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Surveillance as public matter

Revisiting sousveillance through devices and leaks

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2 Devices for making surveillance public

2.1 Introduction: Surveillance studies meets Actor Network Theory

To be able to address the knowledge practices of sousveillance, I use insights from Science and Technology Studies (STS) and more specifically work that is affiliated with Actor Network Theory (ANT). STS consists of an amalgam of approaches to the study of science and technology and scientific knowledge practices. Most of the social sciences and humanities are represented (e.g. History, Sociology, Anthropology and Philosophy of Science and Political Science). This interdisciplinary outlook is combined with a strong empirical component. Many scholars in STS undertake case studies or ethnographic approaches: 'Case studies are the bread and butter of S&TS', states Sisondo (2004, vii). Scholars within STS have studied how knowledge is produced in laboratories by giving ethnographic accounts of laboratory work (Knorr-Cetina and Reichmann 1999; Latour 1983; Latour 1987), they have described the constitutive role of instruments and experiments in the production of knowledge and facts (Shapin and Schaffer 1985), and traced how knowledge travels between scientific institutions and the 'outside world' (Latour 1993; Star and Griesemer 1989). STS scholars have critically investigated how specific groups of people respond and contest scientific knowledge and its products (Epstein 1995; Wynne 1996), how science and technology interact with social movements (Hess 2005), and how they perform in public (legal) settings (Jasanoff 1998b). STS has looked at how technological designs are shaped by a variety of environmental factors (Bijker 1997; Bijker 2010). STS is renowned for debunking the idea that science is an autonomous process (from societal influences) and for pointing out that scientific knowledge, products and facts are subject to political forces in their inception (Winner 1980), and that both knowledge and resulting artefacts must be seen as situated in particular contexts, modes of viewing and power relations (Haraway

1988). Some strands of STS have taken these insights as an incentive to rethink the position of science and technology in contemporary democracies (Bijker 1995; Latour 2005a; Marres 2005; De Vries 2007). Work regarding material publics (which will become central later in this chapter) is a spinoff of this research branch. This introduction into STS is necessarily short and reductive, and I refer the reader to the list of topics, approaches and studies which can be accessed through the various handbooks (Hackett et al. 2007; Sismondo 2004) and which will give a richer impression of the field.

ANT plays a prominent role in STS (Sismondo 2004, 70). By drawing on ANT I respond to a particular 'call for ANT' from the field of Surveillance Studies. Scholars within that field have expressed high expectations about the possible contributions of ANT to surveillance studies (Martin, Van Brakel and Bernhard 2009; Wood 2003; Murakami Wood 2007). In the following, I first describe in an introductory manner some of the aspects ANT was originally famous for, in order to explain why ANT is interesting for surveillance studies. After that, I spend more words on ANT as an 'approach' in the context of this dissertation.

ANT was developed in the eighties by scholars within Science and Technology Studies, among which key authors are Bruno Latour (1993; 1997), Michel Callon (1986), Annemarie Mol (1999) and John Law (1992). ANT is also described as an 'ethno-methodology of material-semiotic practices', because it extends a relational understanding coming from semiotics to the study of material objects and practices: just like words have meaning only in the text and the text is dependent on the words; participants (called 'actors') in heterogeneous networks have meaning only in relation to the network, and the network exists as a result of the relationships between these actors (Hagendijk 1996, 99).

ANT is typically known for undertaking close, ethnographic studies of scientific practices and for understanding these practices in terms of 'heterogeneous networks', in which also non-human actors, for instance, texts and objects, have agentive and meaningful roles. In one of his classic studies, *Science in Action* (1987), Latour shows how science is always in flux and that even what we consider to be 'facts' are network effects of heterogeneous practices. Networks hold together (if successful) through mutual engagements between actors – some prefer the term 'actants' to express the heterogeneity of the elements – which include texts, instruments, muddy research materials, and publications. Facts are considered to be the outcome of those networks that succeed in sticking together and act as a coherent body. On this understanding, scientific facts do not explain the outcome of scientific endeavours; facts are to be explained (Hagendijk 1996, 95).

In this narrative, part of the power of the sciences is produced through their production of texts and visualisations. They do not explain the power of the sciences, but provide the final ‘tipping points’ that allow scientists to transform knowledge over distance and in terms of scale (Latour 1986, 13; 16). According to Latour scientists are engaged in a range of processes of ‘mobilisation’ through which they collect, archive, and recode their objects of study. Texts and visualisations help in make these processes consistent with one another. They are also devices that make it possible to make invisible things, due to distance or scale, presentable (*ibid.*, 7). Latour calls them ‘inscriptions’ (*ibid.*, 14), allowing scientists to gain ‘optical consistency’ over a heterogeneous world. The centres that allow for the recombination of those inscriptions, and from that the invention of something new, are called ‘centres of calculation’:

It is not only because they look exclusively at maps, account books, drawings, legal texts and files, that cartographers, merchants, engineers, jurists and civil servants get the edge on all the others. It is because all these inscriptions can be superimposed, reshuffled, recombined, and summarized, and that totally new phenomena emerge, hidden from the other people from whom all these inscriptions have been exacted. (*ibid.*, 30)

ANT is, or was, considered radical because it takes a symmetrical approach towards ‘material’ and ‘human’ or ‘social’ actors. Agency is not restricted to what we usually think of as agents; instead, it is organised and constituted in and through networks of people and things. As John Law puts it, the human body is only one of the elements that make an agent act:

Is an agent an agent primarily because he or she inhabits a body that carries knowledges, skills, values, and all the rest? Or is an agent an agent because he or she inhabits a set of elements (including, of course, a body) that stretches out into the network of materials, somatic and otherwise, that surrounds the body? (Law 1992, 384)

Power within this approach is considered to be a result achieved by the network and never a cause or a characteristic to be attributed to single elements in the network. This does not lead to a generalizable theory of power, but it should be studied ‘case specifically’ again and again (Law 1992). ANT research has offered rich descriptions of how actors become enrolled in networks, how these networks are reconfigured, and how they gain in strength if those so-called ‘translations’ are successful (Latour 1993). The ‘endurance’ of networks is labour intensive and is always in a mode of becoming. For instance, ANT-proponents argue that there is never something like a ‘social order’, but

only processes of ordering and resisting (Law 1992).

For Surveillance Studies, ANT carries a certain promise: by explicitly recognising the active role of non-human elements in socio-material networks ANT offers perspectives for understanding the increasing role of artefacts that surveil or that are being surveilled. By providing close accounts of socio-material processes, ANT facilitates an empirical understanding of how surveillance (and therefore potentially also *sousveillance*!) practices operate and what kind of questions they raise. Contributions from ANT-informed approaches to the field have been rare until about a decade ago. Kirstie Ball's 'Elements of Surveillance' (2002) is referred to as the 'first detailed consideration of the implications of this revisioning of sociology for Surveillance Studies' (Wood 2003, 238), and in 2007 Murakami Wood argued that ANT was still said to be used sporadically in this area of study (Murakami Wood 2007, 256). Considering the amount of STS-scholars working on the topic of surveillance (Dijstelbloem, Meijer and Besters, 2011; Grommé 2015; Martin, Van Brakel and Bernhard 2009; Timan 2013; Van der Ploeg 1999), this gap is being filled quickly.

There are various ways through which one could draw on ANT that could be fruitful for surveillance studies and I propose one particular version. This is what I would like to illustrate in the following sections by discussing three perspectives on what ANT can and cannot offer (§2.2), and highlighting what have been steering notions in my work (§2.3). After having introduced the cases and discussed issues of data collection (in §2.4), I get back to the role of ANT (in §2.5) and rephrase what kind of 'ANT-stories' my case studies have become. In the end, the way I narrate my case studies can be seen as a presentation of how an ANT-inspired work on *sousveillance* could look like.

2.2 ANT: A reluctant methodology

Amongst key ANT-scholars there is great reluctance to strictly define ANT. Some of them literally convey feelings of 'unease' (Law 1997; Mol 2010, 254) when asked to speak for ANT or explain how to conduct it. They tend to deny that ANT can be defined at all by putting forward claims such as: 'ANT cannot be told' (Law 1997, n.p.). Still, if we follow these arguments more closely we can understand how they explain what ANT is through a detour, through an alternative rather than an affirmative narrative. In this section I discuss three texts written by Bruno Latour, John Law and Annemarie Mol, whom have all provided rather 'reluctant' answers to the question to what ANT is or how it should be done. They all deploy their own particular style of framing ANT. Latour presents a negative argument: he tells ANT through what

ANT cannot do and what an analyst subsequently should not do. Law gives a translational argument: he shows how ANT has been adapted and changed through the work of different scholars. Mol presents argument about theoretical shifting: she describes the tensions between terms within the ANT-repertoire and how they are continuously shifting. I have put these authors together because through their particular detours, they all offer openings for what an 'ANT-inspired' work (Mol 2010, 254 footnote 256) could become. After discussing Latour, Law and Mol, I will discuss the aspects of ANT-inspired work that are important for this dissertation.

2.2.1 A negative argument

In *Reassembling the Social* Latour rethinks the social sciences and especially sociology through ANT. He criticises social scientists in particular of importing pre-established ideas about 'the social' (for instance 'social' ties or 'economic' factors) to the world, while not making clear what the 'social' or 'economic' consists of, or what the exact relationship is between social interests and the thing to be explained. To explain something as 'social' or 'political' would force the world disrespectfully in a certain format. Latour's plea is that sociology should reverse the 'explanans' and 'explanandum': 'the social' is the thing that needs explanation. How come societies, or things, tie together? Instead of studying the social, we should, in line with ANT, trace associations (Latour 2005b, 5). The way to get to know these associations is not to add 'social' categories to our research objects, but to listen en follow the way objects order themselves.

Using a slogan from ANT, you have 'to follow the actors themselves', that is try to catch up with their often wild innovations in order to learn from them what the collective existence has become in their hands, which methods they have elaborated to make it fit together, which accounts could best define the new associations that they have been forced to established. (ibid., 11-12)

Latour wants the analyst to be open to the language and theories of the actors. He presents this argument in a condensed form and somewhat painstaking story in one of his chapters ("On the Difficulty of Being an ANT") when he stages an encounter between an unnamed ANT-professor and a student. In this piece, the professor explains to the student why ANT is a 'negative argument' (ibid., 141). The student in question is stressed because (s)he is told by his or her supervisor to 'apply' ANT but does not now how to go about this. The conversation with the ANT-professor makes things even worse and ends with the

student considering giving up on ANT.

The reason why the student gets frustrated is because the professor tells the student several times to *not* do things social scientists usually do. In this way, the conversation stages common understandings and misunderstandings about ANT. For instance, the student is told that ANT does not add anything to the connections that are traced; one should only follow the links. Why would that be interesting? Because this is how ANT allows for finding new things and changes (ibid., 142).

The student should also not show that the actors under study 'form a network' as the name 'network' in Actor Network Theory might suggest (ibid., 142). Why not? ANT has nothing to do with the network-shape: 'It's the work, and the movement, and the flow, and the changes that should be stressed. But now we are stuck with "network" and everyone thinks we mean the World Wide Web or something like that' (ibid., 143). Wanting to stress that the network in ANT refers to movement, work, and effort, the professor proposes the term 'worknet' instead. One of the guidelines the professor does propose is to focus only on visible traces. An actor is, according to the professor, 'not substitutable' and 'a unique event' (ibid., 153). Not acting means no traces, which means no actors. Hence the ANT-professor sticks to the strict meaning of actors as the ones that act (or are enacted).

The discussion gets worse when it turns out that the student's supervisor wants a 'frame' in which the student can put the data, in order to make 'sense of the data' (ibid., 143). Now the professor states that frames are not needed either: 'If something is simply an "instance of" some other state of affairs, go study this other state of affairs instead. A case study that needs a frame in addition, well, it is a case study that was badly chosen to begin with!' (ibid., 143) Why? For the professor a case is an event, it introduces a 'new actor'. Frames do not add anything and 'just describing' is more adequate and objective (ibid., 144). And, contrary to interpretative sociology, it is 'the object itself that adds multiplicity, or rather the thing, the "gathering"' (ibid., 144). In that way, the professor problematizes the role the analyst has vis-à-vis the object. In ANT, according to the professor, the objects add complexity and innovation, and the analyst has a limited role.

The conversation makes the student totally desperate when the professor suggests that, in stead of adding a frame in order to help the student to conclude the thesis, the student should just stop writing when having reached 50.000 words 'or whatever is the format here' (ibid., 148), after which the professor moves the conversation to what a text should be: 'a laboratory. It's a place for trials, experiments, and simulations' (ibid., 149). Here the ANT-professor tries to make the point that for ANT the method resides in the way of writing the texts (ibid., 148).

Depending on what happens in it, there is or there is not an actor and there is or there is not a network being traced. And that depends entirely on the precise ways in which it is written—and every single new topic requires a new way to be handled by a text. Most texts are just plain dead. Nothing happens in them. (ibid., 149)

It is therefore the treatment of the actors that matters: the analyst should be open to be surprised and updated by the actors.

It is on those various conversational moments that one can get the positive counterpart of the negative method proposed by the professor. In between the many pointers to what not to do, the professor argues that the result of the negative method is *making room*, and this room should be filled with the voices of the actors, as he states: ‘It is a theory, and a strong one I think, but about *how* to study things, or rather how *not* to study them – or rather, how to let the actors have room to express themselves’ (ibid., 142). In the rest of the book Latour spends much more time on the positive agenda of ANT. ‘If I had to provide a checklist for what is a good ANT account – this will be an important indicator of quality – are the concepts of the actors allowed to be *stronger* than that of the analysts, or is it the analyst who is doing all the talking?’ (ibid., 30) Listening to the actors therefore means that one recognises that actors also propose ‘their own theories of action’ (ibid., 57). And it means that things that one would not consider to be actors could actually be acting as well, such as material objects (ibid., 63). These material agencies should be included, instead of a priori excluded from collective existence, which is what according to Latour happened in the history of social explanation (ibid., 69).

In order to explain what analysts *can* say – since they have to write texts in the end! – Latour states that ‘analysts are allowed to possess only some *infra-language* whose role is simply to help them become attentive to the actors’ own fully developed metalanguage, a reflexive account of what they are saying’ (ibid., 49). *Infra-language* is a: ‘strictly meaningless concept except for allowing displacement from one frame of reference to the next’ (ibid., 30). In sum, the analyst should import less judgement, the objects of study should be given room for expression, and *infra-language* is about the maximum amount of freedom that the analyst is permitted.

2.2.2 An account in translation

Law (1997) provides a different kind answer-*via*-detour. In this piece he expresses his uncomfortable feelings when asked to ‘speak for actor network theory’ (1997, n.p.). His point is that providing an account of ANT is inherently problematic because the theory itself ‘talks of

representation in terms of translation' (ibid.). So self-reflexively, an account aiming to represent ANT is a translation too, and therefore can never be fully faithful: 'traduction is also trahision' (ibid.). Law rejects an explanation of ANT in terms of its rules, in stead he prefers to 'perform' ANT by telling a few case studies that are associated with ANT. In his translational account of ANT he displays how these studies differ from one another and how ANT therefore has become diffracted.

He begins with a case study by Akrich about a machine for compacting forest waste. It is a story about 'technology transfer' since the machine is moved from Sweden to Nicaragua. Several things happen along this trajectory: since the move implies the involvement of new actors, relations need to be renegotiated and the machine itself changes: it acquires new capabilities. According to Law, Akrich's story is a one that is 'exemplary' for ANT: 'She tells of networks. Of heterogeneous networks in which actors of all kinds, social, technical, and natural are made and play out their lives' (ibid.). It is a story of a changing material-semiotic network in translation, of enrolments and achievements. It is too much to sum up all the elements Law discusses; but his main point is that even though Akrich's study sounds really 'ANT-like' her story is still *different* from the ANT-classics: mainly because hers is not about 'centres of calculation' and 'drawing things together' (ibid.), on which ANT in the eighties put so much emphasis. However, instead of saying that this important element is 'missing' in her account and therefore judging the account as weak, he concludes otherwise. He concludes that ANT itself has been transformed: 'ANT is not necessarily about centres of calculation' (ibid.). According to Law, Akrich changed ANT.

Law, instead of discussing what an author does *with* ANT, he discusses what an author does *to* ANT. And this is how he treats the other case studies in his text that, for example, deal with all sorts of inconsistencies and differences. In emphasising incoherencies, their accounts diverge from the more 'managerialist' versions of ANT in the eighties in which inconsistencies were often narrated as being 'tackled as matters to be controlled' (ibid.). Law also notes that the role of writing in STS has been changing, in seeking for (narrative) ways to deal with incoherencies, by attending to small stories and patterns: 'For if we are no longer able to draw things together to tell great stories of networks, then what is there to tell?' (ibid.). He reiterates this point when discussing Mol's work about a 'series of stories' of hospital practices dealing with arteriosclerosis. Mol shows how arteriosclerosis is performed in different ways in different settings, which 'do not necessarily map on to another' (ibid.), and how doctors try to make links (ibid.). Also in Mol's work there are no coherent patterns to be traced, which means that the analyst acquires a special role: in the

narrative the analyst is also creating links. Therefore Law concludes that a (part of) ANT is in the business of finding these patterns, with ontological consequences ('ontological patchwork'):

We are in the business of making our objects of study. Of making realities. Of making the realities that we describe. Of trying to find good ways of interacting with our objects, ways that are sustainable, ways that make it possible to link with them. (ibid.)

In Law's account of ANT, ANT is perpetually shifting. ANT has always carried the notion that the analyst is somebody that gets to know his or her objects through a 'process of translation, of trying things out, of testing' (ibid.), and in this process of knowing 'patterns arise in a process of mutual definition of subject and object' (ibid.). Studies displaying decentring movements and incoherencies have changed questions about ontological work of the ANT-scholar itself, and therefore ANT 'has dissolved itself in other ways of seeing, of writing, and of doing' (ibid.).

2.2.3 A shifting repository

The last reluctant author is Mol (2010) who expresses her 'unease' and feelings of 'alienation' about having to explain ANT. Moreover, she is concerned with how academic texts are situated in particular settings, and therefore also with the 'situatedness' of her own text (in which she is asked to talk about ANT, in origin a French approach, in the English language, published in a German journal, written by her, a Dutch scholar) (2010, 254). She stresses the fact that she writes in the first person, in order to signal that next to things such as academic discipline and geography, the author is also 'one of the sites where the text is situated' (ibid., 254).

In the text she highlights various important terms for ANT, for example the notion of the 'actor', who is both acting *and* being enacted (hence action is always distributed) (ibid., 255), the notion of 'association', a term that (partly) captures relatedness (ibid., 259), and ANT's emphasis on modes of ordering. Ordering, according to her, is always 'open ended' and a 'precarious' achievement (ibid., 263-4). She spends quite a few words on how these terms have been 'tinkered' with over time in ANT (ibid., 259), since many terms have their own limitations, depending on the situations in which they are deployed. Furthermore, her text is full of warnings about what ANT cannot guarantee. It is not possible to 'use' ANT (ibid., 261), it does not offer a consistent perspective (ibid., 261), no explanatory framework, no causes (ibid., 261), no coherence (ibid., 253), no scheme, no grid (ibid., 257).

There is no unidirectional way by which ANT-studies are performed: 'The various studies that come out of ANT go in different directions. They do different things. They not only talk about different topics (...) but also do so in different ways' (Mol 2010, 261).

However, surrounding the many tensions, limitations and warnings, she does give pointers to what ANT can potentially do. Instead of searching for causes, the point is 'to make specific, surprising, so far unspoken events and situations visible, audible, sensible' (ibid., 255). Studies tend to show 'co-existence of different ways of handling problems, framing concerns, enacting reality' (Mol 2010, 264). Instead of adding explanations, ANT 'introduces variations, sets up contrasts, and, time and again, proposes shifts' (ibid., 256). Instead of a 'stronghold', the art is 'to adapt the theoretical repertoire to every new cases' (ibid., 256). Instead of a coherent framework, ANT is 'an adaptable, open repository. A list of terms. A set of sensitivities' (ibid., 253). Instead of a consistent method, it 'rather takes the form of a repertoire' (ibid., 261). As she explains: 'If you link up with it you learn sensitising terms, ways of asking questions and techniques for turning issues inside out or upside down' (ibid., 261).

This point of 'sensitising terms' is important since she wants to stress that ANT is about adapting and proposing new terms when this is required by the cases, since each case is a new 'lesson' (ibid., 257). For Mol, therefore, the tensions, limitations and temporariness of terms are not so problematic, they are in fact part of continuous theoretical renewal. In other work she also uses the term 'empirical philosophy' to refer explicitly to a type of theory that is tied to the locales of the research (2002, viii).

Just like Law, Mol does not speak of a correct *application of* ANT, but about *contributions to* ANT: 'In "linking up with ANT" the art is not to repeat and confirm, but to seek out cases that contrast with those that came earlier. A contribution to ANT gently shifts the theoretical repertoire' (ibid., 261). The result is a new interaction between researchers and the world: 'Their theoretical repertoires allow them to attune themselves to the world, to learn to be affected by it' (ibid., 261.) More often than not, studies relate to very different wider discussions (ibid., 262).

In sum, the strength of ANT according to Mol lies in its adaptability and sensitivity (ibid., 262). This speaks also from her vision on what a text should do. Both Latour and Law addressed the special role for the language and texts that ANT-scholars produce. This counts for Mol's story as well. From her perspective, the terms and texts have an active role:

The terms and texts that circulate in ANT are co-ordination devices. They move topics and concerns from one context to another. They translate and betray what they help to analyse. They sharpen the sensitivity of their readers, attuning them/us to what is going on and to what changes, here, there, elsewhere. In one way or another, they also intervene, not from a place of overview, but rather in a doctoring mode. They care, they tinker. They shift and add perspectives. (ibid., 265-266)

2.2.4 The role of the text

Note that in Mol's words about the role of texts ('co-ordination devices') there is a similar notion of language as in Latour: the language of the ANT-scholar can enable movement of topics and concerns between frames of reference. But she activates the role of this language even more, by following Law's argument that ANT-analysis contains always a translation and betrayal and that it has an interventionist dimension. Next she adds a kind of relationship that ANT-scholars could have in relation to the objects of study: a caring, doctoring mode. This is different from Latour's, and also slightly different from Law's. According to Latour's staged ANT-professor the text is a laboratory, a trial and the ANT-scholar should try to act like scientists (Latour 2005b, 149). What is presented is an experimental outlook in which the objects are allowed to express themselves, but simultaneously, the text is not just a reproduction; it is a trial. That means that in the end, it still depends on the witnesses (the references to other texts, supervisor, the reader, standards (ibid., 148), whether the text will hold. The trial, therefore, is a 'trial of strength' and hence this 'experiment' implies a whole range of power relations and effort. Law is less interested in the text as a trial, since he explicitly points to practices of decentring and asks what 'kind of writing' those practices require. In other words, he asks: How to meet one's object in a decentred world? He sees the emergence of texts that are ontologically playful, performative and patching. His text is part of a particular time period in which ANT-texts change in order to cope with (an increased awareness of) incoherencies. It is slightly therapeutic. What Mol adds is a more explicit dimension of care and 'doctoring'. She does not evoke a Foucauldian image of a doctor as being implied in a complex of power/knowledge, but still, the analyst is actively doctoring and thus productive: doing things, adding and shifting perspectives. Interestingly, Latour and Mol's figure of the ANT-scholar happens to mirror their respective main subjects of study: laboratory practices versus care giving and doctoring.

By summarising Latour, Law and Mol's reluctant texts I have tried to show the following things:

- (1) The reluctance to strictly define ANT as a clear template is due to ANT-scholars valuing a style of knowledge production that is open to innovation and change.
- (2) These three authors provide different arguments about what kind of method ANT is: ANT is a negative method (Latour); ANT's accounts are in translation depending on its contributors and changing conditions (Law); ANT operates through a flexible repository of sensitive terms (Mol).
- (3) The way these authors envision the role of the ANT-text displays different expectations in terms of what the text and its language does, and that again reveals different expectations in terms of the power relations between the author and his or her objects of study (and the readers).

In the next section, I explain my take on ANT, including a section on how their perspectives work through in my approach.

2.3 A variation on ANT

ANT follows a particular treatment of objects of study and perspective on the text. In this section, I first explicate my treatment of actors and the text, after which I discuss what I take from ANT conceptually, and to which bodies of literature this dissertation ties into. This includes a particular understanding of the notion of the device and theories of 'making things public'.

2.3.1 Text and actors

The way I have incorporated ANT in this dissertation has hardly to do with mapping actors or network-shapes, but I follow ANT-scholars' suggestions for adapting texts to actors. How does that work in this dissertation?

This dissertation started by discussing conceptual problems with respect to notions of surveillance and sousveillance and calls for revisions. This whole thesis can therefore be seen a conversation between concepts and cases. Therefore, the way I narrate the cases is not by starting immediately 'in the field' as a strictly defined ethnographic research might require one to do, but the cases are used to question our conceptual vocabularies.

Concepts shift. Each case study is used as a 'lesson' (Mol 2010, 257) to update the theoretical repertoire and propose new terms (262). I have tried to develop terms that are sensitive to the situations that I

encountered (Mol 2010, 261). This means that I have remained close to the ‘language of the actors’ (Latour 2005b) that I have studied. I have incorporated Latour’s suggestions about making space for (the theories of action of) my objects of study when trying to work on something like infra-language, but I have used its maximum space. I think this is possible since I work with concepts that address the particular movements or translations (Latour 2005b, 143) that are at stake. In doing that I try to ‘attune’ (Mol 2010, 261) myself, and others, to what is going on with interventions that make surveillance public. However, sensitivity of terms is also at play conceptually: as the main question of the thesis is about ‘making surveillance public’, the central notions in this dissertation are meant to evoke those aspects of making public, even though they change from case to case depending on its (material) setting.

I have tried to describe how the actors are engaged in various ways of ‘methods-making’. As Latour argues: ‘They, too, compare; they too, produce typologies; they, too, design standards; they, too, spread their machines as well as their organizations, their ideologies, their states of mind’ (Latour 2005b, 149-150). I have focused on how they engage in ‘modes of ordering’ (Mol 2010, 263), by looking at how people are ‘drawing things together’ (Law 1997, n.p.). In other words, I try to understand their ‘worknet’ or ‘action net’, and the movement and the effort that are involved (Latour 2005b, 132). Needless to mention (at this point of the thesis) is that I also use the word I, which Mol indicates as a reference to the author not forgetting the presence of the author (Mol 2010, 254).

Besides that ANT scholars give pointers for fine-tuning the researcher’s language, text and stance towards objects of study, ANT has also produced interesting concepts. In the next two sections I explain which ones are most relevant for my work.

2.3.2 Devices for Surveillance Studies

The most important notion I take away from ANT is the concept of the ‘device’. ANT has taken quite some inspiration from Foucault, and this makes ANT extra interesting for surveillance studies (which as I have shown, draws frequently from the work of Foucault). The influence of Foucault’s work on ANT is explicated by Latour when he explains that Foucault was brilliant in describing how ordering devices, for instance, methods of record keeping, inspection techniques, institutional architectures – in other words: panoptic techniques – enabled a transformation as big as the emergence of the human sciences: ‘The “panopticon” is another way of obtaining the “optical

consistency” necessary for power on a large scale’ (Latour 1990, 14). Other ANT scholars describe how ANT has taken up Foucault’s notion of the *dispositif*. The *dispositif* (or ‘apparatus’) refers to an arrangement of technologies and practices in the nineteenth century that reorganised (social) life. Foucault described how the instruments of the life sciences made human bodies and their behaviour comparable and how these ‘micro-political inscriptions’ into the body were combined with techniques of mass registration (of for example fertility rates and crime rates) (Foucault 1998, 139). This arrangement of things made the population observable and measurable and allowed for a new understanding of human life. Hence, in Foucault’s work, the *dispositif* is part of an epochal change: it enabled the conditions for the emergence of the human subject (Savage, Ruppert and Law 2010, 7). It designated a new era, the age of ‘biopolitics’.

One of the central concepts in Actor Network Theory, bearing a family relationship with the *dispositif*, is the notion of ‘social-technical agencement’ (2004, 121). The social-technical agencement is, according to Callon (*ibid.*, 122), a less static concept than the *dispositif*. As he explains:

The socio-technical agencement is one of the central concepts of the anthropology of the sciences and technologies and, more particularly, of actor-network theory (ANT): describing a combination of human beings and technical devices that are caught in a dynamic configuration (the agencement acts), it emphasizes the composite and distributed character of all action and the impossibility of definitively separating humans from technologies. (*ibid.*, 121)

The term, therefore, refers to very specific socio-technical configurations of things that can make certain forms of action possible. Whereas Foucault (in this particular reference) undertakes a genealogical approach and makes statements about societal transformations, ANT keeps close to case studies: ‘[it] tells empirical stories about processes of translation’ (Law 1992, 387).

This clarifies a bit better a difference in emphasis between the use of the term ‘assemblage’ as in ‘surveillant assemblage’ (§1.4) and the meaning of the socio-technical agencement in ANT. The socio-technical agencement is an operator of translations; it is a movement of reorganisation. So next to referring to the *distribution of action*, the notion refers to the *reorganisation of action*. Therefore, instead of a concept that explains things (as happens with ‘surveillant assemblage’ as a concept to describe surveillance), the agencement in ANT is the thing that gets established, it is the thing that needs to be explained.

Alternative terms for the socio-technical agencement are the apparatus and the device. Ruppert, Law, and Savage (2013) speak, in

the context of the digital, of digital devices as ‘apparatuses’. Callon and Muniesa (2005), working in the context of markets, describe social-technical agencements as market ‘devices’. What is important is that these apparatuses or devices emerge from very situated practices, and have formative capacities. So the device according to Callon and Muniesa emerges through arrangements that make things ‘calculable’ and is performative as well. Callon and Muniesa work on the question of what constitutes a ‘calculative space’. Examples of calculative spaces mentioned by them are the ‘invoice’, the ‘factory’, and the ‘grid’ – all spaces in which goods and/or products can be arranged and made calculable. They suggest that power resides in the rearrangement of the objects, in their ability to form coalitions: ‘Isolating objects from their context, grouping them in the same frame, establishing original relations between them, classifying them and summing them up are all costly activities that raise the question of calculative power’ (Callon and Muniesa 2005, 1232). The device according to Callon and Muniesa, as well as the socio-technical agencement in ANT in Callon’s reading, emerges as a collective act.

In this dissertation, I build upon these insights from ANT by using the term device and ‘device-centred perspectives’ (Marres 2012a, 62; see also Callon and Muniesa 2005; Marres 2011; Ruppert, Law and Savage 2013). The notion of the device is productive for the analysis of socio-material practices and is becoming more than a concept: it is also a way to demarcate specific approaches (Lury and Wakeford 2014; Marres 2012a; Marres and Lezaun 2011; Rogers 2013; Harvey, Reeves and Ruppert 2013; Savage 2013, Weltevrede 2016). Lury and Wakeford in their book *Inventive Methods: The Happening of the Social* discuss in more detail to what they consider to be ‘device approaches’. Referring to its origin in the Foucauldian *dispositif* (or apparatus), they state that ‘locating the notion of device in relation to that of apparatus helps make clear that a device or method is never able to operate in isolation, since it is always in relations that are themselves always being reconfigured’ (Lury and Wakeford 2014, 8). The concept ‘helps us to recognize that knowledge practices, technical artefacts and epistemic things (Rheinberger, 1997) are encoded in everyday and specialized technologies and assemblages in which agency is no longer the sole privilege of human actors’ (Lury and Wakeford 2014, 9). Devices are not necessarily stable things: Lury and Wakeford stress the fluidity and generative effect of devices: they are local but can be generative, and they can reorganise problems. In a similar vein, Marres states that devices are ‘multifarious’ and unstable and deployed differently in different settings (Marres 2012a).

I deploy such a device-centred repertoire for several reasons. First, it allows for an emphasis that I believe is fruitful for the

particular subject matter in this dissertation: my question, how is surveillance made public, is essentially a question about translation. This is especially so because surveillance consists of technical and often obscure processes. Device-centred approaches offer the analytical tools to study that process. Second, to recall my earlier statement about the existing sousveillance literature: sousveillance studies lack in providing the analytical tools to study the methods of sousveillance practitioners; device-centred approaches, however, promise to be more useful. They provide an entry point to study knowledge practices that expose surveillance. In other words: it provides a vocabulary to take up challenges as formulated by Haggerty and Ericson (2000) about surveillance theory in general and focus on those instances in which data is reassembled (§1.4). Third, the term device also translates well to my field of research. For people working on computational interventions ('hackers' for Coleman (2011); 'geeks' for Kelty (2008)) the term device is a clear term, also in its meaning of a translation device (since computational devices are used to perform translations all the time). By talking in terms of devices I stay much closer to the language of the actors than would happen when using, for instance, terms such as 'agencements' and 'sousveillance'.

Finally, especially important for one of my case studies is the work on devices that reflects upon how web devices can be repurposed as research apparatuses for social research, in other words, as 'digital methods' (Rogers 2013). When I use the term digital methods in the dissertation I refer to digital methods approaches developed at the Digital Methods Initiative at the University of Amsterdam.¹⁴ The Digital Methods Initiative (DMI) builds software to study the behaviour of web objects. Most important for my writing is the DMI approach of turning existing web devices into research devices. That means that the affordances web devices have (such as searching algorithms; linking behaviour of websites; tracker detection; plugins) are made accessible for an analysis into social and political issues (Rogers 2013; Weltevrede 2016). For example, instead of using a search engine for a single query, an engine can be used to conduct multiple queries, which allows in turn a comparison of datasets. In other words, the relative openness of these web devices allows researchers to repurpose (or, in a way, 'hack') them for analytic purposes. What is interesting about this strand of 'device research' is that it on the one hand has 'made visible' the methods *and* politics of devices (see for instance Rogers (2013, 84) on the politics of ranking) and subsequently reuses them as a form of knowledge production. Devices have epistemologies: by organising data, they organise the process of knowledge production (Marres and Weltevrede

14 "Digital Methods Initiative – About us" (2017).

2013). Devices are active: devices are heterogeneous practices while at the same time these devices can be directive. They can be inventive as they can point the researcher to new research trajectories (Lury and Wakeford 2014). In other words, there is an interesting dynamics to be addressed around web devices as object of research and as a method (Marres and Weltevrede 2013). These are all things I take into account when using the term device.

2.3.3 Material publics and surveillance made public

ANT has also lead to a body of work about devices that ‘make things public’, which is a second foundational way of thinking that informs my approach. In what follows, I explain the (philosophical) background of this work, recent reformulations of the notion of the ‘material public’, and how I take it up in my work. One of the key references to this body of literature is an exhibition and edited volume curated by Bruno Latour and Peter Weibel (2005) on the theme of making things public. The philosophical background of the exhibition is an alternative imagining of political and public spaces. According to Latour, political theory has neglected the political agency of objects and material things, while, according to him, ‘objects (...) bind all of us in ways that map out a public space profoundly different from what is usually recognised under the label of “the political”’ (Latour 2005a, 15). As he argues, political theory has not valued enough ‘the *res* that creates a *public* around it’ (ibid., 16). In his proposal, questions of representation in political assemblies (the domain of political theory) should be bridged with questions of representation of objects of concern to particular publics (the domain of science and technology) (ibid.).

With this position comes a whole new conceptual vocabulary around the politics of things, called ‘Dingpolitik’. The term ‘Ding’ stands for the thing that brings people together because it divides them (ibid., 23). The word Thing resonates with how historically in nordic and saxon languages people speak about political gatherings (ibid.,). When Latour speaks of ‘things’ they should not be understood as simple objects, but as complex ‘matters of concerns’.¹⁵ Another important term is ‘issue’ (ibid., 16), and the ‘issue-public’ (Marres 2005) referring to the gathering or assemblage that is organised when something becomes a matter of concern. This also brings along particular focus points: ‘What we need is to be able to bring inside the assemblies *divisive* issues with

15 It also gives an ironic twist to the Heideggerian understanding of Ding. Even though Heidegger understood Ding as gathering, this would be not at all in reference to objects of science and technology (Latour 2005a, 23).

their long retinue of complicated *proof-giving* equipment' (Latour 2005a, 21-22), to which he adds that the products of this equipment are never simple or unmediated. From this position particular questions follow: 'What should be the shapes adjusted to a *Dingpolitik*?' (ibid., 31) Hence the subtitle to the catalogue of the exhibition: *Atmospheres of Democracy*.

Part of the philosophical background that informs this way of thinking comes from American pragmatism. The pragmatist philosophers Dewey and Lippmann debated the state of the public in the beginning of the 20th century when the impact of – then 'new' – communication technologies such as broadcast radio were starting to be felt. They have theorised the public in a way that considers the indirect effects of changing technological societies (Marres 2005; Marres 2012a). As Marres puts it, these philosophers refer to the public as 'an inherently problematic mode of material entanglement' (Marres 2012a, 51). Publics are, as it were, drawn into problematic configurations: 'When actors experience harmful indirect effects, they are transformed from ordinary actors, caught up in habitual ways of doing, into participants – or at the very least, "implicants" – in problematic assemblages' (ibid., 48). These assemblages indicate a moment of 'ontological trouble' (ibid., 46). That is because, as she explains, there are no clear-cut problem definitions and solutions: actors are affected by (material and indirect) consequences of social-technical dynamics while the existing institutions and vocabularies to address them adequately are lacking, and the actors that are implicated in the affair are not necessarily the ones equipped to solve the issue (ibid., 51). It is through these assemblages that, Marres argues, issues are 'articulated' and problems explicated. (Hence they can be seen as 'issue publics'.)

These insights sketch a troubled and confused public, and one that is not easily demarcated or 'put into place' in a procedural conception of democracy. As Latour explains: 'Lippmann calls it a Phantom because it's disappointing for those who dream of unity and totality' (Latour 2005a, 38). The exhibition of 'Making Things Public' can therefore be seen (partly) as an aesthetic response to this image of the ghost-like public: 'In this exhibition, we try the impossible feat of giving flesh to the Phantom of the Public' (ibid., 28); by which Latour does not aim to represent a unified creature, but to make people sense the movements of this 'fragile and provisional concept' (ibid.).

Next to the exhibition, ANT has also theoretically built on Dewey and Lippman's work. Within political philosophical thinking, notions of the 'community of the affected' are central to materialist approaches to the public (Marres 2012a, 33) and it is the above-mentioned pragmatist reading of the community of the affected that works well with ANT. That is because ANT's associational understanding of things allows one to trace the effects of things, the articulation of problems and

the coming into being of publics (Marres 2005, 104-105). It facilitates an empirical understanding of being 'affected' (ibid., 128). In other words, ANT can help in formulating a socio-material understanding of affected communities. This is also demonstrated in a more visually oriented manner: the notion of issue publics in relation to digital technologies has been most explicitly studied through mapping issue networks online, by which researchers use digital technologies to trace actor configurations, issue formats, and issue formation around specific issues (Birbak 2013; Marres 2005; Marres and Rogers 2008; Langlois et al. 2009; Rogers 2005).

Social-technical devices have a special role in the formation of publics since they mediate and participate in issue articulations (Marres 2012a, 57; 62). Post-Dingpolitik, Marres and Lezaun argue that devices are interesting for understanding what they term 'material publics' because devices help understanding 'what publics are made of':

the pragmatists argued forcefully that in a technological society publics are organized through specific socio-material entanglements. In making this argument, the pragmatists opened up a distinctively empiricist approach to the multiple and contingent physiqués of the public, an approach that is sensitive to the material entities and relations that are created as part of the emergence and organization of a particular public (Marres and Lezaun 2011, 499)

Elaborating further on this idea, Marres (2012a) uses the term 'material participation' to better formulate a device-centred approach for understanding publics. She especially wants to understand how publics come into being through everyday devices. These devices participate in the constitution of publics because they (co-)organise the way problems are understood and practically dealt with. Devices do more than providing a (sub-political) background. In other words, she wants material participation to be recognised as a 'public form in its own right' (ibid., 9). Hence, we can conclude, material participation slightly shifts in emphasis from mapping affected communities or issue networks, to showing the (political) role of very specific devices. Devices do not only 'format issues' and 'connect actors'; they can become 'issue-actors' themselves.

Studies of material participation for instance look at the 'formatting of participation', by documenting 'the particular methods, technologies and genres of publicity deployed to frame participation in material terms', and asking: 'How do things *acquire* the capacities to organize publics by material means?' (ibid., 9) This is done though an ANT-inspired approach that follows the actors: 'In a radically empiricist spirit, I propose that we should begin by following the circulation of particular objects, technologies and formats of participation among

different settings and practices, moving freely along with them to where they may lead us (Latour 1988) in order to examine what capacities for involvement they have and may enable' (Marres 2012a, XV.)

The repertoire of material publics is theoretically in line with *Making Things Public*, however, it also results in different questions than formulated by the Latourian program of Dingpolitik. Marres makes the argument that (a large part of) ANT has remained tied to institutional modes of thinking about political space and public debate (in which 'the parliament' and/or 'the forum' remain steering notions) (ibid., 152; see also Marres 2005, 105). Instead of inquiring into the 'shapes adjusted to a *Dingpolitik*' (Latour 21) she wants to focus on 'the space-making capacities of devices' (Marres 2012a, 154). She in a way corrects ANT or reminds it of its own program of empirically questioning grand notions and narratives: 'To direct attention to the role of devices in the organization of participation is to highlight something which the metaphor of "public debate" is precisely designed to enable us to forget: the mediating role of technology in the organisation of public space' (ibid., 154).

The way I build on those ideas is as follows: 'Making surveillance public' can be seen as a socio-material act by which people are drawn into the 'issue' of surveillance. My focus is on things such as: practices of making surveillance visible, detecting components of surveillant assemblages and 'proof-giving equipment' (Latour 11-12) that targets surveillance. In the ANT spirit I follow 'the circulation of particular objects, technologies and formats of participation among different settings and practices' (Marres 2012a, XV) by looking at the ways by which surveillance data are treated, curated and exposed. In line with Marres' suggestions about material participation I argue that material action can be treated as a public form in its own right. Throughout the dissertation I try to find appropriate terms to address these 'genres of publicity' (9). In other words, I pick concepts with a 'sensitivity' (Mol 2010, 261) for the materiality of publics.

I do this by incorporating work from, amongst others, Andrew Barry on the politics of demonstration and devices of public proof (Barry 1999; Callon 2004), Evelyn Ruppert on how digital devices are performative of 'data publics' (Ruppert 2015), and Harvey, Reeves and Ruppert (2013) on transparency devices. I combine these approaches with work from media studies when needed depending on the particularity of the cases. This is especially work that stresses certain material or medium specific dynamics, including work on media witnessing (Schuppli forthcoming; Weizman et al., 2010), digital methods approaches to web devices (Rogers 2013; Marres and Weltevrede 2013), theories around networked devices and viruses (Chun 2013; Parikka 2007), and work on the environments and

communities of media practices such as free software communities, hacker publics, and network cultures (Coleman 2011; Kelty 2008; Lovink and Rossiter 2011).

Even though Latour's Dingpolitik program is very much tied to developing political thought around democracy, institutional deficits, and stresses the binding forces of things (Latour 2005a, 15), in my focus on devices that make things public I emphasise other kind of questions around material action. For example, thinking about material publics in the context of a proof-giving device has lead me to a different variant of a material public, which is a 'forensic' public (see chapter three).¹⁶ Moreover, in the conclusion I discuss the notion of public matter in a way that I find appropriate to discuss the materiality of surveillance made public, and which speaks to how the publicity of material is often approached in critical internet cultures: not only as something that informs or organises a public for democratic ends, but also as working material for further exploration and for unexpected and tactical purposes.

2.4 Case studies

2.4.1 Problematizations as occasions for theoretical shifting

As explained in in the first chapter (§1.3), classifying surveillance can be regarded as an epistemological process. The decision I made was to use interventions in which data monitoring practices are turned into a problem, or an 'issue' (Marres 2005), as a guiding principle into understanding surveillance. As referred to in the above, social-technical devices mediate and participate in issue articulations (Marres 2012a, 57, 62). They give 'physiques' to the public (Marres and Lezaun 2011, 499).

16 In one of my case studies (in chapter three) I make use of the notion of 'forensics' as understood by the Forensic Architecture project (Weizman et al. 2010). The notion of forensics as the 'art of the forum' refers to technologies for public proof giving in the context of a problem or conflict. (See more in §3.3.) It includes material and spatial technologies outside of the official courts and forensic laboratories. This understanding of forensics is interesting as well because since the notion of the public (the 'forum') is already implied in the term forensics itself. It is also an interesting concept because it seems that what *Making Things Public* does to the institutional parliament and the public sphere, Forensic Architecture does to the court. Whereas Latour's Dingpolitik entails a displacement of deliberative politics, Weizman's forensics entails a displacement of evidentiary practices.

With respect to the issue of surveillance there is a wide array of actors and devices that problematize particular monitoring technologies. They do not only offer insights into (material) publics, but into the phenomenon of surveillance itself.

Accordingly, by providing ‘problematizations’, the case studies can serve as an entry point for research (Beaulieu, Scharnhorst, and Wouters 2007, 674). As mentioned in the introduction of the thesis, scholars have argued that surveillance is difficult to ‘tackle’ due to its ubiquity and normalisation (Ball, Haggerty and Lyon 2012, 9). Exactly therefore, it is interesting to focus on these projects that try to counter surveillance (partly on the technical level) and thereby confront its normalisation. The interventions discussed below all make both empirical and conceptual contributions to how we understand surveillance. Some of these projects have extended data repositories available. Others offer a rich vocabulary to understand the processes that are going on at the back end of computational systems. In that way, sousveillance projects become an entry point for doing surveillance studies.

Even though surveillance scholars have repeatedly claimed that the general public remains mostly mute in light of revelations concerning surveillance (Ball, Haggerty and Lyon 2012, 4), I follow Marres in trying to value the problem of the public in a different manner:

Rather than attributing problems of participation to features of publics themselves (their illiteracy, indifference, short-sightedness), it allows us to investigate the distribution of these problems among a whole range of actors and agency with a stake in participatory arrangements: institutions, infrastructures, settings, technologies, and so on. Such an approach “empiricises” problems of material participation, as it suggests that their distribution among actors and agencies is a practical accomplishment that may vary from case to case. (Marres 2012a, 28)

Projects that tackle the technologies and the networks that enable the monitoring of digital communication offer a chance to study contemporary surveillance empirically, and, simultaneously, a chance for understanding how surveillance ‘as concern’ relates to particular repertoires, contexts or publics. By articulating these technologies as problematic, the assemblages that I study become part of the problem field of surveillance just as surveillance scholars do by introducing concepts. Hence, the ‘cases’ analysed in this dissertation are all instances of making surveillance public that also offer an epistemological contribution.¹⁷ In other words, they allow for a theoretical shifting and

¹⁷ Vennesson argues how case study research can offer epistemological ‘ruptures’ and break with ‘commonsensical representations’ (2008,

therefore they merit investigation.

2.4.2 Finding cases: devices and leaks

My primary interest is in projects that *demonstrate* or *show* surveillance. The projects that I analyse aim to make people aware of surveillance by showing its state of affairs. They are instances of ‘extra-institutionary’ critical watching (Dijstelbloem 2015, 6) in the sense that they take this task upon themselves outside of existing (methodological or institutional) frameworks. In order to find cases I had to get to know the field better, technically and socially, and I found a plethora of projects, technologies and a wide range of diverse methods and approaches. In what follows, I introduce a few of those projects. This is not an exhaustive list, but meant to illustrate a wide diversity of approaches. After providing an overview of this diversity, I will clarify what kind of projects I have selected to analyse in depth and for what reasons.

There exists a wide range of projects that expose surveillance practices. This includes digital devices such as apps and plugins for visualising (in real time) how one’s online behaviour is being monitored by tracking companies (e.g. Disconnect, Ghostery) and there are educational maps that help people understand the tracking behaviour of their particular device (e.g. Meet My Shadow). There are even funny tools that give an alarm when encountering tracking technologies from Google on websites (e.g. The Google Alarm). For the more sophisticated state surveillance and interception technologies people have developed similarly sophisticated monitoring projects (so-called ‘observatories’) that try to measure network interferences (e.g. Open Observatory of Network Interference) or that aim to map these data visually (e.g. Chokepoint Project). Some websites archive a broad spectrum of data about surveillance, intelligence and related issues (e.g. Cryptome). Well-known is the platform WikiLeaks that has, amongst other things, published leaked information about surveillance, but there are also WikiLeaks inspired spin-off sites and collectives in support of Whistleblowers (e.g. GlobalLeaks). Some of these projects also engage in (crowd-sourced) analysis of documentation that come out of leaks and hacks (e.g. WikiLeaks Press, Project PM, and Share Lab). Some projects conduct ‘Open Source Intelligence’ and scrape online data to build and publish databases about the surveillance industry (e.g. Transparency Toolkit’s IC Watch). Some combine the monitoring

230). His work is situated more in sociology than in ANT. However, in a similar way I consider my cases as potentially challenging existing categorisations.

of surveillance with operations in countries that are cut off from the internet to help people establish communications links (e.g. Telecomix).

There are also surveillance awareness projects that help people to *prevent* data monitoring, such as encryption tools for e-mail (e.g. PGP: Pretty Good Privacy, chat (OTR: Off The Record), and for anonymous browsing (TOR onion routing).¹⁸ Some apps and plugins block advertisements (e.g. Adblock) or obfuscate one's browsing behaviour (e.g. AdNauseum) or data shared by apps (e.g. Privacy Guard). The tools in this list are available for download online and in app stores. They are being made accessible through trainings, or via so-called Cryptoparties and Privacy Cafes, meet-ups where people gather for teaching and learning the skills of encryption. These projects are only a few examples. One has only to visit websites such as securityinabox.org, prism-break.org or <https://toolbox.bof.nl> (in the Dutch context), or go to a 'hackers congress' (such as the Chaos Communication Congress organised by the Chaos Computer Club), to encounter an overwhelming amount of tools and projects that aim to warn people and help protect them from, or interfere with, the monitoring of (personal) data.

In this dissertation I focus on projects of the first strand, ones that make surveillance visible ('demonstrations' of surveillance). This does not mean that they do not mobilise user oriented, privacy and security oriented tools that prevent data monitoring at all (they might incorporate them in their project), but this study does not focus on tools that offer only protection. Even within the strand of projects that demonstrate surveillance, there are a variety of approaches. I have categorised the projects discussed in this dissertation in two types: *detection devices* and *leaks*. The *detection devices* make people aware of how their data is being tracked by providing (visual) interpellations to the user. They subsequently also offer possible counter measures. The other interventions are *leaks* through which information about surveillance is made public. These leaks have resulted in online repositories of surveillance technologies.

Another way of framing the distinction that might clarify the difference a bit more is by looking at the methods of these interventions: *software based* versus *file based* interventions. The first category is *software based*: detection devices use an application to make aspects of surveillance visible, in fact, pieces of code. The second

18 Tor is a free software and open network also known as 'onion routing' used for anonymous browsing. Data packets travel through virtual tunnels in such a way that a receiver only knows one node it is communicating with, but not the one before or after the neighbouring one. Therefore, the trajectory of communication between sender and receiver is obfuscated. Communication at the end nodes is not encrypted (Tor

category is *file based*: leaks result in the publishing of repositories of files that allows for knowledge production around surveillance processes. I have made this distinction between detection devices and leaks to show that some projects emphasise the technological capabilities of detecting surveillance, and others stage the release of files and construct public repositories with information about surveillance. This is interesting because they bring about two different moments of translation: material detection (and the conditions thereof) and analytical reflection (and the ordering thereof).

The first detection device presented in the thesis is 'InformaCam', a mobile camera application that helps people detect and prevent the tracking of image metadata. Image metadata is contextual information that becomes embedded in images. The other device is 'Ghostery', a browser plugin that can visualise and block online trackers. Trackers are pieces of code that collect information about browsing behaviour. These devices are the kind of projects that can be seen as a response to questions such as: 'How can I know which data are being tracked and what can I do about it?' They respond by making a translation from (for many users invisible) code to more accessible language. In the category of leaks comes first WikiLeaks, which has published documents about state surveillance and the surveillance industry. The other is the event of the NSA disclosures by Edward Snowden. Both have led to repositories of 'files' by which a range of technologies are made controversial because of their surveillance function.

The selection of case studies covers a variety of environments. The case studies that address detection devices cover two main environments where tracking is concerned: InformaCam deals with mobile phone data and is developed in the mobile app environment, and Ghostery operates in the browsing environment. By working in these different environments, they also intervene with two different areas of concern. Mobile phones are seen as promising tools for protest movements, in terms of the organisation of protests 'on the fly' and the documentation of events; yet, as traceable devices they can be dangerous for participants in these events (WITNESS 2014). Several reporting about 'post-revolutionary' times have addressed the tension around the promises and perils of social media and mobile phone use.¹⁹ Online tracking, similarly, has been receiving increased public attention. Online tracking seems to have become the norm, but there are moments of public scrutiny. Especially around the introduction of

2015).

19 See for instance BBC reporting on the role of smart phones in the Gezi Park protests in Turkey (Hutchinson 2013), and critical discussions on how social networking produces 'intelligence about activist networks' for authoritarian regimes (Morozov 2009).

new EU e-Privacy Directive, tracking became an issue. At least in the Netherlands it was reported that many websites did not meet the new rules that limited the collection of personal data (Schoemaker 2012) and as it turned out, also the government did not (De Haes 2012).

The case studies that address leaks are complementary to one another regarding the way data has been leaked. WikiLeaks has tried out various approaches of leaking (Heemsbergen 2014), but it is known for its mass data release to the public. On the other hand, the Snowden revelations went through a channel of professional journalists (Chokshi 2016). This resulted in different perceptions of and questions about these projects (around responsible data disclosures and the gatekeeping role of professional journalism) (Dunn and Miller 2016). It also resulted in different kinds of repositories.

What is more, the case studies I selected are generally well known. Many people are familiar with WikiLeaks and the Snowden revelations. Both WikiLeaks and the NSA disclosures have had an enormous impact on the public domain and in academic circles (Bauman et al. 2014; Greenwald 2014; Landau 2013; Poitras et al. 2013). The detection devices are also recognised actors. Ghostery has been widely adopted (having 17 million users in 2013 (Evidon)) and the developing team of InformaCam has been partnering with organisations with a wide reach (the International Bar Association). Choosing well-established projects means excluding insights enabled by smaller or failed projects. Although such projects are important too, the case studies I selected allowed me to access a rich amount of research material and documentation. It is an 'information oriented' choice (Flyvbjerg 2006, 230) in a dual sense: the cases provide extensive and well-documented knowledge about surveillance and secondly, they stage a conceptual conversation about their own activity. As I will argue in more detail below, the projects I selected as case studies situate themselves as part of a revisiting and reinvention of notions of surveillance and sousveillance.

As I discussed in chapter one, there is a call within Surveillance Studies for new conceptual vocabularies in the age of information networks. These cases make it possible to *redo theory*. The projects can be seen as conceptual innovations of notions of surveillance and sousveillance. I will discuss this in more detail in the chapters that follow, but let me indicate shortly what I mean by this. InformaCam is a typical 'sousveillance' tool: through tracking of the self and others, the project uses surveillance methods from the bottom up. Moreover, it presented itself (on its website) as a contemporary update of the Rodney King case, one of the key examples in Mann's sousveillance theory. The project was introduced to me by one of the project developers as a form of 'surveillance for the good', which is one of the reasons I

delved into it. Besides using particular methods of tackling surveillance, the developers were very reflective about their interference with new media technologies. This allowed me to use the case for a theoretical conversation about *sousveillance* and how this related to their particular intervention (in the area of forensics). Analogously, WikiLeaks has on several occasions made claims that are variations of a *sousveillance*-like vocabulary, which made it an interesting case. And also here, when reflecting upon WikiLeaks, pushback from tech activists made me aware of the limitations of certain concepts. Initially, I was interested in concepts of ‘publics’ that could capture the work involved with leaked data, especially the ‘data public’, and it was a conversation with people at the Interference workshop (Interference Conference 2014) about WikiLeaks that convinced me to shift emphasis to radical expertise. Ghostery was interesting to me initially because it makes trackers visible, and it turned out of good use for a collaborative digital methods project in which we aimed to make the cloud visible.²⁰ But after looking into it more closely it was clear to me that Ghostery was even more interesting because it is a hybrid: it is a company that depends on a collective endeavour (of a lot of users tracking trackers). It is also a company that has privacy as a business model. This makes it a rich case for looking at issue definitions around surveillance. The NSA disclosures were such an immense event that I decided that not including them was not an option. This event presented a new surveillance reality, even for people that were very knowledgeable about surveillance. Before 2013, the surveillance practices disclosed in the files were not part of the regular ‘rational’ imagination of digital rights activism or counter-surveillance activism. After the disclosures, science fiction writer Charlie Stross admitted he had to throw away the third part of his trilogy about surveillance: the facts exceeded his imagination (VPRO 2014). Also surveillance theory was confronted with new material (Bauman et al. 2014). All those things together made it a good case for discussing how this material informs our conceptual repertoire about surveillance. In short, in all four instances, the actors or the material involved offered concepts or theoretical moves which made them relevant to my research question.

It is important to note that these projects remain in flux. This means for instance that, at the time of writing the InformaCam project has been renamed and made available as the open source app CameraV. The code of the project has also developed into another tool, the “eyeWitness app” (Bowcott 2015), which is the ‘forked’ (and ‘closed-sourced’) version published by InformaCam’s (former

20 Digital Methods Winter School 2012, ‘Interfaces for the Cloud’. Project page: [“Tracking the Trackers”](#).

funding) partner, The International Bar Association.²¹ Ghostery has been bought by another company Cliqz, which will affect its method and its entrepreneurial surrounding that I discuss in the thesis. WikiLeaks has been transforming itself from its beginning, and it still is. After the Snowden disclosures, several 'post-Snowden' studies have emerged. This instability is part and parcel of the digital research environment. Often the research objects and subjects move faster than the researcher herself (Rogers 2013, 24). The analysis of these projects in their temporary form provides nonetheless important material and conceptual insight into the rapidly changing state of affairs concerning surveillance.

2.4.3 Data collection: following actors, data and the dynamics of network cultures

I made use of STS to bring into view objects, devices and methods that play an important role when surveillance is made public. In this section I discuss the challenges I was faced with regards to determining what are relevant sources, relating to the research field, and subsequently the kind of data I use for each case specifically. The original concern of STS has been scientific knowledge. The knowledge practices I bring into discussion are usually not demarcated as scientific knowledge. Even though many people that tackle surveillance are researchers, they do not necessarily take part in the traditional scientific research community. Transferring STS to other societal realms has been part of STS for a long time (Barry 2013; Jasanoff 1998b; Latour 2010; Lynch 1998). However, as Beaulieu, Scharnhorst, and Wouters (2007) have argued, many of the 'groundwork studies' in STS that provide guidance on how to do case studies are tied to the specific locales and institutions of the sciences. Whenever one moves to another area, one needs to reconsider anew what kinds of sources would constitute a trace of action or 'sociality' (681). This means, that whereas science often dictates what counts as a scientific source or infrastructure, such as a scientific journal or a laboratory, what constitutes the infrastructures, and thus some of the crucial sources, for different kinds of knowledge practices might be less clear. Although Beaulieu, Scharnhorst, and Wouters made this statement about a decade ago (and with respect to e-science) and many scholars have taken STS approaches outside of the scientific arena (Marres 2005, Rogers 2004), I think that there is still validity in their claim with respect to the practices that are discussed in this thesis. This

21 Forking means that people can copy and edit a code repository and start another project (branch) with a family resemblance to the original project. Closed source means that the code is proprietary.

is especially so because the environment with which I am concerned is relatively young and still emerging. As was also noted by media theorists: the protocols of network cultures are in becoming but not yet determined (Lovink and Rossiter 2011).

As I mentioned in the first chapter (§1.1.2), infrastructures of critical network cultures include hacklabs, hacker conferences, hackathons, mailing lists, IRC channels and platforms such as GitHub. Many of these channels are open in principle, but the vocabulary requires participants to have acquired some expertise. For somebody interested in knowledge production, the challenge becomes to find cases in which one can locate practices of making, storing and circulating knowledge in a field that is dynamic and expertocratic. As a researcher, I have an active role in this. Therefore, the field that I refer to is also partly the result of an attempt to ‘craft’ a field site for research (Hine 2007, 657). That means that my objects of study do not pop up out of the blue, they are also defined by being turned into a case. As Venesson puts it: ‘The case is the product of a preliminary, and then of an ongoing, effort to define the object of study’ (Venesson 2008, 230.)

In what follows I walk the reader through what my sources were and how I got into dialogue with the sources per chapter. Since in all cases I was interested in what was communicated publicly, an important source has been public information in the ‘issue maker’s’ repositories and archives. These are the databases and archives that the projects have put online. I have also interviewed developers or informants with knowledge about the projects. I also make clear what kind of things I ‘traced’ in the ANT-sense of the word, that is, which connections I have followed and which translations I have highlighted in the analysis.

Chapter three deals with a tool ‘in the making’. Therefore I make use of demos and the online developers repository, which is the project’s public database in which developers store and monitor the developing process. The developers’ repository is useful for understanding the diversity of data inputs (represented as working issues) and mock-ups show how developers project future capabilities into the device (see figures in chapter three). With one developer and one project-coordinator I did an in-depth semi-structured interview and I also read some of their academic writings. I corresponded with a third project developer. I therefore rely on their explanation of their method. My overall focus is on how they deal with data traces (in which ‘traces’, as will be made clear in the chapter, should rather be seen as constructions and not something that is left behind).

Chapter four deals with leaked data and is primarily based on WikiLeaks’ website and its repositories (which is presented by them as a public archive or library) and on publications by spokespersons of WikiLeaks about how to read the data. I attended a public session of

WikiLeaks Press at the Chaos Computer Club Congress (CCC 2013) (an organisation that was not tied to WikiLeaks, but dedicated to the analysis of data published from WikiLeaks). I have interviewed one informant involved with the early stages of WikiLeaks and one from outside of the organisation but working closely on online available WikiLeaks data. The main sources for the chapter, however, are the public databases and manual. I also use publications by organisations that make use of WikiLeaks material stemming from these leaks (See §4.4.2). In other words: what I trace is not what happens with the organisation, but the analytic instruments that are built 'around' the data after being leaked, what happens to the leaked data in the analytic phase (in some occasions), and what kind of publics are called for.

Chapter five deals with the online and popular tool Ghostery. For that chapter I use the online library belonging to that tool, which is a population of trackers, and the website of the company behind the tool. This is an issue maker's archive as well. In addition, the developer of the project has been available for technical questions, and has given an insightful public presentation about the tool and its workings (DMI Summer School 2013), after which there was the occasion for a personal encounter. I use software from the Digital Methods Initiative. The specific tool is the 'Tracker Tracker', which resulted from a collaborative DMI project I was involved in with several of my colleagues.²² By introducing this new tool, we, in fact, expanded the data collection possibilities that the Ghostery plugin originally had to offer (see more in §5.4.2). This intervention allowed us to make the data analysable in a systematic way when targeting a large set of websites. In the research project I applied the software to a dataset of Dutch governmental websites because governmental websites were hotly debated at that very moment (in 2012). What I trace in this chapter is how the device articulates web tracking and how it interacts with a particular the dataset in an environment that deals with techno-legal changes.

In Chapter six my dataset consists of a year of news publications about the NSA-files after the first release, available on the website of the Electronic Frontier Foundation (EFF), and demarcated thematically by 'leaked documents'. (Hence, these are articles dealing with the files primarily, and not with, for instance, Snowden as a person or other issues surrounding the affair.) I look at news articles and not only at the original files, partly because I my interest is in how they appear in the

22 The Tracker Tracker tool was developed in a collaborative project by Yngvil Beyer, Erik Borra, Carolin Gerlitz, Anne Helmond, Koen Martens, Simeona Petkova, JC Plantin, Bernhard Rieder, Esther Weltevrede, and Lonneke van der Velden during the Digital Methods Winter School 2012, 'Interfaces for the Cloud'. Project page: "[Track the Trackers](#)" (2012).

public and partly because the explanations in the articles are useful to understanding the technologies. (Since the NSA-documents include also presentations and brochures without much context.) Considering the lack of a public archive of the files at the time of the study (“Snowden Files For All?”), I consider EFF’s list as a good selection because it is the biggest American digital rights organisation, dedicated to making surveillance public. Their archive can therefore be considered an ‘issue maker’s archive’. In the realm of digital methods, it can be considered to be an ‘expert authored list’ (Rogers 2013, 48) coming from issue-experts, versus, for instance, algorithmically determined lists. There are more reasons for using such an issue-expert list and not other (more mainstream) databases. LexisNexis is partly closed for non-paying users. Google News uses opaque algorithms. Considering each having their own mechanisms of closure, flowing the issue-experts that archive this this data in the public is most in line with the approach in the dissertation. Surely later built archives, such as The “Snowden Surveillance Archive”,²³ might offer better, richer, or maybe different insights, however, when I finished the study in early July 2014, the EFF’s database was the most convincing in the context of the analysis. Taking an archive composed by an organisation such as the EFF which has as its main goal informing and empowering the public with respect to the issue of surveillance, fitted the general thought behind the dissertation. I limited the dataset to one year for pragmatic reasons, firstly to keep the data manageable, and secondly to be able to contribute to scholarly debate about this issue when the debate was ongoing at that moment. I used the articles to make a collection of methods by which the NSA captures data.

In sum, for the case studies public online databases are crucial. They are different in style, but at the same time they can all be considered to be the *output of issue makers*: a developers’ archive, a tool’s database, a set of leaks, and a selected news archive. Next, people’s narratives say more about central objects, devices and methods. In addition to my engagement with the public material and personal encounters with some of the developers, I did background research into the technical material that was at stake. In order to understand better the technical specificities I had conversations with software developers, security or forensic specialists. I made sure I discussed each project I was investigating with at least one specialist that did not take part in the project itself, which included somebody working at a Dutch forensic organisation, a security consultant and independent security experts from hacker or digital rights communities.

23 The “Snowden Surveillance Archive” is developed by Andrew Clement and colleagues, supported by the University of Toronto and Ryerson University.

2.4.4 Positioning in the field

In order to acquaint myself with the practices of the field, I also participated in small events such as hackathons (Van der Velden 2013) and (security) workshops dedicated to surveillance and censorship (such as CTS IV) or social media resistance (Facebook Resistance Workshop). I attended hacker conferences such the yearly congress of the Chaos Computer Club in Germany (CCC 2013), a large hacker camp in the Netherlands (OHM2013), and many smaller events to get a better feel for the modes of thinking and doing within this particular scene of critical internet practices. The Summer Schools organised by the Digital Methods Initiative functioned as moments of encounter when drawing activist developers and researchers interested in privacy and surveillance or providing a platform for inviting Ghostery's developer. I co-organised also events myself through which I got to know many people that are working in this field. These were events that connect technology activists, academics and artists (Unlike Us 2012; Unlike Us 2013; "Occupy Technology" 2012). These moments were great occasions to be updated about the state of several initiatives, although data collection was not the aim of organising the events. Many researchers and activists that take part in these events are concerned about surveillance and have shared interests, and from that perspective I consider myself as an 'engaged researcher' (Milan 2010). There are potential ethical concerns around being present as a researcher in activist realms. In all the smaller semi-closed events I have made clear I was a researcher and I asked permission to cite when I was considering this for a publication.

On a smaller level I conducted a few podcast-style conversations with people about the way they construct knowledge and their attitude to technology, and how this translated in a particular situated form of (radical) expertise. These conversations were conducted 'on site' of one's intervention (that is, taking place on for instance a highly surveilled area versus within a hacker space). They did not relate to my four cases, but they did contribute to my understanding of diverse possible approaches to data, databases and knowledge infrastructures, and especially the importance of the different settings of surveillance activism since this determines the 'material at hand'.

On several occasions, I coupled my writings back, either through direct correspondence about my written text, in the case of InformaCam, or by presenting preliminary ideas at events that are attended by hackers and technology activists. In some occasions this helped me to adapt my discourse. As noted earlier, the critical comments that I received about the notion of the 'data public' at the 'Interference conference' (2014) in Amsterdam were one of the reasons

to shift emphasis to ‘radical expertise’ to talk about the analysis of leaked data. The argument of some of the attendees was that the concept ‘data public’ was not capable of covering the risky, political, and sometimes-extreme work involved with the analysis of leaked data, and that therefore another vocabulary would be more suitable. I see these kind of events as necessary encounters and productive for my understanding of the field.

Before finalising this chapter and moving on to the case studies, I need to discuss a few tensions with ANT.

2.4.5 Tensions with ANT

Latour has disapproved of classic social science questions about cases such as: “What is this case a case of?” Latour’s professor states: ‘If something is simply an “instance of” some other state of affairs, go study this state of affairs instead. A case study that needs a frame in addition, well, it is a case study that was badly chosen to begin with!’ (Latour 2005b, 143.) The case studies in this dissertation are not exemplary for other things; however, I do believe that they might give one a more intimate sense of strategies and methods that are experimented with in network cultures. The developers that work on the projects I discuss in this thesis are also engaged with other projects that bear a family relation with the practices and tactics that are discussed in this dissertation. For example, one of the developers from the InformaCam app has worked on the ‘unveillance project’. The unveillance project repurposes data analysis software for activists ends, and carries an obvious reference to a repertoire of subverting surveillance. The developer working on the Tracker detector Ghostery has also developed ‘Chameleon’ which is a browser-fingerprinting detector that, instead of blocking, and which offers the option of ‘cloaking’ the browser. But also beyond these particular developers there exist so many interventions which play with techniques of detecting and blocking, techniques of (meta)data archiving, and techniques of ranking, as explicated at the beginning of §2.4.2 when I introduced a list of projects. There is also an explicit use of vocabularies playing with the idea of ‘making things public’ and (see for instance “Exposing the Invisible”). Moreover, there are recurring ideas about, practices around, and expressions of trust in making knowledge publically available, through the many free software projects or websites dedicated to keep leaks public. People use techniques such as public licenses to steer what happens with technological products when they are released in the public domain, and

try to safeguard certain public goals.²⁴

So there is an obvious tension between how ideas about network cultures feed into my analysis of the cases and a (narrow) version of how ANT should look like. ANT is usually thought of as ‘culturally flat’, as Sismondo states: ‘Cultural networks do not fit neatly into the network framework offered by ANT. Trust is an essential feature of scientific and technological work, in that researchers rely upon findings and arguments made by people they have never met, and about whom they may know almost nothing. But trust is often established through faith in a common culture’ (Sismondo 2004, 71). I have been sensitive to what is written and said about network cultures, and what I have encountered in the field, and incorporated this in my way of looking.

Second, in its core, this dissertation relies on data from people that aim to disclose things that are relatively hidden. As Barry (2013) has highlighted, there is a tension between ANT and matters of secrecy. ANT, at least the Callonian version, has been criticised to remain on the ‘surface’ (Barry 2013, 14). ANT does not want to be paranoid. As discussed earlier, also Latour’s staged professor argues that scholars should only talk about ‘visible traces’ (Latour 2005b, 150). This means that there is a blind spot for issues that are pushed or kept under the surface. Critics have for instance argued that ANT has a blind spot for issues of repression or political economy (Barry 2013, 15). Or at least: the reporting of repression is delegated to actors to open things up and/or leave traces of mobilisation. However, Barry argues that, when dealing with an area in which secrecy and discretion are common practice (like in his case: international relations), this issue is not that simple because ‘following the actors’ implies following them in bringing things to the surface: ‘the tendency of the actor-network theorist to remain on the ‘surface’ is continually challenged as informants themselves seek to go beyond what is immediately apparent’ (Barry 2013, 15). This means that in the end, the problem gets bounced back to the analyst who has to make decisions all the time about whether to trust actors in making things visible. For this dissertation it means that by explicitly seeking those acts of making surveillance public I give epistemological prevalence to certain actors in the playing field of the issue of surveillance (namely those that see it as a problem).

24 See also §1.1 on commitments to information freedom and §3.5.1 on Creative Commons-like licenses.

2.5 Approaching the cases: devices for making surveillance public

After having gone through ANT, main concepts for my work, case studies and tensions, my approach can be summarised as follows. I make use of the notion of the device as put forward in ANT, theories of making things public and material publics, and see problematizations of surveillance (or ‘ways of handling problems’ as Mol (2010, 264) puts it) as entree points for research. I follow Mol’s suggestions and consider ANT as adaptable repository that is open to theoretical shifting and that concepts should be sensitive to the practices at stake. This fits the concerns of theorists dealing with critical internet cultures and hacking who propagate concepts that resonate with the technicalities of the interventions (Kely 2008; Lovink and Rossiter 2012). The result is that the concepts I mobilise throughout the case studies are sensitive for the materiality of publics: they try to capture the particular movements that are at stake. These concepts express the entanglement of a material and public dimension and therefore the names of these concepts express this conjunction. In doing so, I bring surveillance studies into conversation with ANT-work being done on devices that make things public, which results in an alternative reading of contemporary sousveillance.

In this section I explain in more detail per case study how the study can be seen as an ANT-story (Law 1997) and how each case relates to concerns about material publics. All four case studies are small stories and variations on ANT (Law 1997). The first story (chapter three) about InformaCam is, in its most reduced version, a story about *making networks hold*, building on themes that could be considered as ‘classic’ ANT (Law 1997): it is about how the actors involved are ‘drawing things together’ (Latour 1986) and how the device is something that is established (Callon 2004). The story also builds upon original STS interests such as technologies ‘in the making’ (Latour 1987), the role of inscriptions (Latour 1986), and how socio-technical efforts are being made in order to make instruments working and publicly convincing (Shaping and Shaffer 1985). The chapter engages primarily with more contemporary studies that have translated those themes to the playing field of activism and public proof (Barry 2010) and the relationship between science, technology and law (Jasanoff 1998b; Schuppli 2013).

I have, then, taken up these themes for a particular example of digital sousveillance activism. The case study of InformaCam illustrates the investigatory dimension of sousveillance and shows how software developers make tracking technologies productive. In concrete terms I discuss how the mobile phone application InformaCam functions as an ‘operator of a translation’. It is a device that negotiates between different

public settings. Moreover, it has ‘space-making’ capacities (Marres 2012a) in the sense that it makes space for public proof to emerge. To capture this material public dynamics, I make use of the notion of ‘forensics’ (Weizman et al. 2010): InformaCam is a *forensic device*. It acts as a device in the classic ANT sense, plus it is an intervention in the modes of giving public proof.

The second story about WikiLeaks (in chapter four) is about *the performativity of devices and their capacity to enact publics*. Also this story is informed by long-standing STS themes about how technical arrangements matter for how things are witnessed and how transparency and visibility are established through specific auditors (Shaping and Shaffer 1985; Barry 2010). It engages primarily with contemporary work of ANT scholars that have taken up original concerns about the performativity of instruments and scientific practices (Law 1997) for the realm of digital data: the performativity of digital devices (Ruppert, Law and Savage 2013). The theoretical part builds especially on questions raised about the performative effects of open data and analytic instruments *provided by state-corporate actors* (Ruppert 2015).

I have then translated this concern to an example of the reversed: digital data *targeting state and corporate actors*, released by (WikiLeaks) activists, often considered as a form of ‘radical transparency’ (Birchall 2014). I make use of a particular concept that stresses the materiality of transparency. This is the concept of the ‘data public’, as put forward by Evelyn Ruppert (2015), and refers to modes of ‘witnessing data’ that are enacted through devices for data disclosure. The story is about how publics emerge in co-occurrence with data-analytic practices, and I discuss how leaked data, in the context of WikiLeaks, require us to shift emphasis to the kind of (radical) expertise that is involved.

The third story about Ghostery (in chapter five) is about *ANT inspired digital methods*. It is following up on concerns about the performativity of devices as well, but in the context of an empirical project, in which digital devices become research devices. Digital methods approaches take inspiration from ANT in the sense that ‘following the medium’ (as in ANT follows the actors) becomes an instrument for knowledge production about social life (Rogers 2013). The chapter aims to think through the performativity of devices and their capacity to enact the social (Callon and Muniesa 2005; Law and Urry 2004) by ‘opening up’ such a web/research device. I do so by integrating those insights into a digital methods project in which I use Ghostery to track online trackers. The digital methods tool that is used in the study is the ‘Tracker Tracker’, which resulted from a collaborative

DMI project.²⁵ By introducing this new device, we, in fact, expanded on the method that the Ghostery plugin originally had to offer (see more in §5.4.2). The case study reflects on what it means to work with this newly introduced actor.

In that story I make use of the notion of ‘material participation’ (Marres 2012a), referring to how devices engage in particular issue-articulations. The Ghostery plugin, in the first place, turns technologies of web tracking into an *issue* through a particular method and vocabulary. I discuss how that raises questions about using the tool as a *research device* when it can be considered to be an *issue device* as well. Or, in other words, it reflects on doing an embedded sousveillance research. Lastly, the story in chapter six initially does not seem to classify as an ANT-piece: it seems to be an outright betrayal, as Law (1997) puts it (see §2.2). It reads less ANT-like; it not about translations, and it is not about the conditions for public proof. However, it is an attempt to shift theory by trying to *develop an infra-language* (Latour 2005b, 49) in order to talk about the data collection practices enabled by surveillance devices. It is an attempt to reconsider surveillance theory by literally extrapolating the technical terms for surveillance devices (and how they are talked about by the NSA) into concepts that would better fit the current surveillance complex (which in fact, results in a rather artificial language). That study concludes by proposing new terms and engaging in a wider discussion (Mol 2010, 262). Hence, that last case study is set up a bit differently in terms of main focus: it is less about how surveillance is made public, but it is about the implications of the public presence of the surveillance devices being disclosed. But also here I make the interrelation of material devices and public explicit in the conceptualisation, through, for instance, incorporating Chun’s ideas about the implications of the leakiness of media for our conceptualisations of public space (Chun 2013). In concrete terms I look at a collection of devices, those made public through Snowden’s disclosure of the NSA files, and seek for family resemblances. By staying close to the terms that describe the surveillance tools and proposing concepts (leakage and insertion), I formulate new research questions and research sites for the study of surveillance. Therefore this study allows me to return to the aforementioned trajectory of revisiting concepts in surveillance studies (§1.4).

In the conclusion of each chapter, I discuss the most important insight from the case study, how it adds to or problematizes the notion of sousveillance, and what is its contribution to the dissertation in general. They all help me to redefine sousveillance as public matter. In the conclusion of the dissertation, chapter seven, I reflect upon how

25 “Track the Trackers” (2012). See also footnote 22.

the projects 'datafy surveillance' in their own particular way. Each case helps me to work out a separate theme that is relevant for the study of material publics for surveillance. I also further explain the notion of surveillance as 'public matter', situate it back in critical internet cultures, and discuss its usefulness in theorising material (surveillance) publics. Each case study is self-standing and can be read separately, yet the chapters build up in such a way that they show how I move from explaining the capacities of devices in the first two case studies to doing research into surveillance myself in the last two case studies. In fact, during the third case study, I become a *sousveillance* researcher.

In sum, I use device-centred approaches and concepts that attend to the materiality of publics as analytical tools on order to add a new dimension to the study of *sousveillance*. Inspired by ANT I have tried to compile a text showing a rich array of actors' methods (Latour 2005b, 150), thereby pointing to variety of ways of handling problems, and arguing that it is a field made up of devices which surveillance theory could better integrate in its (theoretical) vocabulary. The text is a compilation, therefore, a translation all the time (Law 1997; see also Barry 2013, 3), however, in doing this I took care that the conceptual vocabulary remains tied to practices in the field, which hopefully resonates with and translates to practitioners' experience. Inspired by what Annemarie Mol calls 'empirical philosophy' (2002, viii), I see the conceptual work as necessarily tied to or 'located' in the specific practices that are studied. I use 'variations' of concepts to express the materiality of publics, notions that express that technical practices and the enactment of the public are merged. I use these variations of conceptual vocabularies because I want to show how the different cases emphasise different things: (1) proof (2) data promises, (3) participation, and (4) types of interferences. Finally, keeping in mind Law's interrogation of ANT: What does this text do *to* ANT? This dissertation concludes by outlining insights about what an ANT-inspired work could mean for surveillance studies (and especially the study of *sousveillance*). Yet in stressing surveillance as 'public matter' it also broadens up ANT's use of the notion of the public. It interprets the public in a way that is common to critical internet practices in which 'turning something public' results in public material, open to be reworked and re-appropriated. This is what I hope to show through the following cases.