmatist approach to ethics in a technological culture' (2004) as alternative which combines the strengths of applied ethics and science and technology studies, while avoiding the weaknesses of these fields. According to the authors, applied ethics is an effective approach when it comes to detecting and voicing the normativities implied in or resulting from socio-technical (inter-)actions, but it lacks possibilities to capture the inherent normativity and agency of technologies (Keulartz et al. 2004, 5). While STS implies or allows for these possibilities, most modern STS approaches still suffer from a 'normative deficit' (12) and a rarely contested tendency to insist on descriptive, unbiased analyses.²⁰

This concern has already been outlined in the previous sub-chapter, highlighting some of the strands in STS that are committed to critical, normative assessments (see also Winner 1980, 1993). In accordance with such a commitment to critical engagement and normative assessments, Keulartz et al. propose their approach as an attempt to overcome the lack of normative technology assessments. They argue that the 'impasse that has arisen from this', (i.e. the

respective ‘blind spots’ of applied ethics and STS) can ‘be broken by a reevaluation of pragmatism’ (2004, 14). Pragmatism is rooted in American philosophy, and most notably in the ‘classical’ works by Charles Sanders Peirce, William James, John Dewey, and George Herbert Mead. Despite the immense diversity of approaches using the label ‘pragmatism’, according to the Keulartz et al. (2004: 16ff.), these can be characterised by three shared anti-theses and principles: anti-foundationalism, anti-dualism, and anti-scepticism (see also Rorty 1994, 1992).

Anti-foundationalism refers to the principle of fallibilism. Antifoundationalist accounts give up on the possibility that we may reach certainty with regards to knowledge or values, i.e. discover some ‘ultimate truth’. Instead, they assume that knowledge, just as much as values and norms, is constantly being renegotiated. This by no means implies, however, that anti-foundationalism rejects the possibility of knowledge or values. Instead, it differentiates between more or less reliable and well-grounded knowledge: in this sense, knowledge is not seen as universal and beyond eventual revision, but may be subject to reconsideration in light of future discoveries or developments. This anti-thesis also implies that moral values are not simply static, but may be renegotiated in relation to technological developments – which may not be simply ‘approved’, but just as much contested and rejected.

Antidualism stresses the need to refrain from predefined, taken-for-granted dichotomies. Among the criticised dualisms mentioned by Keulartz et al. are essence/appearance, theory/practice, consciousness/reality, and fact/value. Applied ethics tends to assume such dualisms as a priori. In contrast, pragmatism stresses the interrelations and blurred lines between such categories. While it may revert to these categories, it forms them out of empirical material and does not essentially ‘apply’ them. It assigns merely analytical value to such categories, rather than any ontological status. This anti-thesis also resembles the idea of co-construction, which aims at avoiding a simplistic opposition of technical impact and societal reaction (and vice versa).

Lastly, *anti-scepticism* (and its reconciliation with fallibilism) is a main principle of pragmatism. It is closely linked to the need for situated perspectives and explicit normativity. It refers to the anti-Cartesian foundation of pragmatism: ‘We have no alternative to beginning with the ‘prejudices’ that we possess when we begin doing philosophy. [...] The prejudices are ‘things which it does not occur to us can be questioned. [...] Cartesian doubt ‘will be a mere self-deception, and not real doubt’ (Hookway 2008, 154, citing Peirce). In this sense, we cannot begin with complete doubt, just as we cannot begin with absolute objectivity. Here again, the feminist and SSK insistence on situated knowledge and acknowledgement (as far as possible within these epistemic constraints) of normative values in research practices are crucial.

Pragmatism has been only hesitantly taken up in European research. It was associated with negative ‘stereotypes about the land of the dollar’ (Joas 1993, 5). It was often dismissed as ‘superficial and opportunistic,’ and accused

of ‘utilitarianism and meliorism’ (Keulartz et al. 2004, 15). In an overview of pragmatism’s reception, Joas (1993) contended: ‘Disregarding the obviously spectacular exceptions – Karl-Otto Apel and Jürgen Habermas (as well as a few other specialists there) – in Germany, by contrast, pragmatism is even today having a very rough time of it’ (2). But in the late 1990s and 2000s, pragmatism experienced a somewhat unexpected revival and popularisation even in European research (see Keulartz et al. 2004, 15ff.; Baert and Turner 2004; Dickstein 1998). Apart from the influential work of American philosophers such as Hillary Putnam and Richard Rorty, the European popularisation of pragmatism can also be traced back to the impact of the abovementioned Karl-Otto Apel and Jürgen Habermas. Apel’s own work and his ‘transcendental-pragmatic perspective’ (1984) made an important contribution to the development and spread of pragmatist principles.

At the same time, Apel’s theoretical orientation had a significant influence on Habermas’ engagement with related theories. In an interview, Habermas described how he got (re)involved with philosophy of science in the 1960s and interested in pragmatism in particular:

‘Encouraged by my friend Apel, I also studied Peirce as well as Mead and Dewey. From the outset I viewed American pragmatism as the third productive reply to Hegel, after Marx and Kierkegaard, as the radical-democratic branch of Young Hegelianism, so to speak. Ever since, I have relied on this American version of the philosophy of praxis when the problem arises of compensating for the weaknesses of Marxism with respect to democratic theory.’ (Habermas 1992, 148–149)

Habermas’ work is featured in Keulartz et al.’s programmatic proposal, as part of their envisioned tasks for pragmatics ethics. Specifically, the authors refer to ‘discourse ethics’ (Apel 1988; Habermas 1990, 1994) as an approach for examining the conditions for forming moral norms. Table 1, which is a shortened/simplified version of the original graph included in Keulartz et al.’s paper, provides an overview of the tasks suggested in their proposal.

	Product	Process
Context of justification	a) Traditional ethics	b) Discourse ethics
Context of discovery	c) Dramatic rehearsal	d) Conflict management

Table 1: Keulartz et al.’s ‘Tasks for a Pragmatist Ethics’ (2004, 19; simplified table).

Drawing on Caspary (2000, 153ff.), the authors elaborate that pragmatism is as much interested in ongoing techno-moral developments and negotiations of related values as in socio-technological outcomes and their significance. These two domains are respectively described as *process-* and *product-focused* perspective. The notions of *context of justification* and *context of discovery* further specify the role and tasks of pragmatist ethics. The former refers to the critique of arguments, mobilised values, and justifications brought forward with regards to a certain product or process. The latter stresses the role of pragmatist ethics which goes beyond analytical involvements. In addition, it creates new conceptual or terminological frameworks, and facilitates societal negotiations and conflicts.

The grid, according to Keulartz et al. (2004), functions as an overview of possible tasks in pragmatist ethics, but not as a ‘checklist’ to be covered to an equal extent under all circumstances (2004, 18). In this book, I focus on an analysis of (a) communicative negotiations and (b) discourse ethics; Habermas 2001 [1993], 1990). The main reason for this is that we do not have sufficient insights yet into which moral problems are negotiated by whom in this field. Moreover, it is not clear how the institutional, often corporate embedding of big data interrelates with possibilities for public debate and decision making. Therefore, before suggesting or exploring approaches to conflict management, it seems sensible to address the conditions for such approaches.²¹

Discourse ethics is a ‘discourse theory of morality’ (Habermas 2001, vii). It is rooted in two main normative principles, the ‘principle of discourse’ (D) and the ‘principle of universalisation’ (U).²² Both should be understood as counterfactual idealizations meant to guide (moral) reasoning (Rehg 2015, 30). The first principle (D) states that valid norms are those that meet, *de facto* or hypothetically, the approval of all affected individuals. The second principle (U) proposes that valid moral norms are formed under conditions ensuring that individuals affected by their ramifications can autonomously accept these norms. Deliberations and efforts concerning discourse ethics are dedicated to ensuring democratic, fair processes of public debate, deliberation and decision making.

In this sense, discourse ethics aims ‘[...] to develop procedures and institutions that guarantee equal access to public deliberation and fair representation of all relevant arguments’ (Keulartz et al. 2004, 19). While highlighting the conditions and presuppositions of moral discourses, Habermas’ theory likewise shifts emphasis to the formative power and social significance of language. It pays attention to how communication constructs meanings, structures thought and socialising processes. Social meanings here are produced and negotiated in ‘communal determination through public processes of interpretation’ (Cronin 2001, xiii).

Habermas noted critically that prior theories concerning aspects of discourse ethics were faulty, because of their tendency ‘[...] to collapse *rules*, *contents*, *presuppositions* of argumentation and in addition confused all of these with moral principles’ (1990, 93–94). Related to this, he also emphasises that ‘[...] (U)

merely expresses the *normative content of a procedure of discursive will formation* and must thus be strictly distinguished from the substantive content of argumentation' (122, emphasis added). The notion of discourse ethics therefore needs to be understood in the context of Habermas' 'theory of communicative action' (see e.g. 1981, 1987). According to Habermas human communication poses validity claims regarding truth, (normative) rightness, and sincerity (often translated as authenticity).

In most daily domains, interaction through communication is grounded in an implicit consensus regarding commonly accepted knowledge and norms, as expressed in validity claims. These undisrupted forms of interaction are defined as 'communicative action'. In contexts, however, where dissensus emerges, participants involved in this 'disrupted communicative action' need to move toward a level of argumentative discourse: Habermas defines this '[...] practical discourse as a reflective continuation of communicative interaction' (McCarthy 2007, xi). During such discursive negotiations, validity claims to knowledge and values – i.e. truth, (normative) rightness and authenticity/sincerity – are collectively and publicly examined.

As Mittelstadt et al. state '[c]ommunicative action requires the speaker to engage in a discourse whenever any of these validity claims are queried' (2015, 11). This quote also indicates that Habermas' discourse ethics theory is a cognitivist approach. He assumes that the validity of moral values and social norms is constructed rationally, that is, similar to the agreement on knowledge or 'facts'²³ (which, in accordance with pragmatist principles, are likewise fallible and may be subject to renegotiation). In the discursive process, these are collectively negotiated and it is then established if claims can be rationally justified as true, normatively valid, and/or sincere. According to Habermas, the main cornerstone of *moral* discourse is, however, not 'truth'. Instead, of major concern for moral reasoning are validity claims to normative rightness and how these may be negotiated in practical discourse.²⁴ The normative rightness of validity claims, once challenged, can only be negotiated in collective debates involving and concerning the positions of all affected actors.

It is important to note that Habermasian discourse ethics is not normative in the sense that it assesses *content as such* as morally (un-)reasonable. Instead, its normative angle is grounded in the question whether social norms arise under conditions justifying their validity. This moral theory is consequently less concerned with traditional questions of the good life or happiness, but mainly with issues of (social) justice (see also Habermas 2001 [1993], 151; Cronin 2001, xxiii). According to Habermas, valid social norms are those which ensure justice. In this sense, '[...] a norm is just or in the general interest means nothing more than that it is worthy of recognition or is valid. Justice is not something material, not a determinate 'value,' but a dimension of validity.' (Habermas 2001 [1993], 152).

Drawing on discourse ethics seems particularly appropriate and relevant, seeing that justice is likewise a core concern for critically examining the societal implications of datafication and (big) data (Taylor 2017; Heeks and Renken

2016; Johnson 2014). Based on the assumption that only certain conditions and presuppositions for the forming of social norms foster their validity and/ or as justice, Habermas reasons '[...] that all voices that are at all relevant should be heard, that the best arguments available given the current state of our knowledge should be expressed, and that only the unforced force of the better argument should determine the 'yes' and 'no' responses of participants' (2001 [1993], 145; see also 35–36).²⁵

Habermas defines contexts corresponding with all these presuppositions as 'ideal speech situations'. He describes this term as regrettably somewhat misleading (2001, 163–164), since it led to criticism that it could be read as hypostatization. He rejects this reading and instead suggests it as '[...] an idea that we can approximate in real contexts of argumentation' (163). As indicated in the quote above, three aspects characterise the ideal speech situations, ensuring that validity claims may be fairly assessed and (re-)evaluated.

- Actors should not be affected by any **factors of influence** which may distort their insights into an issue or lead to their subordination due to external incentives, existing or anticipated dependences or inequalities.
- All **positions** affected by negotiated norms or knowledge are pertinent to deciding whether a validity claim is (in-)valid; thus, they should be heard and involved in the discursive process.
- Only the most coherent and just **arguments** should be decisive for decisions emerging from argumentative discourse.

These presuppositions define the conditions for 'rational acceptability' (Cronin 2001, xv). An underlying assumption is that the reaching of consensus concerning a moral value or claim to knowledge is not a sufficient condition for asserting the rationality and fairness of decision making processes. Consensus as such does not yet allow for any conclusions about the validity of result. It may always turn out that what was assumed to be based on rational consensus '[...] involved ignoring or suppressing some relevant opinion or point of view, was influenced by asymmetries of power, that the language in which the issues were formulated was inappropriate, or simply that some evidence was unavailable to the participants' (Cronin 2001, xv).

The three abovementioned presuppositions can be translated into the following main implications and questions for my analysis: first, it needs to be assessed which actors are involved in and affected by big data research. As also indicated by Keulartz et al. and Habermas' principles (U and D), discourse analysis requires a stakeholder analysis. It aims to examine '[...] who has a stake in the matter in question and should consequently have a say in the debate?' (Keulartz et al. 2002, 19). It therefore also needs to be scrutinised in which ways and to what extent affected actors were heard in relevant debates and decision-making processes. Second, the conditions for the formation of arguments and public debate need to be interrogated: i.e. to what extent the 'unforced force of

the better argument' (145) was indeed decisive for the choices and responses of the affected actors. In the context of big data-driven research, it seems specifically relevant to address factors which may tilt the conversation.

Third, if one wants to approximate towards the presupposition that the 'best arguments available to us given our present state of knowledge are brought to bear' (Habermas 2001 [1993], 163), it is crucial to examine which arguments have been brought forward with regards to big data research. To do so, I draw especially on Habermas' notion of validity claims, focusing on the relevance of claims to normative rightness as well as truth, since these are discursively inter-linked in many of the investigated cases. Moreover, it is necessary to evaluate to what extent arguments have been incorporated in public debate and relevant decision-making processes. For my analysis, this translates into the following theoretically grounded, guiding questions:

1. What are the broader *discursive conditions* for big data-driven public health research?
 - a. Which actors are affected by and involved in such research?
 - b. Which factors may shape the views of affected actors and their engagement in public discourse?
2. Which *ethical arguments* have been discussed; which *validity claims* have been brought forward?

With specific regards to big data-driven research on public health surveillance, the first question, including the two sub-questions, is examined in Chapter 4. The second question is mostly addressed in Chapter 5, although both chapters indicate how these two key issues are interrelated.

It has often been argued – and might be objected at this point at the latest – that Habermas' presuppositions set the bar unrealistically high. Obviously, neither pre- nor post-big data conditions for public debate and negotiations of social norms adhere to these principles. Habermas recognised this aspect as a core issue regarding the practical implementations of his theory, and raised, among others, the question: 'How can political action be morally justified when the social conditions in which practical discourses can be carried on and moral insight can be generated and transformed do not exist but have to be created?' (2007, 210) While the suggested presuppositions are neither achieved nor achievable societal conditions, they are nevertheless useful benchmarks of orientation. They allow us to assess whether we are moving closer to or further away from conditions fostering valid social norms which are, in this case, decisive for research ethics.

Starting from the questions stated above, I therefore aim at showing to what extent practices and discourses regarding big data research move towards or further away from presuppositions key to valid social norms. The indicated questions will be especially relevant to my analysis of discursive conditions in Chapter 4 and specific projects in Chapter 5. The following Chapter 3 will also

refer back to Habermasian discourse ethics, albeit more sporadically, as it is mainly meant to provide an overview of more general, ethical issues concerning big data. It particularly serves as a primer for those unfamiliar with ethical issues concerning big data and their use in research more generally.

